Version 3 Release 3

IBM Db2 Query Monitor for z/OS User's Guide

IBM
Note:
Before using this information and the product it supports, read the "Notices" topic at the end of this information.

2020-02-07 edition
This edition applies to Version 3 Release 3 of DB2® Query Monitor (product number 5655-V42) and to all subsequent releases and modifications until otherwise indicated in new editions.


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

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

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

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

IBM Db2 Query Monitor for z/OS (also referred to as Db2 Query Monitor) monitors SQL queries across your Db2 for z/OS environment. Db2 Query Monitor helps detect issues before they impact your business.

Topics:
- “What's new in Db2 Query Monitor” on page 1
- “Db2 Query Monitor terminology” on page 3
- “Db2 Query Monitor features and benefits” on page 6
- “Db2 Query Monitor components” on page 7
- “Db2 Query Monitor and data sharing” on page 16
- “Integration with other products” on page 22
- “Implementation examples” on page 24
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- “Online help” on page 26

What's new in Db2 Query Monitor

This section describes recent technical changes to Db2 Query Monitor.

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

Older changes and enhancements are described in “What's new in previous editions” on page 754.

New and changed functions

This topic summarizes the recent enhancements and changes in Db2 Query Monitor.

General documentation updates - 2020-02-07

<table>
<thead>
<tr>
<th>Description</th>
<th>Related APARs</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following new CQMPARMS parameters have been added to enable integration with IBM Db2 AI for z/OS:</td>
<td>PH17340</td>
</tr>
<tr>
<td>• ADETECT_ENABLED</td>
<td></td>
</tr>
<tr>
<td>• ADETECT_MEMORY_PERSIST</td>
<td></td>
</tr>
<tr>
<td>• ADETECT_MIN_COUNT_FOR_ANOMALY</td>
<td></td>
</tr>
<tr>
<td>• SUMMARY_VARIATION</td>
<td></td>
</tr>
<tr>
<td>• ADETECT_MEMORY_LIMIT</td>
<td></td>
</tr>
<tr>
<td>See “Query Monitor Subsystem parameters - CQMPARMS” on page 493.</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Related APARs</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------</td>
</tr>
<tr>
<td>New columns have been added to enable integration with IBM Db2 AI for z/OS. See:</td>
<td>PH17340</td>
</tr>
<tr>
<td>- “Activity summaries - columns (ISPF)” on page 201</td>
<td></td>
</tr>
<tr>
<td>- “Column descriptions - Summaries (CAE Browser Client)” on page 339</td>
<td></td>
</tr>
<tr>
<td>- “Exceptions - columns (ISPF)” on page 269</td>
<td></td>
</tr>
<tr>
<td>- “Column descriptions - Exceptions (CAE Browser Client)” on page 348</td>
<td></td>
</tr>
<tr>
<td>- “Monitoring profiles - columns and fields (ISPF)” on page 291</td>
<td></td>
</tr>
<tr>
<td>- “Viewing and creating monitoring profiles - columns and fields (CAE Browser Client)” on page 408</td>
<td></td>
</tr>
<tr>
<td>- “Performance History Database tables and column descriptions” on page 788</td>
<td></td>
</tr>
<tr>
<td>The following topics have been added or updated for IBM Db2 AI for z/OS integration:</td>
<td>PH17340</td>
</tr>
<tr>
<td>- “Anomaly detection and reporting” on page 21</td>
<td></td>
</tr>
<tr>
<td>- “Integration with other products” on page 22</td>
<td></td>
</tr>
<tr>
<td>Summaries and exceptions displays in the ISPF Client and the CAE Browser Client now include fields to report Db2 AI related statistics for Elapsed Time, CPU, and GETPAGES. Performance History Database tables have been updated to include the fields that report Db2 AI related statistics for Elapsed Time, CPU, and GETPAGES.</td>
<td>PH17340</td>
</tr>
<tr>
<td>Db2 Query Monitor uses assembler instructions from zSeries-6 (support for the zEC12 instructions). Mainframe requirements have been updated to reflect this.</td>
<td>PH17340</td>
</tr>
<tr>
<td>The description of the CORRID_TRANSLATION parameter has been updated. See “Query Monitor Subsystem parameters - CQMPARMS” on page 493.</td>
<td>PH12612, PH14891</td>
</tr>
<tr>
<td>The behavior of the offload to Db2 job (CQM@WDB2) has changed. See “Required DDNAMEs” on page 485.</td>
<td>PH12338</td>
</tr>
<tr>
<td>The description of CQM@WDB2 has been updated. See “Required DDNAMEs” on page 485.</td>
<td>PH09705</td>
</tr>
<tr>
<td>The descriptions of the DB2_SQLCODE_DUPLICATES, DB2_SQLCODE_DUPLICATES_TIME, THREAD_SQLCODE_DUPLICATES, and THREAD_SQLCODE_DUPLICATES_TIME parameters have been modified to reflect the calculation of SQLCODE occurrences. See “Query Monitor Subsystem parameters - CQMPARMS” on page 493.</td>
<td>PH03715</td>
</tr>
<tr>
<td>The definition of absolute threshold has been updated in the description of the CQM_REORG_METRICS and com.rocketsoft.nm.qm.reorg.metrics parameters. See “CAE Server parameters - CQMCAESV - USS” on page 542 and “CAE Server properties - cqm.server.properties - Windows” on page 549.</td>
<td>PH13425</td>
</tr>
<tr>
<td>The explicit specification of a CAE Server local host address is now supported. The new parameters for such a specification include CQM_CAE_LOCAL_ADDRESS (for the CAE Server on USS) and com.rocketsoft.kbm.explicitLocalHost (for the CAE Server on windows). See “CAE Server parameters - CQMCAESV - USS” on page 542 and “CAE Server properties - cqm.server.properties - Windows” on page 549.</td>
<td>PH02399</td>
</tr>
</tbody>
</table>
### Added the following CAE Agent parameters, which can be defined in CQMCPRMS:

- **AGENT_NAME**
- **ISPF_LISTENER_PORT**

See “CAE Agent parameters - CQMCPRMS” on page 538.

### Additional information is provided about how Db2 Query Monitor creates, clears, and overrides baseline performance windows when performing reorganization recommendations. See “How Db2 Query Monitor creates a baseline performance window” on page 462 and “How Db2 Query Monitor clears or overrides a baseline performance window” on page 463.

### Adds description of **Paused** status for the **Next Performance Window** column in the Reorganization Recommendation Monitor. See “Using the Reorganization Recommendation Monitor” on page 420.

### The Consistency Token and Text Token columns have been added to the **DB2 QM SQL Code Detail Display** panel and the description of the Occurrences column has been updated. See “SQLCODEs - columns (ISPF)” on page 241.

### When creating monitoring profiles, you can now specify both positive and negative SQLCODEs to include or exclude specific workloads for alert or summary processing. See “Adding a monitoring profile line” on page 304.

### Clarifications to CAE requirements. See “CAE requirements” on page 29.

### Updated descriptions of CQM_REORG_METRICS and com.rocketsoft.nm.qm.reorg.metrics. See “CAE Server properties - cqm.server.properties - Windows” on page 549 and “CAE Server parameters - CQMCAESV - USS” on page 542.

## New and updated messages

<table>
<thead>
<tr>
<th>Description</th>
<th>Related APARs</th>
</tr>
</thead>
<tbody>
<tr>
<td>“CQM1065I” on page 611</td>
<td>PH17340</td>
</tr>
<tr>
<td>“CQM1153E” on page 611</td>
<td>PH12338</td>
</tr>
<tr>
<td>“CQM7014I” on page 631</td>
<td>PH12338</td>
</tr>
<tr>
<td>“CQM334E” on page 590</td>
<td>PH01452</td>
</tr>
<tr>
<td>“CQMC0007I” on page 650</td>
<td>PI98407</td>
</tr>
</tbody>
</table>

### Db2 Query Monitor terminology

Db2 Query Monitor includes several unique terms that you should understand before you begin to use Db2 Query Monitor.

### General Db2 Query Monitor terminology

**collection point**

A subset of information that Db2 Query Monitor collects about the Db2 subsystems it monitors. Db2 Query Monitor stores data for each collection point in a corresponding Performance History File.
### Table 1. Db2 Query Monitor collection points and their corresponding Performance History Files and offload tables

<table>
<thead>
<tr>
<th>Collection point</th>
<th>Performance History File</th>
<th>Offload table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Db2 commands</td>
<td>DB2CDATA</td>
<td>CQM_DB2_COMMANDS</td>
</tr>
<tr>
<td>SQL text</td>
<td>TEXTDATA</td>
<td>CQM_SUMM_TEXT</td>
</tr>
<tr>
<td>SQL metrics</td>
<td>METRDATA</td>
<td>CQM_SUMM_METRICS</td>
</tr>
<tr>
<td>Db2 objects</td>
<td>OBJSDATA</td>
<td>CQM_SUMM_OBJECTS</td>
</tr>
<tr>
<td>Exceptions</td>
<td>EXCPDATA</td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td>Statement-level exceptions</td>
<td>EXCPINDX</td>
<td>CQM_EXCP_CALLS</td>
</tr>
<tr>
<td>SQLCODES</td>
<td>SQLCDATA</td>
<td>CQM_SQLCODES</td>
</tr>
<tr>
<td>Exception host variables</td>
<td>EXCPHSTV</td>
<td>CQM_EXCP_HOSTV</td>
</tr>
<tr>
<td>Exception SQL text</td>
<td>EXCPTEXT</td>
<td>CQM_EXCP_TEXT</td>
</tr>
</tbody>
</table>

**exception**
A type of event that occurs when an exception threshold is exceeded. An exception is an SQL event that a database administrator might be requested to research.

**interval**
A unit into which Db2 Query Monitor divides and stores data. Intervals have a start time, an end time, an interval number, and other information that uniquely identifies the interval. Data collected by Db2 Query Monitor is stored in performance history files on the mainframe on a per-interval basis.

**monitoring agent**
The interface that Db2 Query Monitor installs within a Db2 subsystem to capture SQL performance data.

**monitoring profile**
A set of specifications that control how Db2 Query Monitor monitors specific SQL workloads. Monitoring profiles control various aspects of monitoring including (but not limited to) summary reporting, SQLCODE reporting, exception limits, exception thresholds, alert limits, alert thresholds, host variable reporting, and OPTKEYS override settings. Monitoring profiles do not affect Db2 command reporting. Monitoring profiles also enable you to start/stop summary object reporting as well as static and dynamic SQL activity collection for exceptions, SQLCODEs, and summaries.

**monitoring profile line**
A set of specifications that define the inclusion or exclusion of SQL workloads from summary reporting, exception processing, and alert processing. A monitoring profile consist of one or more monitoring profile lines that can be created, inserted, updated, ordered, and deleted as needed to tailor a monitoring profile to fit your needs. Each monitoring profile line applies to one SQL workload.

**Performance History Database**
A set of Db2 tables to which you can offload data from Db2 Query Monitor's Performance History Files. The uniqueness of Db2 Query Monitor data across z/OS systems, Db2 subsystems, and Query Monitor Subsystems is maintained when you offload data from Db2 Query Monitor's Performance History Files to the Performance History Database.

**Performance History Files**
VSAM data sets that hold data collected for Db2 Query Monitor's collection points. One Performance History File is created for each collection point on a per-interval basis. Additionally, information about the exceptions and notifications Db2 Query Monitor recognizes and sends are also written to Performance History Files, also on a per interval basis. Db2 Query Monitor dynamically allocates the Performance History Files. You can control the allocation of Performance History Files by using start-up parameters specified in CQMPARMS.
**SQL workload**
A group of applications (and the SQL statements executed by those applications) that is monitored by Db2 Query Monitor to collect performance data. SQL workloads are defined in a monitoring profile. The monitoring profile, in turn, is used by Db2 Query Monitor when monitoring a Db2 subsystem.

**Consolidation and Analysis Engine (CAE) terminology**

**action**
A command that can be executed through the CAE Browser Client, either interactively by selecting a domain element and initiating the command, or automatically using a predefined response or action schedule.

**action group**
A set of actions that follow the same action dispatch rule. An action dispatch rule specifies the action agents that are valid for executing a given action for a particular subject.

**alert**
An alert is:
- A type of event that occurs when an alert threshold is exceeded.
- An SQL event for which you want a DBA to stop what they are doing and take immediate action.
- A type of event that occurs due to an SQLCODE or self event.

**correlation**
In the Alerts Browser, a correlation is a relationship between two events that Db2 Query Monitor interprets as causal in nature. Correlations enable the filtering of related event messages. When one event type is identified as the cause of another event type, the messages for the resulting event type can be subsumed, so that Db2 Query Monitor shows messages for the root cause only.

**domain element**
An element that the CAE models. This includes z/OS images, Open Systems hosts, Db2 subsystems, SQL statements, Query Monitor Subsystems, CAE Agents, and the Db2 Query Monitor application.

**event**
A condition that occurs when an alert threshold or an exception threshold is exceeded.

**Terminology for reorganization recommendation**
These terms apply to the smarter reorganization recommendation feature. For more information about this feature, see Chapter 24, “Smarter reorganization recommendations with Db2 Automation Tool and Db2 Query Monitor,” on page 459.

**baseline performance window**
A baseline performance window is an interval (or set of intervals) created by Db2 Query Monitor to which the comparison performance window is compared. The baseline performance window is always older than the comparison performance window. The baseline performance window is newer than the REORG time for the table space.

A baseline performance window represents a window of optimum performance. The baseline performance window is maintained over time so that comparison performance windows (which change often) can be compared to the “optimum” or baseline performance window.

**comparison performance window**
A comparison performance window is an interval (or set of intervals) that is captured by Db2 Query Monitor and that is compared to the baseline performance window. The comparison performance window is the interval (or set of intervals) for which you want to diagnose a problem, such as decreased performance.

**interval**
An interval is a unit of time into which Db2 Query Monitor divides and stores data. Intervals have a start time, an end time, an interval number, and other information that uniquely identifies the interval. Data collected by Db2 Query Monitor is stored in performance history files on the mainframe on a per-interval basis.
performance window
A performance window is a pre-defined time frame during which application performance data is collected for use in determining reorganization recommendations. You should define this time frame as a duration that encompasses execution of the most significant SQL queries that are run on a given Db2 subsystem.

reorganization recommendation monitor
The reorganization recommendation monitor is a component of the Db2 Query Monitor CAE browser client that enables you to analyze and review performance windows and reorganization recommendations. When you review performance windows, data is shown in the activity browser.

Db2 Query Monitor features and benefits
Db2 Query Monitor provides numerous features and benefits to help you monitor SQL queries across your Db2 for z/OS environment.

Features
Db2 Query Monitor enables you to:
• Collect, summarize, and display SQL resource consumption down to the level of the individual SQL text statement.
• Collect, summarize, and display Db2 object access statistics down to the individual table and index.
• Access data from multiple Query Monitor Subsystems using the CAE Server and TCP/IP.
• View data from the perspective of a data sharing group.
• View active SQL statements that are currently being executed by Db2.
• Capture the full text of long SQL statements.
• Disable summary reporting for specific workloads, include or exclude specific -SQLCODES from exception or alert processing, set exception limits and thresholds, and define alert notification thresholds.
• View the expanded text description for an SQLCODE that is supplied by the IBM utility program DSNTIAR.
• View information about the Db2 commands that are executed on monitored Db2 subsystems.
• Collect information relating to exceptional SQL-related events.
• Configure proactive notification to alert users of problems.
• Automate curative actions to deal with exceptional events as they occur.
• Access consolidated data and events for Db2 subsystems, whether within a single z/OS image or across multiple z/OS images, independent of the existence of a coupling facility.
• View and configure monitoring across your enterprise from a single console.

Benefits
Db2 Query Monitor provides the following benefits:
• Scalable over the full range of Db2 installations.
• Operates seamlessly in sysplex and stand-alone environments.
• Supports single-console viewing of enterprise-wide Db2 SQL and object access activity.
Db2 Query Monitor components

Db2 Query Monitor includes both mainframe and GUI components.

Figure 1. Db2 Query Monitor architecture

Db2 Data Access Common Collector

The Db2 Data Access Common Collector (CQC) is a product that is used by Db2 Query Monitor.

The CQC reduces CPU overhead by collecting data for multiple products:
- IBM Db2 Query Monitor for z/OS (CQM) V3.3
- InfoSphere Guardium S-TAP for Db2 on z/OS (ADH) V9.1
- Security Guardium S-TAP for Db2 on z/OS (ADH) V10.0 and V10.1.3

The CQC collects the following data:
- SQL metrics
- Db2 object access
- SQL text
- Db2 commands
- SQLCODEs
- Host variables

The CQC is not a stand-alone address space. It provides the collection points for the Db2 address space. The physical code for the CQC runs in the DBM1 address space and collects the data necessary for the products that use it. The collected data is stored in memory objects that are owned by the Support Services Address Space.

Support Services Address Space

For each z/OS image, a Support Services Address Space (also referred to as the Master Address Space) is started automatically by CQM or ADH. The first of these products that is launched on an z/OS image automatically initiates the Support Services Address Space.

The Support Services Address Space is a service address space that owns the shared memory objects where the data that is collected by the CQC is staged. The Support Services Address Space acts as a placeholder for CQC resources and is similar to other master address spaces that are used throughout z/OS (z/OS and Db2, for example, have master address spaces).
The Support Services Address Space:
• Never shuts down
• Does not execute any code during the course of existence, except for its initialization routines; therefore does not have to be controlled by an installation
• Owns resources required by the CQC
• Does not require a formal shutdown and should not be canceled or forced to shut down during the operation of CQM or ADH. Forcing the Support Services Address Space to stop causes the abnormal termination of all CQM or ADH started tasks on the LPAR.

Important: During installation, do not stop or start the Support Services Address Space unless required to do so for product maintenance or requested to do so by IBM Software Support.

MASTER_PROCNAME parameter
The Support Services Address Space that is used by an installation of CQM or ADH is specified using the MASTER_PROCNAME parameter.

The MASTER_PROCNAME parameter is required, it must be specified for each product that uses the CQC. When the same MASTER_PROCNAME value is specified for multiple product installations (CQM or ADH), the same Support Services Address Space is used by those product installations.

Stopping the Support Services Address Space
If you have been directed to stop the Support Services Address Space by IBM Software Support or by a +HOLD(ACTION) in a PTF, edit and run SCQMSAMP member CQMMSTR.

Db2 Query Monitor monitoring agent
The Db2 Query Monitor subsystem works with the CQC through the use of monitoring agents. A monitoring agent is the interface that Db2 Query Monitor installs within a Db2 subsystem to capture SQL performance data.

One monitoring agent is installed for each monitored Db2 subsystems. For example, if one Db2 Query Monitor subsystem performs data collection on two Db2 subsystems, then two monitoring agents are required, one for each Db2 subsystem. Each monitoring agent can optionally have a monitoring profile associated with it.

When monitoring of a Db2 subsystem is activated for the first time, a monitoring agent is installed on that Db2 subsystem. The monitoring agent is uninstalled when the Db2 Query Monitor subsystem that monitors that Db2 subsystem is stopped. A monitoring agent cannot be uninstalled without first stopping Db2 Query Monitor subsystem. The deactivate command does not uninstall the monitoring agent.

Db2 Query Monitor subsystem
The Db2 Query Monitor subsystem is a component of Db2 Query Monitor that integrates the data collected by the CQC to provide a complete picture of query activity in a monitored DB2 subsystem.

A Db2 Query Monitor subsystem can run as either a started task or as a batch job under the control of JES. To run the Db2 Query Monitor subsystem as a started task, the started task JCL must reside in a cataloged procedure library. You can customize the started task JCL, CQMPROC, for a specific installation of Db2 Query Monitor either using TCz or by customizing SCQMSAMP data set member CQMPROC.

The Db2 Query Monitor subsystem contains a CQMPARMS DD statement that points to the Db2 Query Monitor control data set that in turn contains Db2 Query Monitor parameter file, CQMPARMS. CQMPARMS defines the Db2 Query Monitor subsystem ID (QMID) that identifies the Db2 Query Monitor subsystem. You can customize CQMPARMS for a specific installation of Db2 Query Monitor either using TCz or by customizing SCQMSAMP data set member CQMPARMS.

Db2 Query Monitor subsystem data collection
The Db2 Query Monitor subsystem collects data, manages intervals, archives historical data, and installs/removes the required instrumentation components. Data collection consists of the following components:
Monitoring more than one Db2 subsystem

A Db2 Query Monitor subsystem can monitor one to 64 Db2 subsystems on an LPAR. A minimal implementation consists of one Db2 Query Monitor subsystem per LPAR. An extremely granular implementation uses one Db2 Query Monitor subsystem to monitor each Db2 subsystem.

If you use several Db2 Data Access Common Collector products (CQM or ADH) or several instances of the same product to monitor more than one Db2 subsystem on the same LPAR, each product (or instance of a product) can have a different value for the MASTER_PROCNAME parameter. This configuration is appropriate when running code at different maintenance levels on the same LPAR (for example, if you are testing new maintenance prior to upgrading your production system).

Running multiple Db2 Query Monitor subsystems

Multiple Db2 Query Monitor subsystems can run concurrently on a single z/OS image if each Db2 Query Monitor subsystem monitors a different Db2 subsystem. **Two Db2 Query Monitor subsystem cannot monitor the same Db2 subsystem.**

Each Db2 Query Monitor subsystem must have a unique ID and started task JCL associated with it. The started task JCL must point to:

**DB2PARMS**

The Db2 control file. DB2PARMS defines the connections to Db2. There should be only one Db2 control file for your enterprise, if possible.

**CQMPARMS**

The Db2 Query Monitor parameter file. You must use a unique CQMPARMS file for each Db2 Query Monitor subsystem.

**CQMINTER**

The Db2 Query Monitor interval data set. You must use a unique CQMINTER data set for each Db2 Query Monitor subsystem.

**CQMPROFS**

The Db2 Query Monitor monitoring profile data set. In most situations, is preferable that you use a single CQMPROFS data set for all Db2 Query Monitor subsystems. In certain situations, multiple CQMPROFS data sets are used, for example, if you have one CQMPROFS for DEV and another for PROD.

Monitoring the same Db2 subsystem with multiple Db2 Data Access Common Collector products

If you use multiple Db2 Data Access Common Collector products (CQM or ADH) to monitor the same Db2 subsystem, each product must specify the same value for the MASTER_PROCNAME parameter.
**Integrated Storage Manager**

The Integrated Storage Manager detects problems before they became serious errors such as loops or out-of-storage conditions. The Integrated Storage Manager enforces storage management rules to avoid the loops and 878/40d abends. A storage constraint is signaled when a storage constraint rule is violated. When Db2 Query Monitor defines its virtual spaces, it defines storage constraint rules. Some examples of these rules include:

- No more than 4096 nesting levels per Db2
- A maximum SQL text allocation per Db2
- A maximum SQL text allocation per Query Monitor Subsystem
- No more than 1024 open sections per open thread
- No more than 1024 host variables per section
- No more than 2G total in storage (by default)

When a storage constraint rule is violated, the Integrated Storage Manager does not allow any additional storage to be obtained for that type of constrained storage. For example, if thread 1000 attempted to acquire its 1025th section, a storage constraint would be signaled. However, if thread 2000, attempted to acquire its 50th section, it would be allowed.

Storage constraints only impact the violator. When a storage constraint is signaled, a diagnostic entry is created. This constraint is defined by Db2 Query Monitor to avoid a runaway condition that leads to an auxiliary storage shortage.

The Integrated Storage Manager is part of the base Db2 Query Monitor product and does not require activation.

**Performance History Files**

Db2 Query Monitor uses a set of VSAM data sets, collectively referred to as Performance History Files, to store information about the Db2 subsystems it monitors.

These Performance History Files include:

**DB2PARMS**
Stores information about the monitored Db2 subsystem IDs, the Db2 parameters (including the Db2 ZPARMS member, Db2 Bootstrap DSNs, and Db2 Loadlibs), and the Db2 Query Monitor plan name.

**CQMPARMS**
Defines the parameters that are used by the Query Monitor Subsystem. For more information about CQMPARMS, see “Query Monitor Subsystem parameters - CQMPARMS” on page 493.

**CQMINTER**
Stores information about intervals (dates, times, interval numbers) and interval processing. You can modify the parameters that control the CQMINTER Performance History File by editing the INTERVAL, INTERVAL_MIDNIGHT, and EMPTY_INTERVALS parameters in CQMPARMS.

When Db2 Query Monitor starts, an interval switch occurs, new VSAM data sets are dynamically allocated, and expired data sets are deleted. The RETAIN parameter in CQMPARMS defines how many prior intervals are to be retained on DASD after interval processing is complete. This process requires DFSMS to be active.

**CQMPROFS**
Stores information about monitoring profiles. You can update the CQMPROFS data set using **DB2 Query Monitor Main Menu** Option 8 (Work with Profiles) or using QM Subsystem management in the CAE Browser Client.

Db2 Query Monitor uses the following Performance History Files to hold captured information about a system's SQL activity:
DB2CDATA
Stores information about the execution of Db2 commands. You can modify the parameters that control the DB2CDATA Performance History File by tailoring the DB2CDATA_* parameters in CQMPARMS.

TEXTDATA
Stores information about summary level SQL text data. You can modify the parameters that control the TEXTDATA Performance History File by tailoring the TEXTDATA_* parameters in CQMPARMS.

METRDATA
Stores information related to SQL call execution. You can modify the parameters that control the METRDATA Performance History File by tailoring the METRDATA_* parameters in CQMPARMS.

OBJSDATA
Stores summary object level data. You can modify the parameters that control the OBJSDATA Performance History File by tailoring the OBJSDATA_* parameters in CQMPARMS.

EXCPDATA
Stores information related to exception SQL calls, text, SQLCA, and host variables. You can modify the parameters that control the EXCPDATA Performance History File by tailoring the EXCPDATA_* parameters in CQMPARMS.

EXCPINDX
Stores information related to statement-level exceptions. You can modify the parameters that control the EXCPINDX Performance History File by tailoring the EXCPINDX_* parameters in CQMPARMS.

SQLCDATA
Stores information about SQLCODES collected during the course of an interval. You can modify the parameters that control the SQLCDATA Performance History File by tailoring the SQLCDATA_* parameters in CQMPARMS.

EXCPHSTV
Stores information about exception host variable information collected during the course of an interval. You can modify the parameters that control the EXCPHSTV Performance History File by tailoring the EXCPHSTV_* parameters in CQMPARMS.

EXCPTEXT
Stores information about exception SQL text collected during the course of an interval. You can modify the parameters that control the EXCPTEXT Performance History File by tailoring the EXCPTEXT_* parameters in CQMPARMS.

Consolidation and Analysis Engine
The Consolidation and Analysis Engine (CAE) consists of the CAE Agent, CAE Server, and CAE Browser Client. Together, these components provide enterprise-wide data consolidation, autonomic root cause analysis, and corrective actions for SQL queries in your data center.

CAE Agent
The CAE Agent provides TCP/IP access to data from all Query Monitor Subsystems.

The CAE Agent is a non-Java™ address space that runs under z/OS and uses no ZFS/HFS facilities. You can run the CAE Agent as a started task or as a batch job under the control of JES. One CAE Agent must be installed on each z/OS image that hosts one or more Query Monitor Subsystems.

The CAE Agent collects alerts from one or more Query Monitor Subsystems and notifies the Alerts Browser of each alert. If the execution of an SQL statement generates multiple alerts, then the Alerts Browser reports one entry for those alerts (this grouping of alerts can be turned off using MITs, for more information see “Editing MITs” on page 403). Each alert notification shows a repetition count that equals the number of times the alert occurred for the SQL statement.

CAE Server
The CAE Server consolidates data from one or multiple CAE Agents and presents it to one or more CAE Browser Clients. The CAE Server sends queries, profile changes, and actions from the CAE Browser Client...
to the Query Monitor Subsystem. It evaluates events, establishes relationships between events, and determines the root cause of event groups.

When you start the CAE Server, it automatically connects to the CAE Agent and discovers all of the Query Monitor Subsystems, Db2 subsystems, and Db2 data sharing groups across image boundaries regardless of sysplex boundaries.

You can install the CAE Server on USS or Windows. For more information, see “Installing a single CAE Server - Windows” on page 117 or “Installing a single CAE Server - USS” on page 118.

CAE Browser Client
You can use the CAE Browser Client to view data and exceptions for one or more Db2 subsystems, regardless of z/OS and Sysplex boundaries. The CAE Browser Client provides you with filtering and browsing capabilities for both data and alerts.

After installing and starting the CAE Server, you can access the CAE Browser Client by pointing your web browser to the host on which the CAE Server is running.

High-Availability Fault-Tolerance
Db2 Query Monitor’s High-Availability Fault-Tolerance (HAFT) capability enables you to assign a CAE Server as a backup for a Primary CAE Server. The Backup CAE Server ensures that the monitoring of queries continues if the Primary CAE Server fails. If the Primary CAE Server fails, the Backup CAE Server starts automatically and provides all the functionality that was provided by the Primary CAE Server.

To accomplish this, the Primary CAE Server continuously stores events, alerts, and configurations (custom views, filters, etc.) in a shared file system that can be accessed by the Backup CAE Server. This enables the Backup CAE Server to access and process events, alerts, configurations if failure occurs.

Each Backup CAE Server runs a Watchdog. A Watchdog is a Windows service (or, if you are running the CAE Server on the mainframe, a USS process) that monitors the status of the Primary CAE Server. When the Watchdog loses communication with the Primary CAE Server, it refers to various timeout values (initial, shutdown, and expired) to determine how long to wait before starting the Backup CAE Server. When appropriate, the Watchdog starts the Backup CAE Server. This occurs automatically and does not require operator intervention. For information about specifying the parameters controlling High-Availability Fault-Tolerance, see “CAE Agent parameters - CQMCPRMS” on page 538, “CAE Server parameters - CQMCAESV - USS” on page 542, and “CAE Server properties - cqm.server.properties - Windows” on page 549.

When the Primary CAE Server is down, the Backup CAE Server continues writing alerts and configuration changes to the shared drive. When the Primary CAE Server is started again, it reads this information; no data loss occurs.

After the Watchdog starts a Backup CAE Server, the Watchdog listens for the Primary CAE Server to re-establish contact. If the Watchdog detects the Primary CAE Server is running, it stops the Backup CAE Server and lets the Primary CAE Server resume full operation.

When a switch occurs from the Primary CAE Server to the Backup CAE Server (or from the Backup CAE Server back to the Primary CAE Server), any active CAE Browser Clients are disconnected. To re-establish connection, CAE Browser Client users must direct their web browsers to access the active CAE Server.

Note:

• The Primary CAE Server and the Backup CAE Server must be installed on a separate PCs (for Windows) or on separate LPARs (for USS).

• Events that do not persist (such as self events) are not transferred when the Backup CAE Server starts. You can use MITs Configuration to enable or disable event persistence (using the option Retain this event until it clears, even if the server is restarted).

• HAFT can be deployed on either Windows or USS, but it must be deployed on the same operating systems across all CAE Servers (primary and backup).

• By setting up a single DNS name that resolves to multiple IP addresses, you can use that DNS name for the Primary CAE Server as well as any Backup CAE Servers and avoid having to specify different DNS names when a failure occurs.
Stopping the Watchdog cancels the ability to monitor the presence of the Primary CAE Server.

**Note:** These parameters define the Watchdog service name, log name, and names that display in menus, and descriptions:

- `serviceNameWatchdog=CQMWatchdog`
- `serviceLogWatchdog=CQMWatchdog`
- `serviceDisplayNameWatchdog="DB2 Query Monitor Watchdog Server"`
- `serviceDescriptionWatchdog="DB2 Query Monitor Failover Management"`

**ISPF Client**

The Db2 Query Monitor ISPF Client consists of a set of ISPF panels that enable you to work with monitoring agents, configure monitoring profiles, view activity, view exceptions, define Db2 subsystems in the Db2 Control File, and access information about SQLCODES and Db2 commands.

**Db2 Query Monitor concepts**

Familiarize yourself with these Db2 Query Monitor concepts before getting started with the product.

**Data collection**

Db2 Query Monitor uses the CQMPARMS data set and the monitoring profile to determine what performance data to collect for a Db2 subsystem. A Db2 Query Monitor monitoring agent collects performance data for a monitored Db2 subsystem. Db2 Query Monitor stores this data in z/OS data spaces until a Db2 Query Monitor interval is completed, at which time the data is written to Performance History Files.

**SQL workloads**

An SQL workload provides a way of identifying a group of applications to Db2 Query Monitor so that performance data can be collected and summarized for the SQL statements executed by those applications. SQL workloads are defined in the monitoring profile that is used by Db2 Query Monitor to monitor a Db2 subsystem.

SQL workloads have the following characteristics:

- **Workload name** - A unique name that is used to identify the SQL workload.
- **Workload filters** - A set of characteristics of an SQL workload (such as plan name, subsystem name, authorization ID) that are used to determine the SQL to include or exclude from data collection.
- **Thresholds** - One or more limits (including but not limited to elapsed time, CPU time, or GETPAGE requests) that identify exceptions and alerts.
- **OPTKEY overrides** - Override settings that provide customized levels of summarization of data collection specific to an individual SQL workload.

**Summary data, exception data, alert data**

The Query Monitor Subsystem maintains three basic types of performance data: summary data, exception data, and alert data.

**Summary data**

Summary data is performance data that is summarized for each unique SQL statement that is executed in a Db2 Query Monitor interval. The values collected are totals and averages. For example, elapsed time values are averages. A unique SQL statement is represented by a unique value of:

Plan + Program + Section

When Db2 Query Monitor is first installed, by default, summary data is collected for all SQL statements executed in the DB2 subsystem(s) being monitored by Db2 Query Monitor. The default collection does not
include the Statement Number or the Statement Type data elements. You can exclude SQL statements from specific workloads using monitoring profiles.

SQLCODE data is not collected by default. The collection of SQLCODE data must be activated using the CQMPARMS start-up parameters MAX_SQLCODES and MAX_SQLCODES_DETAIL.

**Exception data**

Db2 Query Monitor exception data is data for individual SQL calls that have exceeded user-defined thresholds (including but not limited to elapsed time or CPU time). Exceptions are SQL events that a database administrator might be requested to research. These thresholds are defined in the monitoring profile. Without an active monitoring profile, no exception data is collected.

**Important:** You must specify an exception threshold value that is greater than zero for exception data to be collected. If an exception threshold of zero is specified, no exception data is collected.

**Alert data**

Alerts are SQL events for which you want a database administrator to stop what they are doing and take immediate action. Alert data describe individual SQL calls that have exceeded user-defined thresholds. It is strongly recommended that all alerts also be classified as exceptions. The reason for this recommendation is that only exception data are written to Performance History Files and are thereby made available for later analysis. Alert data are not written to performance history files. By specifying alerts as exceptions, you ensure that information about alerts is retained.

The alert system is intended to be used for situations that require the immediate attention of an operator. If the rate at which alerts are posted exceeds the rate at which you would like to receive e-mails, or if there are many alerts that the operator does not need to attend to immediately, then some of the alert thresholds might be too low. Be aware that alerts have a lot of features associated with them, so keeping the number of alerts low improves the resource utilization of the CAE Server.

**Warning:** If alerts are not also classified as exceptions, they are not available in the View exceptions part of the ISPF interface or the Exceptions perspective of the CAE Browser Client. Such alerts are not stored in Performance History Files and therefore are not available in the Performance History Database, if used. **For this reason, every alert should also qualify as an exception.**

Alert specifications can be identical to the corresponding exception specifications, thereby generating alerts and exceptions simultaneously, but this may mean you either generate large numbers of immediate attention alerts or have too narrow a view of the SQL events that constitute an exception. When defining thresholds for alerts, the alert thresholds should be higher than the exception thresholds because alerts are SQL events that require immediate attention, and this is not necessarily the case for exceptions.

**OPTKEYS**

The OPTKEYS parameter enables you to specify additional levels of summarization. Since the additional levels of summarization OPTKEYS offer can significantly increase both the volume of data that is collected by Db2 Query Monitor and the amount of data Db2 Query Monitor stores in data spaces, you should be careful when adding OPTKEYS.

Db2 Query Monitor collects and summarizes SQL activity using the following basic key:

Plan + Program + Section

**Note:** It is recommend that you specify OPTKEYS in monitoring profiles, not in CQMPARMS.
**Evaluating the use of OPTKEYS**

This topic describes using OPTKEYS for an ad-hoc query-based Db2 subsystem and using OPTKEYS for an On-Line Transaction Processing (OLTP)-based Db2 subsystem.

**Using OPTKEYS for an ad-hoc query-based Db2**

For an ad-hoc Db2 subsystem, OPTKEYS(TEXT) is probably not useful, because most of the SQL in the systems is unique and not re-used. But OPTKEYS(PTEXT) might be very useful, because literals are removed from the ad-hoc SQL and the SQL may then be summarized appropriately. Additionally, OPTKEYS(AUTHID) might be useful in this scenario, because the number of users is most likely relatively small.

**Note:** Omitting TEXT from the OPTKEYS specification or using OPTKEYS PTEXT does not result in the loss of dynamic SQL statement text associated with an exception. The dynamic SQL statement text associated with an exception is always recorded.

**Using OPTKEYS for an On-Line Transaction Processing (OLTP)-based Db2 subsystem**

In an OLTP-based Db2 subsystem, if the dynamic SQL is repeated, OPTKEYS(TEXT) might be very useful, whereas OPTKEYS(AUTHID) is probably not useful. If the number of distinct AUTHIDs is large, there is more overhead and minimal summarization. If there is a single AUTHID that is used for all Db2 SQL, then all of the summary data will be in a single bucket and there is no value to using OPTKEYS. If there is no dynamic SQL, there is no benefit to using OPTKEYS(TEXT) or OPTKEYS(PTEXT), because the default summarization key is enough to identify each SQL statement being executed.

The number of summary buckets grows quickly and this can be exacerbated by specifying multiple OPTKEYS. For example, consider a system that has 1,000 distinct dynamic SQL statements and 1,000 users. Also consider that each user will execute every SQL statement at least once during each interval. Finally, consider that each SQL statement accesses 3 application objects. For this example, the OPTKEYS affect the summary collection as follows:

- Specifying OPTKEYS(TEXT) – This adds 1,000 summary buckets to the METR data and 15,000 (1,000*15) buckets to the OBJS data.
- Specifying OPTKEYS(AUTHID) – This adds 1,000 summary buckets to the METR data and 15,000 (1,000*15) buckets to the OBJS data.
- Specifying OPTKEYS(TEXT,AUTHID) – This adds 1,000,000 (1,000*1,000) summary buckets to the METR data and 15,000,000 (1,000*1,000*15) buckets to the OBJS data.

**Note:** In the above example requires that the CALLS OPTKEY must be on.

When you choose OPTKEYS settings, it is important to determine what categories of summarization are meaningful and useful in your environment. For example, with SAP, in contrast to the settings for the OLTP-based Db2 and the Data Warehouse-based Db2 discussed above, it is probably more appropriate to summarize by WSTRAN and TEXT. The reason for this is that there is only one AUTHID used by SAP (usually SAPR3), whereas it is WSTRAN that helps you identify the user. Since SAP only uses dynamic SQL which is subject to repeated execution, TEXT is needed to be able to summarize by SQL statement. SAP also makes extensive used of host variables, so TEXT is more appropriate than PTEXT in an SAP environment. This is also true in any application that uses dynamic SQL and host variables instead of literals.

**Note:** WSTRAN and TEXT both act as multipliers to the number of summary buckets, so a large number of users may mean that specifying WSTRAN is undesirable.
**MAX_SQLCODES and MAX_SQLCODE_DETAIL**

The MAX_SQLCODES and MAX_SQLCODE_DETAIL parameters control the summary data collection for SQLCODEs. The summary data is accessed using the View SQLCODEs option in the ISPF Client and the SQLCODE perspective in the CAE Browser Client.

The MAX_SQLCODES parameter sets the limit on the number of unique SQLCODEs for which summary information is collected. The MAX_SQLCODE_DETAIL sets the limit on the number of detail records which is collected for each occurrence of an SQLCODE.

**Note:** The detail that is collected is very limited and consists of the SQLCA and the text of the SQL statement, if the statement text is available. No performance data or host variable information is available in this feature of Db2 Query Monitor. Host variables and performance metrics for statements which end with negative SQLCODES are kept with the exception record for the event.

A recommended starting value for MAX_SQLCODES is 250. This will most likely be larger than the number of distinct SQLCODES in a given interval. A recommended starting value for MAX_SQLCODE_DETAIL is between 50 and 100. This will normally allow a Db2 Query Monitor user to determine which SQLCODES are being used as coding techniques by which programs. When the codes being used as coding techniques are identified, they can be excluded from exception and alert processing in the monitoring profile.

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**Db2 Query Monitor and data sharing**

Db2 Query Monitor enables you to monitor and view data from the perspective of a data sharing group.

**Data sharing requirements and limitations**

To use Db2 Query Monitor to monitor data from the perspective of a data sharing group, your site must meet the following requirements.

**Requirements**

- A Query Monitor Subsystem (also referred to as an instance Db2 Query Monitor) of must be installed on each LPAR that has a Db2 subsystem (or subsystems) that you want to monitor.
- Every member of the data sharing group must be entered in the Db2 Control File (DB2PARMS).
- Every member of the data sharing group must be set up and monitored by Db2 Query Monitor (as any Db2 subsystem would be).
- Every member of the data sharing group must use the same plan and package names.
- The QM_GROUP parameter should be specified in the CQMPARMS file of every Query Monitor Subsystem that monitors a data sharing group member. For more information about, see “Query Monitor Subsystem parameters - CQMPARMS” on page 493.
- To view data for a data sharing group (using either the ISPF client or the CAE Browser Client), the CAE Agent and CAE Server must be installed and running. For more information, see Chapter 7, “Installing Db2 Query Monitor’s CAE components,” on page 115 and “Selecting a CAE Server for ISPF view of data sharing group” on page 151.

**Limitations**

- When using Db2 Query Monitor in a data sharing environment, you cannot share interval data sets (CQMINTER) or Performance History Files that are defined in CQMPARMS (using the *_DSN data set name parameters).

**Example: Db2 Query Monitor and data sharing**

This example illustrates how Db2 Query Monitor works in a data sharing environment.

To configure Db2 Query Monitor in a data sharing environment, begin by identifying the Db2 subsystems you want to monitor with Db2 Query Monitor. Then identify what LPARs those Db2 subsystems are
running on. These are the LPARS you need to set up Db2 Query Monitor on. Once you have set up Db2 Query Monitor on those LPARs, you must then configure those installations of Db2 Query Monitor so they monitor the Db2 subsystems you previously identified as of interest to you.

**Description**

This example uses two Query Monitor Subsystems to monitor five Db2 subsystems, three of which (D11A, D11B and D11C) belong to a data sharing group (GRP1) and two of which (DB2A and DB2B) are stand-alone Db2 subsystems. Four Db2 subsystems reside on the same LPAR and one member of the data sharing group resides on a second LPAR. For simplicity, all of the Db2 subsystems are Db2 V11 systems. There is one Query Monitor Subsystem on each LPAR.

**DB2A**

These descriptors apply to the DB2A SSID:

- **LPAR:** SYSA
- **Query Monitor Subsystem:** CQMA
- **Description:** Stand-alone Db2 subsystem
- **Package:** CQMDB2A
- **PLAN Name:** CQMPIANA

**DB2B**

These descriptors apply to the DB2B SSID:

- **LPAR:** SYSB
- **Query Monitor Subsystem:** CQMA
- **Description:** Stand-alone Db2 subsystem
- **Package:** CQMDB2B
- **PLAN Name:** CQMPIANA

**D11A**

These descriptors apply to the D11A SSID:

- **LPAR:** SYSA
- **Query Monitor Subsystem:** CQMA
- **Description:** Member of data sharing group GRP1
- **Package:** CQMGRP1
- **PLAN Name:** CQMPIANA

**D11B**

These descriptors apply to the D11B SSID:

- **LPAR:** SYSB
- **Query Monitor Subsystem:** CQMB
- **Description:** Member of data sharing group GRP1
- **Package:** CQMGRP1
- **PLAN Name:** CQMPIANA

**D11C**

These descriptors apply to the D11C SSID:

- **LPAR:** SYSA
- **Query Monitor Subsystem:** CQMA
- **Description:** Member of data sharing group GRP1
- **Package:** CQMGRP1
- **PLAN Name:** CQMPIANA
In this example, Query Monitor Subsystem, CQMA, which resides on SYSA:

- monitors and displays metrics for the standalone Db2 subsystem DB2A on SYSA
- cannot monitor or display metrics for the standalone Db2 subsystem DB2B on SYSB (because it is on an separate LPAR)

With data sharing enabled, Query Monitor Subsystem CQMA:

- monitors and displays metrics for D11A and D11C (both of which are on SYSA)
- displays metrics for D11B on SYSB (which is monitored by Query Monitor Subsystem CQMB on SYSB)

Similarly, with data sharing enabled, Query Monitor Subsystem CQMB:

- monitors and displays metrics for D11B on SYSB
- displays metrics for D11A and D11C (both of which are on SYSA and are monitored by Query Monitor Subsystem CQMA, also on SYSA)

Adding data sharing group members to the Db2 Control File

SCQMSAMP member CQM#CTLF enables you to add data sharing group members to the Db2 Control File. This is required if you want to run batch reports, perform BINDs, and offload data for data sharing group members.

You can use the Db2 Query Monitor main menu option 7 (Setup) to enter the Db2 subsystem for every data sharing group member and the data sharing group attach name (for batch reports, BINDs, and offloading).

**Note:** Because batch reports, binds, and offload jobs operate with database objects that are shared between all members, it is not necessary to have a separate set of batch report, bind, and offload jobs for every group member; a single set of batch reports, binds, and offload jobs is sufficient, and that single set needs to use group attach name. The group attach name needs to be defined in control file in addition to the individual members.

1. Edit SCQMSAMP member CQM#CTLF to include one ADD operation for each data sharing group member and group attach name. Db2 Query Monitor uses the data sharing group member entries for the call attach for the Query Monitor Subsystem task and ISPF users.
   a. Change #DB2S# to either the valid Db2 subsystem ID (for the individual data sharing group member) or the data sharing group attach name (for the data sharing group).
   b. Change #DB2CONTROL# to the data set name of the DB2PARMS control file.
   c. Change #BSDS1# and #BSDS2# to the appropriate bootstrap data sets for the Db2 subsystem.
   d. Change #LOADLIB1# through #LOADLIB5# to the appropriate LOADLIBs in the Db2 STEPLIB concatenation.

2. Run the job to add the individual data sharing group members and the data sharing group attach name to the Db2 Control File (DB2PARMS).

**Example**

The following example shows SCQMSAMP member CQM#CTFL edited for three individual data sharing group members (D11A, D11B, and D11C) that belong to a data sharing group that uses the group attach name GRP1.

```bash
//SYSIN DD *
ADD(D11A)
  BSDS_DSNNAME(D11A.BSDS01)
  BSDS_DSNNAME(D11A.BSDS02)
  ZPARMS_MEMBER(D11APARM)
  Db2_LOADLIB(DSN.VB10.SDNSLOAD)
  PLAN(CQMPLAN)
  REPLACE(Y)
ADD(D11B)
  BSDS_DSNNAME(D11B.BSDS01)
  BSDS_DSNNAME(D11B.BSDS02)
  ZPARMS_MEMBER(D11BPARM)
  Db2_LOADLIB(DSN.VB10.SDNSLOAD)
```
ZPARMS and bootstrap data sets are managed at the level of the individual tasks. For this reason, there is not a ZPARMS_MEMBER or BSDS_DSNAME specific to the data sharing group (in the example above, GRP1). In the example above, the ZPARMS_MEMBER and BSDS_DSNAME of GRP1 are set to that of one of the data sharing group members (in this case, D11A).

**Binding the plan**

For each Db2 subsystem you must bind the application plan that is used by Db2 Query Monitor. Customize and run the job streams in SCQMSAMP library member CQMBIND or generate the bind job using Tools Customizer. Specify the Db2 subsystem name within the package names and in the SYSTEM operand on the DSN command.

For Db2 subsystems that are members of a data sharing group, the following applies:

- The data sharing group name is specified in the SYSTEM parameter.
- When customizing the package and qualifier names for the package binds, specify the data sharing group name. Plans and packages are defined once and used for every data sharing group member.

The following code shows the BIND PACKAGE and BIND PLAN for the configuration we have been discussing. For clarity these samples have been abbreviated. Refer to member CQMBIND in the supplied sample library for the full text of the samples.

The bind plan name (CQMPLANA in the example below) can be the plan name of your choice, but it must match the plan name provided within Db2 Query Monitor's setup panel (option 7, 2 from the Db2 Query Monitor main menu) The format of the PACKAGE and QUALIFIER names (“CQMxxxx” where “xxxx” is the Db2 SSID) is dictated by Db2 Query Monitor's architecture.
Additional information

Additional information on the subjects covered in this document can be found in the following IBM publications:

- For information about Db2 in a data sharing environment see *Db2 UDB for z/OS Data Sharing: Planning and Administration* (SC18-7417) for your version of Db2.

- For information about the use and format of the BIND PLAN and BIND PACKAGE statements shown in the sample job stream CQMBIND, see the appropriate *IBM Db2 UDB Command Reference* for your version of Db2 (SC09-4828, SC09-2951, SC18-7416).

Using Db2 Query Monitor in a data sharing environment

Follow these steps to use Db2 Query Monitor to view activity in your data sharing environment.

Procedure

1. Select a CAE Server for ISPF view of data sharing group. For more information, see “Selecting a CAE Server for ISPF view of data sharing group” on page 151.

2. Select a data sharing group on the QM Subsystem Discovery panel. For more information see “Discovering Query Monitor Subsystems” on page 152.
3. You can now use Db2 Query Monitor to view activity in your data sharing environment.

**CAE Browser Client and data sharing**

When using the CAE Browser Client, a data sharing group is available for selection from the **Targets** drop-down list of the activity browser. This enables you to view activity for your data sharing group via the CAE Browser Client.

For more information about using the CAE Browser Client to view activity, see Chapter 20, “Activity Browser,” on page 329.

The data sharing view aggregates information from all subsystems that are currently monitored. The tool tip for the data sharing target shows the Db2 subsystems that are currently monitored.

Please note the following when viewing activity for a data sharing group using the CAE Browser Client:

- **Top-n filtering and data sharing groups:** In rare situations in which the total range of the filtered column is narrow and the workload is distributed across the data sharing group members in a specific way, the top-n filtering might be slightly inaccurate. For more information, see “Top-n filtering and data sharing groups” on page 334.
- **Intervals and data sharing:** When using the CAE Browser Client in a data sharing environment, the intervals that are shown for selection are obtained from the master Query Monitor Subsystem of the subsystem group. For more information, see “Intervals and data sharing” on page 368.

---

**Anomaly detection and reporting**

Db2 Query Monitor can be configured to report on exceptions and alerts using either manually specified thresholds or thresholds that have been established using anomaly detection on a workload.

- **Specifying thresholds manually** - Db2 Query Monitor administrators can manually determine and specify the appropriate thresholds for alerts and exceptions. This approach uses a fixed threshold value.
- **Specifying thresholds using anomaly detection** - Db2 Query Monitor administrators can configure anomaly detection for an SQL workload. This enables Db2 Query Monitor to inform users with alerts or exceptions whenever the performance of SQL deviates from recent historical averages. When configuring anomaly detection, administrators can specify how sensitive the anomaly detection should be to deviations. The thresholds determined by anomaly detection change as a function of how a system operates over time.

**Note:** In some situations (for example, when monitoring performance against an SLA), a fixed threshold might be more appropriate than a dynamic threshold. In other situations, a variable threshold provides the advantage by telling you when the system is exhibiting behavior that is very different than how it was performing last week (even if it is still within your SLA limit).

**Benefits**

Anomaly detection and reporting enables Db2 Query Monitor to learn what is normal over time, providing the following benefits:

- Db2 Query Monitor administrators no longer are required to approximate good threshold values. Instead, adaptive thresholds can be used with alerts and exceptions, allowing machine learning to determine what is normal over time.
- Adaptive thresholds enable Db2 Query Monitor to use machine learning to calculate what is normal for Elapsed Time, CPU, and GETPAGES.
- An alert or exception is produced only when an SQL statement execution is a user-specified variance from normal (standard deviation).
- Enhanced per-interval collection and reporting to add mean and variance.
- Enriched data for conventional summary views.
- Mean and variance from server startup and for each interval is reported.
• Alerts and exceptions become more meaningful because they are only triggered when an execution is user-specified variance from normal and multiple successive occurrences result in increased significance.
• Performance data history will provide more value.
• Will include calculated mean over time and per interval.
• Provide a richer environment for problem determination.

**Integration with other products**

Db2 Query Monitor integrates with these products to allow you to better analyze SQL performance and tune SQL queries.

**IBM Db2 AI for z/OS**

**Product description**
Enables organizations to reduce CPU consumption and IT cost through optimization for best query access paths. Help organizations improve Db2 application performance.

**Overview of integration**
Summaries and exceptions displays in the ISPF Client and the CAE Browser Client now include fields to report Db2 AI related statistics for Elapsed Time, CPU, and GETPAGES. Performance History Database tables have been updated to include the fields that report Db2 AI related statistics for Elapsed Time, CPU, and GETPAGES. Various options in monitoring profiles enable you to specify the use of threshold-based exceptions/alerts or anomaly-based exceptions/alerts for SQL workloads.

**Requirements**
IBM Db2 AI for z/OS

**IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS**

**Product description**
Provides real-time and historical performance and availability management for IBM z/OS operating system, networks, storage subsystems.

**Overview of integration**
The CLIENT_ENDUSER column (in Db2 Query Monitor’s CQM_EXCEPTIONS Performance History Database table) enables you to join data offloaded from Db2 Query Monitor with data in IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS tables. For more information, see “OMEGAMON integration” on page 415.

**Requirements**
IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS

**IBM Db2 SQL Performance Analyzer for z/OS**

**Product description**
Provides performance analysis of SQL queries before they are run to enable tuning and cost minimization.

**Overview of integration**
You can export SQL statements from Db2 Query Monitor to a data set that can be analyzed by IBM Db2 SQL Performance Analyzer for z/OS. For more information, see “Exporting SQL text to a data set” on page 190.

**Requirements**
IBM Db2 SQL Performance Analyzer for z/OS V2.1 and higher

**IBM Db2 Analytics Accelerator for z/OS**

**Product description**
Enables you to query data at high speeds, extend the capabilities of Db2 for z/OS, and lower operating costs.
Overview of integration
Db2 Query Monitor provides information about accelerator-eligible SQL such as estimates of CPU and elapsed time savings for queries that might be run on an IBM Db2 Analytics Accelerator for z/OS appliance. Db2 Query Monitor reports the potential savings from the Db2 subsystem level down to the SQL statement level or call level.

Data from Db2 Query Monitor can be loaded to accelerator tables. Alternatively, data from both Db2 Query Monitor and accelerator can be loaded to Db2 tables, offering possible integration of data.

Db2 Query Monitor reports whether or not a query ran in IBM Db2 Analytics Accelerator for z/OS. Db2 Query Monitor also reports information about SQL workload that would have been accelerated, if an accelerator had been available and all tables had been loaded to the accelerator.

The CAE Browser Client can use Db2 Query Monitor offload tables with data that was loaded to accelerator as a source for an archive connection.

For more information, see:
• “Displaying IBM Db2 Analytics Accelerator for z/OS information” on page 235
• “Adding an Archive Connection” on page 362.

IBM Db2 Analytics Accelerator Loader for z/OS
Product description
Provides ability to load data into Db2 for z/OS and IBM Db2 Analytics Accelerator for z/OS.

IBM Db2 Automation Tool for z/OS
Product description
Enables you to oversee routine database administration tasks without manual interventions and set up reoccurring utility jobs for conditional and routine Db2 maintenance tasks.

Overview of integration
Db2 Query Monitor integrates with Db2 Automation Tool to leverage the SQL performance data that Db2 Query Monitor collects on your application objects. Using these products together helps you avoid unnecessary reorganizations, thereby reducing CPU cycles, memory use, disk space usage, and the impact on your applications.

The Reorganization Recommendation Monitor component of the CAE Browser Client enables you to view reorganization recommendations and analyze performance windows and that have been captured as potential candidates for reorganization analysis. You can also view information about the thresholds that are currently used to evaluate your data.

For more information, see:
• Chapter 24, “Smarter reorganization recommendations with Db2 Automation Tool and Db2 Query Monitor,” on page 459
• “Using the Reorganization Recommendation Monitor” on page 420

Requirements
See “Prerequisites” on page 459 for information about the requirements for this integration.

Query tuning clients
Product description
Query tuning clients such as IBM DataStudio and IBM Data Server Manager allow you to analyze and tune SQL queries.

Overview of integration
The query tuning options in the Application Menu of the CAE Browser Client provide access to features such as query tuning, host variable collection, and staging tables. For more information, see “Query tuning” on page 372.
Implementation examples

The following describes how to implement Db2 Query Monitor for several different LPAR configurations.

Implementation example 1

Objective
To monitor one Db2 subsystem on a single LPAR.

Solution
To monitor one Db2 subsystem on a single LPAR in a non-data sharing environment, the following are required:

- A Query Monitor Subsystem
- One Support Services Address Space

Additionally, if you want to use the CAE Browser Client, you must also install and configure the following CAE components:

- CAE Agent
- CAE Server

Implementation example 2

Objective
To monitor two Db2 subsystems across two LPARs in a non-data sharing environment.

Solution
To monitor two Db2 subsystems across two LPARs in a non-data sharing environment, the following are required:

- One Query Monitor Subsystem installed on each LPAR
- One Support Services Address Space installed on each LPAR

Additionally, if you want to use the CAE Browser Client, you must also install and configure the following CAE components:

- One CAE Agent installed on each LPAR
- One CAE Server installed on one of the LPARs

Implementation example 3

Objective
To monitor two LPARs in a data sharing environment.

Solution
To monitor two LPARs in a data sharing environment, the following are required:

- One Query Monitor Subsystem installed on each LPAR
- One Support Services Address Space installed on each LPAR

Additionally, if you want to have ISPF view of data sharing or use the CAE Browser Client, you must also install and configure the following CAE components:

- One CAE Agent installed on each LPAR
- One CAE Server installed on one of the LPARs
Service updates and support information

Service updates and support information for this product, including software fix packs, PTFs, frequently asked questions (FAQs), technical notes, troubleshooting information, and downloads, are available from the web. To find service updates and support information, see the following website:

http://www.ibm.com/support/entry/portal/Overview/Software/Information_Management/DB2_Tools_for_z~OS

Product documentation and updates

DB2 Tools information is available at multiple places on the web. You can receive updates to DB2 Tools information automatically by registering with the IBM My Notifications service.

Information on the web

The DB2 Tools Product Documentation web page provides current product documentation that you can view, print, and download. To locate publications with the most up-to-date information, refer to the following web page:

http://www.ibm.com/software/data/db2imstools/db2tools-library.html

You can also access documentation for many DB2 Tools from IBM Knowledge Center:

http://www.ibm.com/support/knowledgecenter

Search for a specific DB2 Tool product or browse the Information Management > DB2 for z/OS family.

IBM Redbooks® publications that cover DB2 Tools are available from the following web page:

http://www.redbooks.ibm.com

The Data Management Tools Solutions website shows how IBM solutions can help IT organizations maximize their investment in DB2 databases while staying ahead of today’s top data management challenges:


Receiving documentation updates automatically

To automatically receive emails that notify you when new technote documents are released, when existing product documentation is updated, and when new product documentation is available, you can register with the IBM My Notifications service. You can customize the service so that you receive information about only those IBM products that you specify.

To register with the My Notifications service:

1. Go to http://www.ibm.com/support/mysupport
2. Enter your IBM ID and password, or create one by clicking register now.
3. When the My Notifications page is displayed, click Subscribe to select those products that you want to receive information updates about. The DB2 Tools option is located under Software > Information Management.
4. Click Continue to specify the types of updates that you want to receive.
5. Click Submit to save your profile.
How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other IBM product documentation, use one of the following options:

• Use the online reader comment form, which is located at http://www.ibm.com/software/data/rcf/.
• Send your comments by email to comments@us.ibm.com. Include the name of the book, the part number of the book, the version of the product that you are using, and, if applicable, the specific location of the text you are commenting on, for example, a page number or table number.

Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use a software product successfully.

The major accessibility features in this product enable users to perform the following activities:

• Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.
• Customize display attributes such as color, contrast, and font size.
• Operate specific or equivalent features by using only the keyboard. Refer to the following publications for information about accessing ISPF interfaces:
  – z/OS ISPF User’s Guide, Volume 1
  – z/OS TSO/E Primer
  – z/OS TSO/E User’s Guide

These guides describe how to use the ISPF interface, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.

Online help

Db2 Query Monitor’s ISPF Client provides help tutorials and context-sensitive column help. Db2 Query Monitor’s CAE Browser Client provides hover help and webhelp.

ISPF help tutorial navigation

A help tutorial panel is a special type of panel that is processed by the ISPF tutorial program. When viewing the tutorial, you can select topics by entering a selection code or by pressing Enter to view the next topic.

On any panel, you can also enter the following commands:

• BACK or B – Returns to the previously viewed panel.
• SKIP or S – Advances to the next topic.
• UP or U – Displays a higher-level list of topics.
• TOC or T – Displays the table of contents.
• INDEX or I – Displays the tutorial index.

You can use the following keys in the tutorial:

• Enter – Displays the next sequential page or scrolls a scrollable help panel.
• HELP – Displays the page for help information.
• END – Terminates the tutorial.
• UP – Displays a higher level list of topics (rather than typing UP).
• DOWN – Skips to the next topic (rather than typing SKIP).
• RIGHT – Displays the next page (rather than pressing Enter) or to scrolls a scrollable help panel.
• LEFT – Displays the previous page (rather than typing BACK) or to scroll a scrollable help panel.

When running under tutorial and trying to scroll past the end of the scrollable area, a message will be displayed indicating that no more information is available in the scrollable area. If RIGHT or Enter is pressed again, ISPF will follow the normal tutorial flow and display the next help panel if one has been defined. The same is true when scrolling to the TOP of the scrollable AREA; a message indicating that no more information is available will be displayed, and if LEFT is pressed, the previous tutorial panel will be displayed if one has been defined.

When no additional column-level help panels are available for a product panel, the following message is displayed:

```
CQMMHELP  Monitor ------ HELP: No additional panels ------ YYYY/MM/DD HH:MM:SS
Option ===>

There are no additional help panels associated with this topic.
Press PF3 to exit the online help and return to DB2 Query Monitor.

NOTE: If you were attempting to scroll a help panel and attempted to do so using the PF8 (down) key, you may have reached this panel unexpectedly. Please be aware that navigation through help panels differs from navigation through product panels. To find out more about navigating help panels, type 1 in the option line above and press Enter.
```

Figure 2. No Additional Panels message

**ISPF column help**

Db2 Query Monitor's ISPF Client supports context-sensitive column help. To access column help, type CHELP in the option line, place the cursor on the column of interest, and press Enter. A help panel displays a definition of the column. The CHELP command is valid on any Db2 Query Monitor ISPF panel that displays data in columns. If a panel does not contain columns (for example, a panel can contain a list of information or options) then the CHELP command is not valid for that panel.

**CAE Browser Client help**

The CAE Browser Client provides webhelp that can be accessed from any page in the CAE Browser Client by clicking the Help link in the header bar. Additionally, tool tips are displayed when you hover over many buttons, columns, and fields throughout the CAE Browser Client.
Chapter 2. Requirements

To use Db2 Query Monitor, your site must meet numerous operating system, environment, and other requirements.

Topics:
- “Operating system and environment requirements” on page 29
- “Other requirements” on page 31

Operating system and environment requirements

These are the operating system and environment requirements for Db2 Query Monitor's mainframe and CAE components.

Important: Do not use Db2 Query Monitor and similar SQL monitoring products to monitor the same Db2 subsystem because this might result in unpredictable results in Db2.

Mainframe requirements

The mainframe system on which the Db2 Query Monitor monitoring agent, Query Monitor Subsystem, ISPF client, and CAE Agent run must meet these requirements.

- IBM z/OS Version 2.1 (5650-ZOS) or later
- Db2 Version 10 and later, until end of support for the given Db2 version
- IBM SMP/E for z/OS V3.6 (5655-G44) or later
- IBM Db2 Data Access Common Collector for z/OS V1.1 (5639-OLC) or later
- ISPF Version 4 and later
- z/OS support for Unicode. The installation of z/OS support for Unicode with SMP/E is described in z/OS Planning for Installation (GA22-7504).
- There is no restriction running Db2 Query Monitor with Extended Address Volumes (EAV) 223GB volumes.
- Hardware support of zSeries-6 to support the zEC12 instructions is needed for Db2 AI feature

Calculating Db2 Query Monitor CPU usage

Db2 Query Monitor CPU overhead is not reflected in the Db2 Query Monitor started tasks. Overhead for Db2 Query Monitor started tasks is normally insignificant and consistent. Db2 Query Monitor use intercepts into the Db2 address space to monitor and collect the SQL performance metrics. This method is efficient but because it takes place in the Db2 Address Space you must look in the Db2 Application CPU to visualize any CPU overhead caused by Db2 Query Monitor's collection of SQL performance metrics. This can be done by collecting Db2 accounting and statistics traces and report the Db2 class 2 CPU time. Collect the tracing when Db2 Query Monitor is active and when it is inactive. Compare the results to calculate the cost of running Db2 Query Monitor.

CAE requirements

The operating system and environment must meet the following requirements for the CAE Server and CAE Browser Client.

Basic requirements for the CAE Server (applies to both Windows and USS)
The CAE Server requires the following (regardless of whether it is installed on Windows or USS):

- Network access using LAN
- Network protocol TCP/IP
The use of HTTP for the CAE Server is not recommended because it exposes mainframe user names and passwords across the network in clear text. The preferred solution is to obtain a valid certificate for the CAE Server and install the certificate in the CAE Server using the cqm_import_certs.bat script from the product bin directory (for the CAE Server on Windows) or CQMICERT (for the CAE Server on USS). The CAE Server uses standard Java keystore handling of certificates. The CAE Server contains an embedded Web server, and that is where the certificate handling takes place.

**Note:** If you run out of disk space, the CAE Server log files will not store logging information. Additionally, new alerts (alerts created after the disk filled up) will disappear when the CAE Server is restarted.

**Specific requirements for the CAE Server on Windows**

In addition to the basic requirements, the CAE Server, when installed on Windows, must also meet the following requirements:

- Any hardware configuration that supports any of the following 64-bit Windows operating systems:
  - Windows 7 (SR1)
  - Windows 8
  - Windows 8.1
  - Windows 10 (SR1 FP10)
  - Windows Server 2012, 2016, or 2019
- Minimum 8 GB RAM
- Minimum 5 GB free disk space available for the CAE
- Minimum 3 GHz processor speed (2 core minimum)

**Specific requirements for the CAE Server on USS**

In addition to the basic requirements, the CAE Server, when installed on USS, must also meet the following requirements:

- The user ID that the CAE Agent runs under must have an OMVS segment. For more information see “Setting up an MVS user ID to run the CAE Agent” on page 60.
- The CAE Server requires the most current maintenance of 64-bit IBM Java 8 including all prerequisites to be installed on your mainframe. IBM Java 8 can be downloaded from: http://www-03.ibm.com/systems/z/oss/osaltools/java/.
- The HFS for the installation of Db2 Query Monitor must be new or empty, it must not contain any files from previous versions of Db2 Query Monitor. If you want to retain customizations from previous versions, customize and run the SCQMSAMP member CQMCMGR.
- The total capacity of the ZFS or HFS file systems used by the CAE Server on USS must be 1GB (1200 cylinders).
- The HFS in which the CAE Server components are installed must be on DASD that is shared between the Primary CAE Server and any Backup CAE Servers to support fail over server capability.
- Typically, when running the CAE Server on USS, memory usage requirements are:
  - A 500MB Java heap
  - A REGION that is 300MB greater than the Java heap size
  - A setting of _BPX_SHAREAS=NO
- The CAE Server user ID must have:
  - Read permission to all files under and including /PRODUCTS/querymon. The output of the following command provides additional information: ls -aE /PRODUCTS/querymon/*
  - Execute permission on all directories under and including /PRODUCTS/querymon.
  - Read and write permission to all files in the CQM_VAR_HOME directory.
  - Read, write, and execute permission to all the sub-directories in the CQM_VAR_HOME directory.
TCP/IP is required to be running and operational before you start the CAE Server for connectivity to be available. Additionally, TCP/IP is also required for the shutdown of the CAE Server using the shutdown script (the shutdown task must be able to connect to the CAE Server). TCP/IP is also required for the watchdog if a Backup CAE Servers is configured for high-availability fault-tolerance. For this reason, it is recommended to schedule a shutdown of the CAE Server at least one minute prior to stopping TCP/IP for a scheduled system IPL, or other planned system outage.

Requirements for the CAE Browser Client

The CAE Browser Client runs on a workstation and requires the following:

- Firefox 47, Chrome 51, Internet Explorer 11 or higher versions of these browsers
- Javascript must be enabled
- Adobe Flash Player 22 or higher

General start up requirements for CAE components

To use the CAE Browser Client, you must first start the CAE Server.

The CAE Agent must be running on a z/OS system if you want to:

- Use the CAE Browser Client to view Db2 Query Monitor data on that system.
- Gather information about alerts and issue responses to those alerts.
- Use the CAE Browser Client to administer the CAE Agent on the system.

Other requirements

These additional items are required to use Db2 Query Monitor.

Conversion services requirements

Db2 Query Monitor requires the existence of CCSID conversion pairs for 500-1208 and 1208-500. At ISPF dialog start-up, Db2 Query Monitor verifies that translations are available from the CCSIDs 500 and 1208 and the CCSID of the user's terminal. If these translations do not exist, Db2 Query Monitor will terminate with message CQM1153E, instructing you to add these necessary CCSID pairs.

Conversion services must be configured to support the translations. Verify that the appropriate CCSID (codepage) conversion has been added to the z/OS unicode table in SYS1.PARMLIB. The 500 CCSID is used to resolve program names and other Db2 constructs with the user's terminal.

Notes:

1. You can specify the CCSID in the Db2 Query Monitor start-up CLIST. The ZTERMCID keyword is passed to CQM$MAIN in the CQMCLIST CLIST as follows: CQM$MAIN ZTERMCID(nnnn), where nnnn is the CCSID of the ISPF user's terminal.
2. If an object is created from an application bound in a single-byte CCSID, Db2 translates the object name to unicode using the application encoding scheme as the source CCSID. If the source CCSID is not a mixed-byte CCSID, the characters are treated as single-byte characters and none of the embedded DBCS characters are translated correctly.
3. If your site uses the FEC common code component, you might encounter message CQM1153E when attempting to convert from one CCSID to another when there is no direct conversion available. For example, the conversion requested can be from CCSID 500 to CCSID 8229. Unicode conversion services support states that a direct conversion between the two CCSIDs is not available, but an indirect one is available, from CCSID 500 to CCSID 1200 to CCSID 8829. The application code might also receive a return code 8, with reason code 3 when the initial conversion is attempted. Common code processing has been changed to allow applications to invoke the conversion services to attempt indirect conversions between CCSIDs.
4. Both direct and indirect conversion paths from 1208 to 500 are accepted by Db2 Query Monitor and will enable Db2 Query Monitor to start successfully.

Displaying information about IBM Db2 Analytics Accelerator eligible SQL

To evaluate static SQL statements to determine if they are accelerator-eligible, you must verify that you have the correct ZPARM settings. This includes setting the new ZPARM, ACCELMODE to YES. Refer to the IBM Db2 Analytics Accelerator for z/OS documentation and the IBM Db2 Analytics Accelerator Accelerator Modeling APAR PM90886 for additional information.

You must issue a BIND or REBIND PACKAGE for the Db2 packages. You can use the option APREUSE(ERROR) with the REBIND PACKAGE command to ensure that the current access plan remains unchanged. ACCELMODEL=YES is required during BIND/REBIND only, not at static SQL statement execution time. For dynamically executed statements in packages, no BIND or REBIND is required.

Db2 traces requirements

Db2 Query Monitor requires that you use several Db2 accounting and statistics traces to record Db2 subsystem data and events for use in problem determination.

Accounting traces

Accounting traces record Db2 subsystem data and events relating to application programs. Accounting traces capture information about start and stop times, the number of commits and aborts that take place, the number of times an SQL statement is used, the number of buffer pool requests, the counts of certain lock events, the processor resources that are consumed, thread wait times, RID pool processing, distributed processing, and resource limit facility statistics.

These classes enable you to define the type of accounting information that your system collects:

**Accounting class 1**

(Default) Shows the time an application has spent since it connected to Db2, including the time spent outside Db2. Accounting class 1 is not required to be activated.

**Accounting class 3**

Shows the elapsed time in terms of various waits such as the duration of suspensions due to waits for locks and latches or waits for I/O. Accounting class 3 must be activated to collect delay-related data statistics.

Statistics traces

Information collected using statistics traces enables you to conduct Db2 capacity planning and to tune Db2 programs. These traces record information about the amount of Db2 system services and database services that are used. Db2 Query Monitor uses these Db2 statistics classes:

**Statistics class 1**

(Default) Provides information about system services and database statistics.

**Statistics class 3**

Provides information about deadlocks and time-outs.

**Statistics class 4**

Provides information about exceptional conditions.

Activating statistics and accounting classes

Define the following classes in the DSN6SYSP macro of DSNZPARM to activate the appropriate accounting and statistics classes:

- SMFACCT=(1,3),
- SMFSTAT=(1,3,4),
Network and firewall requirements
The CAE requires certain network and firewall configurations in order for the CAE Agent, CAE Server, and CAE Browser Client to function properly.

Note:
• If you have recently made changes to your operating system, such as the installation of a Service Pack that includes changes in network security, you might encounter network connectivity issues. Review the information in this section to ensure your site meets all of the current requirements.
• If IP multicast is not supported between hosts, you are required to manually specify the IP address of the CAE Server in the JCL for the CAE Agents.
• If you encounter network issues with any of the CAE processes or services, stop the affected services, address any network issues causing the problems, and restart the services. If you are using a personal firewall on your computer, verify that the CAE ports remain unblocked.

Port usage requirements
The following describes the requirements for the ports used by the CAE Agent, CAE Server, Backup CAE Server, and CAE Browser Client.
Ensure that all of the ports (default or user-specified) that are used by CAE components are available.

General port usage
Ensure the following required, user-specified port is available on all z/OS images that on which a CAE Agent will run:

<table>
<thead>
<tr>
<th>Default Port Number(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None, must be specified by user</td>
<td>CAE Agent Listener Port Range</td>
</tr>
</tbody>
</table>

Port usage for the CAE Server on USS or Windows
If you deploy the CAE Server on USS or Windows, you must ensure the following default ports (or any custom ports you have defined in their place) are available:

<table>
<thead>
<tr>
<th>Default Port Number</th>
<th>Description</th>
<th>Firewall access required?</th>
<th>Is a listener port?</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>SMTP Port</td>
<td>Yes - from the CAE Server to the SMTP server</td>
<td>No</td>
</tr>
<tr>
<td>443</td>
<td>HTTPS Port</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>1112</td>
<td>JDBC Port</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>3444</td>
<td>Java Local Portal Port</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>3444</td>
<td>Java Remote Portal Port</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>3445-3455</td>
<td>RMI Port Range</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>3448</td>
<td>CAE Server Listener Port</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Network traffic considerations
The volume of Db2 Query Monitor network traffic is a function of threshold settings (more alerts result in higher traffic) and the kinds of requests that users make in the CAE Browser Client. The frequency of
messages depends on how often queries exceed the thresholds defined in the active Db2 Query Monitor profile for each monitored DB2 subsystem.

**Firewall requirements**
This topic describes the firewall requirements for Db2 Query Monitor.

The Db2 Query Monitor Windows service, `cqmservice.exe`, requires full access to your network. The `cqmservice.exe` executable file is used by the CAE Server for normal installations, used by the Primary CAE Server in high-availability and fault-tolerant installations, and is also used by the watchdog service on the Backup CAE Servers.

You must configure your firewall to provide `cqmservice.exe` with full access to your network. The `cqmservice.exe` executable file is located in the `bin\jre\bin` folder of the Db2 Query Monitor installation, for example: `C:\Program Files\IBM\DB2 Query Monitor V3.3\bin\jre\bin`.

**Notes:**
1. Some firewall applications require that you explicitly allow CAE components access to the PC on which they reside.
2. In the Windows XP SP2 environment, when the Windows Firewall is turned on, the CAE Browser Client cannot receive any data if the CAE Server is started in Windows Service Mode, but it can receive data if the CAE Server is started normally (by executing the bat file in bin directory of Db2 Query Monitor installation directory).

You must also configure your firewall to allow the appropriate TCP inbound and outbound protocols for the ports used by the CAE Agent, CAE Server, and CAE Browser Client.

**High-Availability Fault-Tolerance requirements**
The following requirements apply when deploying CAE components using High-Availability Fault-Tolerance.

- You must specify a Windows account under which the Db2 Query Monitor Windows service will log on.
- The Windows account on the PC where the Primary CAE Server or Backup CAE Server is installed must have sufficient privilege to start a Windows service.
- The Windows account must have the read/write authority to the mapped network drive on which the Primary CAE Server or the Backup CAE Server is being installed.
- The PC must be a member of a Windows domain. The Windows account must belong to the same windows domain and have administrator privileges on the machine on which the Primary CAE Server or Backup CAE Server is to be started.

**Certificates requirements - USS and Windows**
This topic provides information about certificates and how they are used by Db2 Query Monitor.

Certificates are used by HTTPS-based websites to enable a web browser to validate that an SSL web server is authentic. This authentication provides the user with assurance that their interaction with the website is secure and the website is what it claims to be.

A web master (or network and security administrator) obtains a certificate from a certificate provider (sometimes referred to as a certificate authority) with a certificate signing request. The certificate signing request is an electronic document that cites the website name, a contact e-mail address, and information about the company that owns the website. The certificate provider signs the request, which produces a public key certificate. The public key certificate is served to any web browser that connects to the website. The public key certificate proves to the web browser that the provider believes it has issued a certificate to the owner of the website.

For a certificate to be valid, the website host name must match the certificate name. Since each customer's host name is unique, a valid certificate cannot be included with the Db2 Query Monitor product. Instead, each site must obtain its own valid certificate.

Db2 Query Monitor offers three certificate scenarios:
Use default localhost certificate
This option causes the browser to warn users about the host name mismatch with the certificate. The browser will also warn users that it is being self-signed.

Create certificate
This option enables you to specify the host name (Db2 Query Monitor attempts to present a good default). If the browser user specifies that host the only warning should be about the self-signing.

Import certificate
The browser behavior depends on the quality and appropriateness of the certificate that is imported.

Certificates, keys, and keyrings - USS
The CAE Server, when installed on USS, can be configured to access certificates and keys from SAF keyrings instead of from .jks files in HFS.

Earlier releases of the CAE only supported the JKS keystore (using the file "defaultKeystore.jks"). To increase security, the CAE Server now supports the use of certificates and keys that are stored in SAF keyrings. Additionally, the CAE Server can access the private keys for those certificates, even if the keys are stored in the mainframe cryptography hardware CCA (ICSF).

Note: The CAE Server, when installed on Windows, can only use certificates and keys that are stored in .jks files.

Requirements
To access certificates and keys from SAF keyrings (instead of from .jks files in HFS) the CAE Server requires a certificate (containing a private key) for the HTTPS listener to use to identify the CAE Server to clients and encrypt the data sent over the network.

Note: For architectural reasons, the certificate you use must be in both the keystore and the truststore for your CAE Server (it must "trust itself").

Procedure
To tailor keystore and truststore usage for your CAE Server installation on USS, edit the STDENV DD statement of SAMPLIB member CQMCAESV as needed to specify the type of the keystore and truststore you intend to use as well as their location. The following environment parameters are used to customize keystore and truststore usage for the CAE Server on USS and are defined in the STDENV DD statement of SAMPLIB member CQMCAESV:
• CQM_CAE_KEYSTORE_TYPE
• CQM_CAE_TRUSTSTORE
• CQM_CAE_KEYSTORE

Examples
Using a RACF® keyring:

```
CQM_CAE_KEYSTORE_TYPE=RACF
CQM_CAE_TRUSTSTORE=safkeyring:///CQMRING1
CQM_CAE_KEYSTORE=safkeyring:///CQMRING1
```

Using a RACF keyring with hardware-stored keys:

```
CQM_CAE_KEYSTORE_TYPE=ICFSF
CQM_CAE_TRUSTSTORE=safkeyring:///CQMRING2
CQM_CAE_KEYSTORE=safkeyring:///CQMRING2
```

For additional information describing the z/OS facilities and how to work with them in Java, refer to Java Security on z/OS - The Complete View:
Relevant sections include Chapter 11, *Java and key management on z/OS*, particularly Section 3, *z/OS keystore details and provider requirements*.

**Memory usage requirements - USS**

This topic describes the memory usage considerations that apply to the operation of the CAE Server on USS.

Typically, when running the CAE Server on USS, memory usage requirements are:

- A 500MB Java heap
- A REGION that is 300MB greater than the Java heap size
- A setting of _BPX_SHAREAS=NO

The garbage collector in the mainframe Java Virtual Machine (JVM) allows the memory usage to approach the existing Java Heap size before garbage collecting. The JVM attempts to grow the heap when it is needed for even one-time memory demands.

If you set the heap size to 600, one-time large memory demands can cause the JVM to get close to that size even if a smaller heap size would have been sufficient overall. Once the JVM reaches the max heap size it will tend to stay close to that heap size even if it doesn’t need to because garbage collection is not initiated until the current heap is full.

Refer to Chapter 2, "Understanding the Garbage Collector" from the latest edition of the *IBM Developer Kit and Runtime Environment, Java 2 Technology Edition Diagnostics Guide* (SC34-6358) for more details.

The following situations could produce an increased demand for memory:

- An increased number of alerts
- A higher number of users logged on at the same time
- Larger tables displayed in the client

**Large viewing requests**

If a user makes a large viewing request (for example, to view many thousands of SQL Text summaries), the request will be refused if either the CAE Server or CAE Agent has insufficient memory to satisfy the request. If this occurs, a message appears in the data table indicating that the CAE Server or CAE Agent refused the request.

If the CAE Agent refused the request, or if you are running the CAE Server on USS, you must increase the CQM_HEAP and REGION and restart the appropriate address space.

If the restriction is in the CAE Server and the CAE Server is not running on USS, contact IBM Software Support for help in increasing the heap size for the CAE Server.

**Note**: For large SQL text summary displays we recommend you take advantage of the new TopN feature rather than increasing the heap size. Also note that a viewing request can run short of memory resources if your browsing history still contains previous large viewing requests. You should try using the **Clear History** button before deciding that there are insufficient resources for your request.

**Alerts and memory usage**

Alerts are intended to be used sparingly. If alerts arrive on the message board at a rate faster than you would like to receive emails, then you probably have the alerts threshold set too low. Alerts are not intended as a means of storing data that you go back to and review at a later time; exceptions serve that purpose.

**Optimizing Event AutoClear**

You can set Event AutoClear to a shorter period if needed. This is set by going to the MITs panel in the *Profiles & Configurations* browser and selecting **Event** in the tree and clicking on the link embedded in the appropriate text, for example:
"Automatically remove messages about this event from the message board 9 days after the initial posting time."

**Capacity requirements - USS**

The following are general guidelines regarding the real frames and aux storage slot usage of the CAE address spaces.

A CAE Agent must be active on each z/OS image that you want to see in a CAE Browser Client.

**Real Frames**

To prevent excessive paging, the CAE Agent address space requires a minimum of 1,000 real frames.

**Aux Storage**

Typically, the CAE Agent address space does not hold on to large amounts of memory. During requests for large numbers of rows the CAE Agent requires brief, temporary use of less than 3K bytes for each row. The default region size of 70M allows users to retrieve about 20,000 rows, limited then by the capacity of the CAE Server address space.

The CAE Server can run on a Windows workstation where it does not use z/OS resources.

**Real Frames**

To prevent excessive paging, the CAE Server under USS requires a minimum of 20T real frames.

**Aux Storage**

Typically, the CAE Server under USS uses 30T to 50T aux storage slots. With heavy use, it can require up to 90T aux storage slots. You should allow that existing-aux-storage-usage + 90T < 30% of total aux storage.

**SMP/E cross-zone requisite checking requirements**

Your system may contain products that are packaged and installed separately, but that have service level or interface dependencies.

For example, the installation of software service to Db2 Query Monitor, InfoSphere Guardium S-TAP for Db2 on z/OS, or InfoSphere Optim Workload Replay S-TAP on Db2 on z/OS, often requires the synchronization of service levels. Those products may be installed across multiple SMP/E zones. For example, service for software in the Db2 Query Monitor zone may require related service for the STP zone to permit all software within the system image to operate properly.

To help ensure proper synchronization across zones, you can instruct SMP/E to automatically check for cross-zone requisites during APPLY, ACCEPT, and RESTORE command processing. To enable automatic cross-zone requisite checking, you must instruct SMP/E which zones contain software to be checked for requisites. Multiple methods for implementing this process are described in the *SMP/E User's Guide* (SA22-7773).

**Dispatch priority requirements**

The Db2 Query Monitor dispatching priority should be equal to or above DBM1.

**Data sharing requirements and limitations**

To use Db2 Query Monitor to monitor data from the perspective of a data sharing group, your site must meet the following requirements.

**Requirements**

- A Query Monitor Subsystem (also referred to as an instance Db2 Query Monitor) of must be installed on each LPAR that has a Db2 subsystem (or subsystems) that you want to monitor.
- Every member of the data sharing group must be entered in the Db2 Control File (DB2PARMS).
- Every member of the data sharing group must be set up and monitored by Db2 Query Monitor (as any Db2 subsystem would be).
- Every member of the data sharing group must use the same plan and package names.
• The QM_GROUP parameter should be specified in the CQMPARMS file of every Query Monitor Subsystem that monitors a data sharing group member. For more information about, see “Query Monitor Subsystem parameters - CQMPARMS” on page 493.

• To view data for a data sharing group (using either the ISPF client or the CAE Browser Client), the CAE Agent and CAE Server must be installed and running. For more information, see Chapter 7, “Installing Db2 Query Monitor's CAE components,” on page 115 and “Selecting a CAE Server for ISPF view of data sharing group” on page 151.

Limitations

• When using Db2 Query Monitor in a data sharing environment, you cannot share interval data sets (CQMINTER) or Performance History Files that are defined in CQMPARMS (using the *_DSN data set name parameters).

CORRID processing for compatibility with OMEGAMON

Db2 Query Monitor CORRID processing supports compatibility with IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS (OMEGAMON) and allows related metrics to be queried between the Db2 Query Monitor Performance History Database and the OMEGAMON repository.

The correlation columns in the CQM_SUMM_METRICS and CQM_EXCEPTIONS tables include:

**CORRID**

- The correlation ID.
  - Data type
    - CHAR(12)

**CORRNAME**

- The correlation ID adjusted by the conventions used by IMS and CICS®.
  - Data type
    - CHAR(8)

**CORRNUM**

- The correlation number which is set based on the default OMEGAMON® parsing of the CORRID value.
  - Data type
    - CHAR(8)

**CONNECTION_TYPE**

- The Db2 connection type. Valid connection types include:
  1. **TSO**
     - TSO Foreground and Background
  2. **DB2CALL**
     - Db2 Call Attach
  3. **IMSDLI**
     - DL/I Batch
  4. **CICS**
     - CICS Attach
  5. **IMSBMP**
     - IMS Attach BMP
  6. **IMSMMP**
     - IMS Attach MPP
  7. **DB2PRIV**
     - Db2 Private Protocol
  8. **DRDA**
     - DRDA Protocol
OPTKEYS(CORRID) processing does not parse the CORRID value. CORRNAME and CORRNUM values are based on the default OMEGAMON parsing of the CORRID value.

Parsing of the CORRID value to obtain the CORRNAME matches the default OMEGAMON parsing of the CORRID. When OPTKEYS(CORRNAME) is specified the CORRID and CORRNUM values are blanks.

User-specified translation

By specifying the CORRID_TRANSLATION parameter in CQMPARMS, you can control how the CORRNAME and CORRNUM values are parsed from the CORRID.

OMEGAMON uses the Db2 trace record DSNDQWHC to obtain the connection name (QWHCCN) to determine how to parse the correlation ID (QWHCCV).

Disabling virtual PC cursor mode and protected mode when using screen readers

If you use a screen reader such as JAWS with the CAE Browser Client, you should disable virtual PC cursor mode and protected mode to avoid performance problems with the CAE Browser Client.

Procedure

1. Disable virtual PC cursor in the JAWS browser by clicking Insert + Z. A message is issued that confirms when virtual PC cursor mode has been turned off.
2. Disable protect mode.
   a) Locate your mms.cfg file.
      The location of the mms.cfg file depends on your Windows installation:
      **If you are using Windows 32-bit**
      C:\windows\system32\macromed\flash folder
      **If you are using Windows 64-bit**
      C:\windows\syswow64\macromed\flash folder
      If no mms.cfg file is present, create a one using a text editor and save it as mms.cfg.
3. Open the mms.cfg file in a text editor and add the following line:
   ProtectedMode=0
4. Save mms.cfg.
Chapter 3. Compatibility, maintenance, and upgrading

These topics provide information about Db2 Query Monitor compatibility, maintenance, and upgrading.

Topics:
- “Compatibility” on page 41
- “Maintenance - APARs and PTFs” on page 44
- “Upgrading” on page 46

Compatibility

Review the following information to ensure that Db2 Query Monitor components are compatible with your environment.

Important: Do not use Db2 Query Monitor and similar SQL monitoring products to monitor the same Db2 subsystem because this might result in unpredictable results for Db2.

Compatible releases and maintenance levels

Verify that you are using compatible releases and maintenance levels for products that use the IBM Db2 Data Access Common Collector for z/OS.

The following matrix shows the compatible version and release combinations of:
- IBM Db2 Query Monitor for z/OS
- Security Guardium S-TAP for Db2 on z/OS
- InfoSphere Guardium S-TAP for Db2 on z/OS

The following product abbreviations are used:
- IBM Db2 Data Access Common Collector for z/OS V1.1: CQC V1.1
- IBM Db2 Query Monitor for z/OS V3.2: CQM V3.2
- IBM Db2 Query Monitor for z/OS V3.3: CQM V3.3
- InfoSphere Guardium S-TAP for Db2 on z/OS V9.1: ADH V9.1
- Security Guardium S-TAP for Db2 on z/OS: ADH V10.0
- Security Guardium S-TAP for Db2 on z/OS: ADH V10.1.3

Note: All products must be running all of the required CQC IFREQs.

<table>
<thead>
<tr>
<th></th>
<th>CQM V3.2</th>
<th>CQM V3.3</th>
<th>ADH V9.1</th>
<th>ADH V10.0</th>
<th>ADH V10.1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM V3.2</td>
<td>---</td>
<td>LPAR</td>
<td>DB2</td>
<td>DB2</td>
<td>DB2</td>
</tr>
<tr>
<td>CQM V3.3</td>
<td>LPAR</td>
<td>---</td>
<td>DB2</td>
<td>DB2</td>
<td>DB2</td>
</tr>
<tr>
<td>ADH V9.1</td>
<td>DB2</td>
<td>DB2</td>
<td>---</td>
<td>LPAR</td>
<td>LPAR</td>
</tr>
<tr>
<td>ADH V10.0</td>
<td>DB2</td>
<td>DB2</td>
<td>LPAR</td>
<td>---</td>
<td>LPAR</td>
</tr>
<tr>
<td>ADH V10.1.3</td>
<td>DB2</td>
<td>DB2</td>
<td>LPAR</td>
<td>LPAR</td>
<td>---</td>
</tr>
</tbody>
</table>

where:
N
The two product releases are not compatible.

LPAR
The two product releases can coexist on the same LPAR (provided they use a different MASTER_PROCNAME value), but cannot be active on the same DB2 subsystem.

DB2
The two product releases can coexist on the same LPAR and can both be active on the same DB2 subsystem.

Compatible minimum maintenance levels as of August 2017
The following are the compatible minimum maintenance levels for the various products, as of August 2017.

Note: In the list that follows, compatible with means that the two products can run together on the same LPAR.

CQM V3.2 with PI81326 is compatible with:
- CQC V1.1 with PI81324
- ADH V9.1 with PI81339
- ADH V10.0 with PI81339
- ADH V10.1.3 with PI82369

CQM V3.3 with PI81326 is compatible with:
- CQC V1.1 with PI81324
- ADH V9.1 with PI81339
- ADH V10.0 with PI81339
- ADH V10.1.3 with PI82369

ADH V9.1 with PI81339 is compatible with:
- CQC V1.1 with PI81324
- CQM V3.3 with PI81326
- CQM V3.2 with PI81326

ADH V10.0 with PI81339 is compatible with:
- CQC V1.1 with PI81324
- CQM V3.3 with PI81326
- CQM V3.2 with PI81326

ADH V10.1.3 with PI82369 is compatible with:
- CQC V1.1 with PI81324
- CQM V3.3 with PI81326
- CQM V3.2 with PI81326

CQM fall back compatibility
If a site is not current with all applicable CQM maintenance for both V3.3 and V3.2, then compatibility problems can arise. You must apply APAR PI84055 to both CQM V3.2 and CQM V3.3 when upgrading and before starting CQM V3.3.

This APAR ensures that you can:
- fall back to CQM V3.2 if needed
- use the SQLCODE exclusion list
• view SQLCODE exclusion list when using a V3.2 profile in V3.3

Important restrictions and considerations
• Different versions of CQM cannot monitor the same DB2 subsystem at the same time.
• In order for CQM and ADH to run in shared collector mode on a given DB2 subsystem, you must enable the products to share a MASTER address space by specifying the same MASTER_PROCNAME value in the CQM and ADH start-up parameters.
• In order for different versions of CQM to run on the same LPAR, you must ensure they do not share a MASTER address space. To do this, you must specify different values for MASTER_PROCNAME in the start-up parameters for the different versions.
• The MASTER_PROCNAME parameter is required for the following:
  – CQM V3.3
  – CQM V3.2

Additional compatibility restrictions
The following additional compatibility restrictions apply to Db2 Query Monitor.

Running POSIX clients with TCP/IP connections
Db2 Query Monitor uses a Portable Operating System Interface (POSIX) client with TCP/IP connections. Users should be aware that there is an IBM restriction when running POSIX clients with TCP/IP connections. For more information about this restriction, refer to:
http://www-01.ibm.com/support/knowledgecenter/SSLTBW_2.1.0/com.ibm.zos.v2r1.halu001/tso.html

One symptom of this restriction is that if you are using IBM Db2 Recovery Expert for z/OS and Db2 Query Monitor simultaneously and you are connected to the IBM Db2 Recovery Expert for z/OS server, attempting to split the screen and go into Db2 Query Monitor and connect to a data sharing group produces the following error:

connect tcperror: : EDC8123I Socket already connected. (errno2=0x74940000)
CQMC0007I Unable to connect to CAE Agent at port ispf_listener_port

Compatibility of offload jobs
• The Db2 Query Monitor V3.3 offload process does not include the CQM@ITXT step.
• Additionally, the DDNAME definitions for TEXTCLOB, EXCPCLOB, and SQLCCLOB were changed from VB to VBS data set. You must update any existing offload jobs by referring to CQM@LDB2.
• To migrate data from V3.2 tables to V3.3 tables, refer to SCQMSAMP member CQM@CNVT. The new V3.3 tables must be defined before running this migration script.

Compatibility of performance history databases and IBM Db2 Analytics Accelerator
Db2 Query Monitor V3.3 supports the use of IBM Db2 Analytics Accelerator with the V3.3 performance history database. For information about migrating data from V3.2 accelerator objects to V3.3 accelerator objects (for use with IBM Db2 Analytics Accelerator) using SCQMSAMP members CQMMIDAA and CQMIDAAL, see Chapter 26, “Loading Db2 Query Monitor data to Analytics Accelerator,” on page 489.

CAE component compatibility
CAE components are only compatible with components of the same version.
• A newer CAE Server can retrieve data from Query Monitor Subsystems and CAE Agents that are at older maintenance levels (but the Query Monitor Subsystems and the CAE Agents must be at the same maintenance level as each other).
• A newer CAE Server can process requests from an ISPF client that is at an older maintenance level.
If you need to use two different versions of Query Monitor Subsystems on the same LPAR, you must run two CAE Agents, one of each version. If you only run one CAE Agent on an LPAR with two collector versions, you can only access the collectors that match the version of the CAE Agent.

You cannot run two CAE Servers on the same PC (if running the CAE Server on Windows) or LPAR (if running the CAE Server on USS). If you need to run two different versions of the CAE Server at the same time, you must run them on different PCs or LPARs. However you can install two versions on the same PC or LPAR and use the migration steps.

If your site has both V3.2 and V3.3 collectors on the same LPAR, you must run a V3.2 CAE Agent and a V3.3 CAE Agent on that LPAR, and each CAE Agent must pointing to a separate CAE Server.

The CAE components for Db2 Query Monitor V3.2 must be installed in a separate ZFS/HFS from the CAE Agent for Db2 Query Monitor V3.3.

**Maintenance - APARs and PTFs**

Db2 Query Monitor requires that maintenance (APARs and PTFs) be applied. Before applying maintenance, exit all instances of the Db2 Query Monitor. If your site is configured to use CAE components, shut down all instances of your CAE Agents and CAE Servers.

**FEC common code maintenance**

Db2 Query Monitor requires that the following FEC common code maintenance be applied.

**CAE Server maintenance recommendations**

When applying maintenance, always update the CAE Server first in order to guarantee that the CAE Server is not older than the Query Monitor Subsystems and ISPF clients.

This practice avoids compatibility problems in situations where you have some LPARs at one maintenance level and others at another maintenance level.

**Note:**

- A newer CAE Server can retrieve data from Query Monitor Subsystems and CAE Agents that are at older maintenance levels (but the Query Monitor Subsystems and the CAE Agents must be at the same maintenance level as each other).
- A newer CAE Server can process requests from an ISPF client that is at an older maintenance level.

**CAE Server maintenance - Windows**

These topics describe how to apply maintenance on a CAE Server that runs on Windows.

**PTFs that affect SCQMTRAN**

Carefully read HOLD text to determine if you need to upgrade the CAE Server when you apply a PTF that affects SCQMTRAN(CQMCAEPT).

**About this task**

SCQMTRAN(CQMCAEPT) is used for providing maintenance to the other Db2 Query Monitor components, after initial installation of Db2 Query Monitor.

If a PTF is applied on the mainframe but a corresponding CAE Server upgrade is not performed at the same time, unpredictable results may occur. For example, you might not be able to see data in some tables or you may encounter messages such as "No collectors found" or "No data found".

Complete this procedure for the most current SCQMTRAN(CQMCAEPT), maintenance is cumulative.

**Procedure**

1. Obtain the necessary setup executable files. For more information, see “Transferring the necessary setup executable files to a Windows PC” on page 59
2. Execute the file and follow the installation instructions.

Restoring the CAE Server - Windows
Follow these steps to restore the CAE Server to a previous level of maintenance.

Procedure
1. Obtain the necessary setup executable files. For more information, see “Transferring the necessary setup executable files to a Windows PC” on page 59.
2. Before starting the Db2 Query Monitor installation program, stop any Db2 Query Monitor services (or other KBM services) that are currently running.
3. Rollback SMPE/E to the desired level.
4. Uninstall the CAE Server.
   a) Select Start > Control Panel > Programs and Features
   b) Locate Db2 Query Monitor and click Uninstall/Change.
   c) If you want to keep the your CAE Server configurations, select Keep my changes.
5. Install the CAE Server using the CQMCAEAL installation file you transferred (for example, cqmcaeal.exe).
6. Install CAE Server maintenance using the CQMCAEPT installation file you transferred from desired SMP/E level (for example, cqmcaept.exe).

CAE Server maintenance - USS
SCQMSAMP member CQMCUPPT extracts updates from SCQMTRAN member CQMPXPT to the configuration and data files that were installed to the CQM_VAR_HOME directory during the base Db2 Query Monitor installation.

Before you begin
• When performing installation and maintenance, you should mount the FS with read/write permissions during installation and maintenance.
• When using the product, you should mount the FS with read-only permissions.
• Review the information in “File system locations for the CAE Server on USS” on page 431.

Procedure
Edit and run SCQMSAMP member CQMCUPPT according to the instructions in the member.

Restoring the CAE Server - USS
If you need to restore to a previous level of maintenance after running CQMCUPPT, you must re-run the base-level unpax job, CQMCUNPX, and the apply PTFs in sequence to the desired level.

About this task
When you re-run the base-level unpax job CQMCUNPX, the following message is displayed:
CQMC1004E CQMCUNPX has already been run. If you want to overwrite all maintenance, use CQM_FORCE_UNPAX=Y

Procedure
1. Perform appropriate SMP/E operations to ensure your SMP/E environment is at the right maintenance level.
2. Edit SCQMSAMP member CQMCUNPX to add the setting CQM_FORCE_UNPAX=Y. This setting removes file overwrite protection and forces CQMCUNPX to unpax the base files and write over any existing maintenance.
3. Run SCQMSAMP member CQMCUNPX.
4. Remove the CQM_FORCE_UNPAX=Y statement from CQMCUNPX and save.
   **Note:** This step enables you to avoid the accidental overwriting of maintenance in the future.

5. Run the CQMCUPPT to bring the CAE_VAR_HOME to the same maintenance level as the SMP/E environment.

---

**Upgrading**

When upgrading from previous versions of Db2 Query Monitor to the current version, consider the following information.

**General considerations**

Data collected by Db2 Query Monitor V3.2 can be read by Db2 Query Monitor V3.3.

When installing V3.3 using SMP/E to the same CSI where V3.2 was installed, SMP/E deletes V3.2 files and replaces them with V3.3 files. For this reason, it is recommended that you do not change the USS File System Paths in your CSI when upgrading from V3.2 to V3.3. You can rename existing paths, but those paths must contain the V3.2 files and data sets.

To maintain multiple product versions concurrently, they must be installed into separate CSI zones. Even if you install V3.3 into the same CSI as V3.2, you must still make a new CQM_VAR_HOME and use CQMCMGRT to import configurations from the V3.2 CQM_VAR_HOME.

**Important:** Do not run Db2 Query Monitor with similar SQL monitoring products against the same DB2 subsystem, because this might result in unpredictable results for DB2.

**CAE considerations**

When upgrading CAE components to V3.3, note the following:

- If you specify CQM_JAVA in the STDENV DD statement for the JCL that launches the CAE Server, you must ensure that CQM_JAVA points to a valid 64-bit IBM Java 8 installation.
- When you apply new maintenance, you must always update the CAE Server first in order to guarantee that CAE Server is not older than the Query Monitor Subsystems and ISPF clients. Such a strategy avoids compatibility problems in situations where some LPARs are at one maintenance level and others at another maintenance level.
- If you want to use V3.2 staging tables, you must execute the upgrade script, CQMSAMP member CQMCSMGT, to correctly configure staging tables. Staging tables cannot be reverted back to V3.2 after you execute the upgrade script.

**Upgrading from V3.2 to V3.3**

Follow these steps to upgrade from Db2 Query Monitor V3.2 to V3.3.

**Before you begin**

Before upgrading, verify that your site meets the following requirements.

**Maintenance and compatibility requirements**

- Compatibility problems can arise if a site is not current with all applicable Db2 Query Monitor maintenance for both V3.3 and V3.2. Ensure that both Db2 Query Monitor V3.2 and V3.3 are at the most recent GA maintenance levels prior to upgrading. Verify that all supporting maintenance and HIPERS are applied.
- Ensure that you apply APAR PI84055 to both Db2 Query Monitor V3.2 and Db2 Query Monitor V3.3 when upgrading and before starting CQM V3.3.
- If you are running other products that use the IBM Db2 Data Access Common Collector for z/OS, review the information in “Compatible releases and maintenance levels” on page 41 for the
required maintenance levels for these products to ensure that they are running on compatible code levels and upgrade as needed.

• To monitor the same Db2 subsystem and to share a common MASTER address space, Db2 Query Monitor and other products that use the IBM Db2 Data Access Common Collector for z/OS must use a common MASTER_PROCNAME parameter.

• If you need to see two different Query Monitor Subsystem versions on the same LPAR, you must run two CAE Agents, one each of the appropriate version, and each pointing to a separate CAE Server. If you only run one CAE Agent on an LPAR with two Query Monitor Subsystem versions, you will only be able to see the Query Monitor Subsystems that match the version of the CAE Agent.

Compatibility requirements for upgrading a CAE Server on Windows

• To run multiple CAE Servers at the same time, they must be run on different machines. If there is a need to see two different versions of Query Monitor Subsystems on the same LPAR, you must run two CAE Agents, one each of the appropriate version, and pointing to different CAE Servers. If you only run one CAE Agent on an LPAR with two versions of Query Monitor Subsystems, you will only be able to see the Query Monitor Subsystem that matches the version of the CAE Agent.

• If you upgrade the CAE Server, the configurations (such as users, message boards, scopes, param overrides) automatically migrate to the new installation directory if during installation you confirm that you have a prior installation of Db2 Query Monitor from which you want to import data. If your V3.2 installation folder is not accessible from the machine where you install the V3.3 CAE Server, you must manually copy the site and user configuration folders (DB2 Query Monitor v3.2\knowledge\site and DB2 Query Monitor v3.2\knowledge\userconfigurations, respectively) from the old install to the new install.

Compatibility requirements for upgrading a CAE Server on USS

• To run multiple CAE Servers at the same time, they must be run on different LPARs. If there is a need to see two different versions of Query Monitor Subsystems on the same LPAR, you must run two CAE Agents, one each of the appropriate version, and pointing to different CAE Servers. If you only run one CAE Agent on an LPAR with two versions of Query Monitor Subsystems, you will only be able to see the Query Monitor Subsystem that matches the version of the CAE Agent.

• Configurations can be copied from your V3.2 CAE Server to your V3.3 CAE Server using the CQMMGRT script.

• If you install V3.3 into an existing CSI that contains V3.2, SMP/E deletes the previous version during the installation process. Ensure the USS File System Paths in your CSI remain the same. To maintain multiple product versions concurrently, they must be installed in separate CSI zones. Even if you install V3.2 into the same CSI as V3.3, you must still make a new CQM_VAR_HOME and use CQMCMMGRT to import configurations from the V3.2 CQM_VAR_HOME.

Requirements for upgrading a CAE watchdog

To use fault tolerance functionality after upgrading to V3.3 you must uninstall the V3.2 watchdog service and install the V3.3 watchdog service.

CAE parameter requirements

• If you specify the CQM_JAVA parameter in the STDENV DD statement for the JCL that launches the CAE Server, you must ensure that CQM_JAVA points to a valid 64-bit IBM Java 8 installation.

Procedure

1. Install Db2 Query Monitor V3.3.
   If you want to retain your V3.2 customizations for use in V3.3, you can reuse the following data sets: CQMINTER, DB2PARMS, CQMPARMS, CQMPROFS.

2. Install the V3.3 CAE Agent and CAE Server. For more information, see “Installing the CAE Server” on page 116 and “Migrating CAE customizations” on page 48.

3. Shut down the existing Db2 Query Monitor V3.2 subsystem.
4. Stop all instances of Db2 Query Monitor and other products that use the IBM Db2 Data Access Common Collector for z/OS that are running on the z/OS image, and then shut down the V3.2 CQMMSTR address space. Refer to SCQMSAMP member CQMMSTR.

5. Start the V3.3 Query Monitor Subsystem. The data collected in V3.2 can now be read by V3.3.

### Upgrading data in the Performance History Database

You can upgrade your Performance History Database from Db2 Query Monitor V3.2 to V3.3 by customizing and submitting two jobs. Customizable JCL for each job is provided in the sample library.

#### Considerations

The following requirements and limitations apply to the offload upgrading process.

- Db2 Query Monitor V3.3 automatically supports all V3.2 Performance History Files, V3.3 is capable of offloading V3.2 Performance History Files. Any V3.3 data that is not present is offloaded as default values.
- The Performance History Database table names use the CQM_ prefix. Prior releases used release-specific prefix, for example CQM32__ was used for Db2 Query Monitor V3.2. The ability to rename the table names has been deprecated and may be removed in a future release.

#### Upgrading your Performance History Database

To upgrade your Performance History Database from V3.2 to V3.3, customize and run highlevel.SCQMSAMP member CQM@CNVT according to the instructions in the member. 

**CQM@CNVT**

This is a LOAD utility job that loads the data from the Db2 Query Monitor V3.2 repository tables to the Db2 Query Monitor V3.3 tables. The utility statements in this job use the cross-loader function of the LOAD utility to copy data directly from the old tables to the new tables. This job must be run first and can be run repeatedly if necessary. If a failure occurs on one of the LOAD utility statements, rerunning the job allows DSNUTILB to restart the utility at the proper place in the utility stream. The new V3.3 objects must be created using CQMDDL (or TCz) prior to running this job.

#### Upgrading your accelerator data

To upgrade Db2 Query Monitor V3.2 accelerator tables to Db2 Query Monitor V3.3 accelerator tables, you must first create the V3.3 accelerator tables and then customize and run highlevel.SCQMSAMP member CQMMIDAA according to the instructions in the member. After you run CQMMIDAA, if your target is accelerator shadow tables (not accelerator-only tables) for Db2 Query Monitor V3.3, customize and run highlevel.SCQMSAMP member CQMIDAAL according to the instructions in the member.

#### Migrating CAE customizations

Many aspects of the CAE can be customized for your preferences and site's needs.

**About this task**

For example, depending on your authority, you can set-up users, configure message boards, define scopes, create parameter overrides, define filters, and much more.

The customizations are stored within the installation folders used by the CAE Server. Additionally, client and server logs generated by Db2 Query Monitor are treated the same as CAE customizations and are retained, reused, or migrated according to the same methods and conditions as described for CAE customizations (no separate process is required for handling logs, they are treated the same as customizations).
Migrating CAE customizations - Windows
To migrate CAE Server customizations, select Install to a new location while keeping changes from {previous version} installation during the installation process.

About this task

**Note:** If you remove the previous version of the CAE Server before you run the installation program to install the new version of the CAE Server, the Install to a new location while keeping changes from {previous version} installation option will not be available.

For more information, see “Installing a single CAE Server - Windows” on page 117.

Migrating CAE customizations - USS
To migrate your CAE Server customizations on USS, edit and run SCQMSAMP library member CQMCMGRT according to the instructions in the member.

About this task
These options can be specified in CQMCMGRT to control the migration of your CAE customizations:

- **CQMMGRT_EXCLUDE_HISTORY=TRUE|FALSE**
  - Specify TRUE to exclude historical data (such as messages on message boards). Specify FALSE to include historical data.

- **CQMMGRT_REPLACE=TRUE|FALSE**
  - Specify TRUE to migrate CAE Server customizations from the previous installation and use them to replace CAE Server customizations in the new version.

To keep historical data (such as messages on the message board) and customizations (such as e-mail actions and responses), specify:

```
CQMMGRT_EXCLUDE_HISTORY=FALSE
CQMMGRT_REPLACE=TRUE
```

To exclude historical data and keep e-mail actions and responses from the previous version, specify:

```
CQMMGRT_EXCLUDE_HISTORY=TRUE
CQMMGRT_REPLACE=FALSE
```

Reverting the Query Monitor Subsystem to a previous version

Follow these steps to revert from the current version of the Query Monitor Subsystem to a previous version.

**Procedure**

1. Shut down the current version of the Query Monitor Subsystem.
2. Stop all instances of Db2 Query Monitor and other products that use the IBM Db2 Data Access Common Collector for z/OS that are running on the z/OS image.
3. Shut down the Master Address Space that the current version of the Query Monitor Subsystem was using.
4. Start the previous version of the Query Monitor Subsystem.
Removing PTFs

Follow these steps to remove PTFs or fixtests.

About this task
When removing components, choose to keep changes if prompted unless you are permanently removing the application and want to delete any configurations.

Procedure

• After you apply one or more PTFs to the base components, you want to remove those PTFs and return to the base components.
  Remove the PTFs using Control Panel > Add or Remove Programs. When prompted whether or not to delete the pinpoint.jar and pinpoint.blob files, specify Yes. Reinstall the base components.

• After you apply two PTFs (PTF1 and PTF2) to the base components, you want to remove PTF2 and return to PTF1.
  Reverting to the chosen APAR level in SMPE, re-download the SCQMTRAN(CQMCAEPT), and re-install it. If you are prompted to replace pinpoint.jar and pinpoint.blob files with older versions, select Yes.

• After you apply a fixtest to the base components, you want to install the PTF from the tape.
  Download the SCQMTRAN(CQMCAEPT) and install it. If prompted whether or not to delete the pinpoint.jar and pinpoint.blob files, specify Yes.

Removing CAE components

Follow these steps to remove CAE components.

Procedure

1. On the machine where the CAE Server is installed, go to Control Panel > Add or Remove Programs.
2. Locate IBM DB2 Query Monitor for z/OS and select Change/Remove.
3. Click Next.
4. Select Keep my changes if you want to keep the logs and customizations from the previous installation.
5. Click Next.
6. Restart your computer.

What to do next
If you do not remove a previous version of the CAE Server, you will not be able to remove it using Control Panel > Add or Remove Programs. The Control Panel only shows the current version of the CAE Server.
To remove a previous version of the CAE Server, go to the uninstall folder located in the directory in which the previous version is installed and run the uninstall executable.

Removing Backup CAE Servers

Follow these steps to remove the Primary CAE Server and any Backup CAE Servers.

Procedure

1. Stop the Watchdog service.
2. Remove the CAE Server application from all Backup CAE Servers.
3. Remove the CAE Server application from the Primary CAE Server.
Before you customize Db2 Query Monitor for the first time, determine the values that you will need to specify and familiarize yourself with the necessary tasks.

The following checklist lists and describes each significant customization step. Use this checklist to guide you through the entire customization process.

<table>
<thead>
<tr>
<th>Task</th>
<th>Link to detailed instructions</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools Customizer basics</td>
<td>“Tools Customizer terminology” on page 743</td>
<td></td>
</tr>
<tr>
<td>Prior to beginning the customization process, familiarize yourself with Tools Customizer terminology and data sets, and other basic information about Tools Customizer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software requirements</td>
<td>“Verify that your environment meets software requirements” on page 54</td>
<td></td>
</tr>
<tr>
<td>Verify that your environment meets the minimum software requirements. To install and use Db2 Query Monitor, your environment must be running a supported version of the z/OS operating system and of DB2 for z/OS. Additionally, certain levels of maintenance must be applied.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMP/E installation</td>
<td>“Verify that Tools Customizer has been installed successfully” on page 54</td>
<td></td>
</tr>
<tr>
<td>Verify that Db2 Query Monitor has been installed correctly. Db2 Query Monitor is installed by using standard SMP/E processing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verify that Tools Customizer for z/OS has been installed correctly. Tools Customizer for z/OS is installed by using standard SMP/E processing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security requirements</td>
<td>“Verify that your environment meets security requirements” on page 54</td>
<td></td>
</tr>
<tr>
<td>Make sure that you have the required authorizations to use Db2 Query Monitor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare to customize collector, ISPF, and CAE components</td>
<td>Perform the additional tasks described in “Preparing to customize collector and ISPF components” on page 55 and “Preparing to customize CAE components” on page 59 to prepare your collector, ISPF components, and CAE components for customization.</td>
<td></td>
</tr>
<tr>
<td>Perform these additional tasks to prepare for the customization of collector, ISPF, and CAE components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gather data set names</td>
<td>“Worksheets: Gathering required data set names” on page 62</td>
<td></td>
</tr>
<tr>
<td>During the customization process, you must specify data set names for the following things:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Tools Customizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• FEC (common code)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Db2 Query Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APF authorization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Link to detailed instructions</td>
<td>Status</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------</td>
<td>--------</td>
</tr>
</tbody>
</table>
| The following data sets must be APF authorized:  
  - SCQMLOAD  
  - SFECLOAD | “APF authorizing load libraries” on page 65 |        |

### Gather parameter values

During the customization process, you must specify parameter values for Db2 Query Monitor, for DB2, and for your LPAR.

“Worksheets: Gathering parameter values for Db2 Query Monitor” on page 66

### Customize Db2 Query Monitor

Start Tools Customizer by running a REXX EXEC from the ISPF Command Shell panel.

“Starting Tools Customizer” on page 89

Set up Tools Customizer user settings. If you are running Tools Customizer for the first time, you must modify several user settings to suit your environment. Otherwise, if the user settings that you have already established are still appropriate, skip this step.

“Modifying Tools Customizer user settings” on page 90

Complete the steps in the appropriate customization roadmap based on the type of customization that you are performing.

### Customizing Db2 Query Monitor for the first time

Follow this roadmap if you do not have a customized version of Db2 Query Monitor, and you need to customize it for the first time.

“Roadmap: Customizing Db2 Query Monitor for the first time” on page 95

### Customizing a different version of Db2 Query Monitor

Follow this roadmap if you have already customized a version of Db2 Query Monitor and you want to use the same parameter values to customize a different version.

“Roadmap: Customizing a new version of Db2 Query Monitor from a previous customization” on page 96

### Recustomizing Db2 Query Monitor

Follow this roadmap if you have a customized version of Db2 Query Monitor but you want to change one or more parameter values.

“Roadmap: Recustomizing Db2 Query Monitor” on page 97

---

**Tools Customizer special considerations and limitations**

Some Db2 Query Monitor customizations cannot be handled by Tools Customizer. As a result, you might be required to make manual updates to configure some functionality.

**Note:** Tools Customizer provides general customization features for Db2 Query Monitor and cannot be tailored to meet the needs of all possible installation scenarios.
Monitoring multiple DB2 subsystems

Db2 Query Monitor can be configured to monitor multiple DB2 subsystems, but Tools Customizer supports the configuration of only one DB2 subsystem. If there are multiple MONITOR parameters defined in a previously-customized Db2 Query Monitor parameter file (CQMPARMS), Tools Customizer uses the last one.

Monitoring a data sharing group

Using SCQMSAMP member CQM#CTLF to configure monitoring for a data sharing group

SCQMSAMP member CQM#CTLF adds the group attach name for every member of the data sharing group.

- Edit SCQMSAMP member CQM#CTLF according to the instructions in the member.
- Customize the ADD operation so that in place of the DB2 subsystem ID (#DB2S#), you specify the data sharing group attach name.
- Specify the Bootstrap Data Sets (#BSDS1# and #BSDS2#) and Loadlibs (#LOADLIB1#, #LOADLIB2#, #LOADLIB3#, #LOADLIB4#, #LOADLIB5#) for one of the DB2 subsystems that belongs to the data sharing group.
- Specify the plan and DB2 ZPARMS member.
- Run the job to add the data sharing group attach name to DB2PARMS.

Considerations for IBM Db2 Analytics Accelerator compatibility of offload tables

Tools Customizer generates DDL that can be used to create Db2 offload tables, but those tables are not compatible with IBM Db2 Analytics Accelerator.

If you want the DB2 offload tables that you create to be compatible with IBM Db2 Analytics Accelerator, you must customize and run the SAMPLIB member CQMIDAA (edit macro) which makes the CQMDDL compatible with IBM Db2 Analytics Accelerator. Then the modified CQMDDL can be executed to produce IBM Db2 Analytics Accelerator compatible Db2 tables. Additionally, a new LOAD job must be customized and used to replace the CQM@LDB2 job created by TCz. The SAMPLIB member for the replacement job is CQM@LIDA. For more information, see Chapter 26, “Loading Db2 Query Monitor data to Analytics Accelerator,” on page 489.

Limits for data set name lengths in Tools Customizer

Tools Customizer limits the length of names for data sets, CLIST libraries, started task proclibs, and parameter file data sets.

When using Tools Customizer, be aware of the following limitations:

- Data set names generated by TCz are limited to 44 characters or less.
- The name of the start-up CLIST library is limited to 31 characters or less.
- The name of the started task proclib is limited to 42 characters or less.
- The name of the CQMPARMS parameter file data set name is limited to 42 characters or less.

If you need to use a longer names for these items, you can manually edit the name after the member is generated by Tools Customizer.
Set up your environment prior to customization

Prior to beginning the customization process, ensure that your environment meets all requirements, that you have installed all prerequisite software, and that you have considered how you want to customize optional features.

Verify that your environment meets software requirements

Ensure that your environment meets the software requirements described in Chapter 2, “Requirements,” on page 29.

In addition to the maintenance requirements that are documented in the program directory, make sure that your system meets the requirements described in “Compatible releases and maintenance levels” on page 41 and “Maintenance - APARs and PTFs” on page 44.

Verify that Tools Customizer has been installed successfully

Tools Customizer is a component of IBM Tools Base for z/OS (5655-V93), which is available free of charge. Tools Customizer provides a standard approach to customizing IBM DB2 for z/OS Tools.

See the Program Directory for IBM Tools Base for z/OS, GI10-8819 for installation instructions.

Verify that your environment meets security requirements

Db2 Query Monitor requires no extra security measures outside of standard DB2 security. If a user does not have authority to view a table within a DB2 subsystem, Db2 Query Monitor will not allow the user to see data changes made to that table. Similarly, undo and redo SQL that generated from the product can be run through products such as SPUFI or QMF, and therefore also adheres to normal DB2 security for the user who runs this SQL.

You must have authorization to run the SELECT statement on the following tables:

- SYSIBM.SYSAUXRELS
- SYSIBM.SYSCOLUMNS
- SYSIBM.SYSCOPY
- SYSIBM.SYSFIELDS
- SYSIBM.SYSCOPY
- SYSIBM.SYSINDEXES
- SYSIBM.SYSKEYS
- SYSIBM.SYSKEYTARGETS
- SYSIBM.SYSTABLEPART
- SYSIBM.SYSTABLES
- SYSIBM.SYSTABLESPACE
- SYSIBM.SYXMLRELS
- SYSIBM.SYXMLSTRINGS

By default, Db2 Query Monitor can run the REPORT utility against filtered objects. This activity is transparent to the user and can be disabled by setting the Misc Flags value on the general report panel to a value of X. If you do not disable this feature for any given run, you must have one of the following authorizations to access the REPORT utility through Db2 Query Monitor:

- RECOVERDB privilege for the database
- DBADM or DBCTRL authority for the database
- SYSCTRL or SYSADM authority
Prepare to customize collector, ISPF, and CAE components

Perform the additional tasks described in “Preparing to customize collector and ISPF components” on page 55 and “Preparing to customize CAE components” on page 59.

Preparing to customize collector and ISPF components

The following steps are required to prepare your collector and ISPF components for customization.

Procedure

1. Apply all required maintenance. In addition to the maintenance requirements that are documented in the program directory, make sure that your system meets the requirements described in “Compatible releases and maintenance levels” on page 41 and “Maintenance - APARs and PTFs” on page 44.

2. Gather information about the authorizations you will need to set. For more information, see “Reviewing and setting proper authorizations” on page 55.

Reviewing and setting proper authorizations

The proper authorizations are required to perform various tasks relating to Db2 Query Monitor installation, customization, and use.

Procedure

1. Review the required authorizations.

Review the authorizations listed in the following table to ensure that the proper authority is available for each user based on the tasks they will be required to perform.

<table>
<thead>
<tr>
<th>Description</th>
<th>Auth type</th>
</tr>
</thead>
<tbody>
<tr>
<td>The installation of Db2 Query Monitor requires DBADMN authority or higher.</td>
<td>SYSADM</td>
</tr>
<tr>
<td>Running Db2 Query Monitor requires that the Db2 Query Monitor load library is APF-authorized.</td>
<td>APF</td>
</tr>
<tr>
<td>Running Db2 Query Monitor requires users to have EXECUTE authority for the Db2 Query Monitor plan requires.</td>
<td>DB2</td>
</tr>
<tr>
<td>Users must have UPDATE authority on the CQMPROF data set to create or update monitoring profiles. Users must have READ authority on the CQMPROF data set to view monitoring profiles.</td>
<td>RACF</td>
</tr>
<tr>
<td>Users must have authority to create and use the Db2 Control File (DB2PARMS).</td>
<td>RACF</td>
</tr>
<tr>
<td>The user ID for the Query Monitor Subsystem started task must have RRSAF access to Db2.</td>
<td>RACF</td>
</tr>
</tbody>
</table>

Note: The Db2 connection method for the Query Monitor Subsystem, Performance History Database, and CAE components is RRSAF (replaces CAF, which was used previously). This enables Db2 authorization checking based on the user that is logged in when accessing remote data sharing members through the CAE. The ISPF client still uses CAF for accessing Db2.

2. Configure RACF facility class profiles to restrict or grant authority to perform Db2 Query Monitor functions.

Secure Db2 Query Monitor’s functions by configuring the RACF Facility Class Profiles as appropriate for your site. A function is not secured if the corresponding RACF Facility Class Profile does not exist. If
the specific RACF Facility Class Profile does not exist, then the most granular generic RACF Facility
Class Profile will be applied in its place.

For example, if CQM.ACCESS.qmid does not exist for a given Query Monitor Subsystem, but a generic
RACF Facility Class Profile name CQM.ACCESS.* exists, then the generic profile will be used.

Only authorization IDs with READ access to the profile employed will be cleared by RACF.

Table 6. RACF profiles and authorities

<table>
<thead>
<tr>
<th>Function</th>
<th>Description of authority</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access</td>
<td>Enables user to access to the Query Monitor Subsystem.</td>
<td>CQM.ACCESS.qmid</td>
</tr>
<tr>
<td>Dynamic activate</td>
<td>Enables user to activate monitoring on DB2 subsystem.</td>
<td>CQM.ACTIVATE.qmid.ssid</td>
</tr>
<tr>
<td>Dynamic deactivate</td>
<td>Enables user to deactivate monitoring on DB2 subsystem.</td>
<td>CQM.DEACTIVATE.qmid.ssid</td>
</tr>
<tr>
<td>Monitoring profile refresh</td>
<td>Enables user to refresh a monitoring profile used by the DB2 subsystem.</td>
<td>CQM.REFRESH.PROFILE.ssid</td>
</tr>
<tr>
<td>Monitoring profile change</td>
<td>Enables user to change the monitoring profile used by the DB2 subsystem.</td>
<td>CQM.CHANGE.PROFILE.ssid</td>
</tr>
<tr>
<td>Administrative functions -</td>
<td>Enables user to access to the Db2 Query Monitor Setup panel (option 7 in ISPF client) and access the control file updater program (CQM#CTLF). Only authorization IDs with READ access to this profile within the RACF FACILITY class are cleared by RACF. For ISPF, if this security check fails, the main menu does not give access to Option 7 (Setup panel). For the CQM#CTLF program, if this security check fails, the program returns a return code of 16.</td>
<td>CQM.ADMIN.FUNCTIONS</td>
</tr>
</tbody>
</table>

3. **Configure RACF facility class profiles and RACF data set profiles to protect data throughout Db2 Query Monitor.**

Two RACF protection measures are used to secure data throughout Db2 Query Monitor:

- **Securing data in prior intervals and exceptions**—If you want to secure data in prior intervals and exceptions, you must configure a RACF data set profile for the appropriate backstore data sets that hold the data you intend to protect (for example, a RACF data set profile might be QMPROD.CQM1.EHSTV.*`).
### Table 7. RACF profiles and authorities

<table>
<thead>
<tr>
<th>Function</th>
<th>Description of authority</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>View data in an exception or interval data set</td>
<td>Enables users to access data stored in the data set.</td>
<td>Example: QMPROD.CQM1.EHSTV.**</td>
</tr>
</tbody>
</table>

- **Securing the functions users can access in the CAE**—The functions that a user can access in the CAE are determined by their access to the CQM.CAE* facility classes:
  - CQM.CAE.ADMINISTRATOR
  - CQM.CAE.OPERATOR
  
  A user is assigned the first role for which they have UPDATE authority (roles are checked in the order they are listed above). If a user has none of these authorities, they can still use the Activity Browser. The Activity Browser uses the same authorizations as ISPF. Authentication is performed on the mainframe and parallels that of ISPF users.

### Table 8. RACF profiles and authorities

<table>
<thead>
<tr>
<th>Function</th>
<th>Description of authority</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAE administrator role</td>
<td>If the user has UPDATE access to CQM.CAE.ADMINISTRATOR the user receives the access privileges associated with the administrator role.</td>
<td>CQM.CAE.ADMINISTRATOR</td>
</tr>
<tr>
<td>CAE operator and viewer roles</td>
<td>If the user has UPDATE access to CQM.CAE.OPERATOR the user receives the access privileges associated with the operator role. If the user has READ access to CQM.CAE.OPERATOR the user receives the access privileges associated with the viewer role.</td>
<td>CQM.CAE.OPERATOR</td>
</tr>
<tr>
<td>CAE authenticated role</td>
<td>User is not added to CQM.CAE.ADMINISTRATOR or CQM.CAE.OPERATOR</td>
<td></td>
</tr>
</tbody>
</table>

The following list describes the actions permitted and prohibited for the various user roles:

**Administrator**

A user that has an Administrator role:
  - Has access to all features and product panels

**Operator**

A user that has an Operator role:
  - Cannot access or use Configuration or Tools
  - Can perform Alert Browser actions (acknowledge, delete, create new message board, and so forth)
  - Cannot update or delete shared configurations
  - Cannot access or use Data Server Manager (DSM) integration features
Viewer
A user that has a Viewer role:
- Cannot access or use Configuration or Tools
- Cannot perform Alert Browser actions (acknowledge, delete, create new message board, and so forth). Can only views alerts.
- Cannot update or delete shared configurations
- Cannot access or use Data Server Manager (DSM) integration features

Authenticated
A user that has an Authenticated role:
- Cannot access or use Configuration or Tools
- Cannot access or use the Alert Browser
- Can use Activity Browser (access to panels depends from RACF privileges of the user in ISPF)
- Cannot update or delete shared configurations
- Cannot access or use Data Server Manager (DSM) integration features

- Securing data in current activity, summaries, or SQLCODEs—If you want to secure data in current activity, summaries, or SQLCODES, you must configure a RACF facility class profile for the appropriate function (for example, a RACF facility class profile might be CQM.HOSTV.qmid which protects host variable information in current activity).

Note: To protect host variables in exceptions, you’ll need a RACF data set profile configured (as described in Table 7 on page 57).

Table 9. RACF profiles and authorities

<table>
<thead>
<tr>
<th>Function</th>
<th>Description of authority</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host variable collection in the CAE</td>
<td>Enable user to collect host variables using the CAE.</td>
<td>CQM.EO.HOSTV.qmid</td>
</tr>
<tr>
<td>Host variable viewing</td>
<td>Enables users to view host variable information in current activity and summaries.</td>
<td>CQM.HOSTV.qmid</td>
</tr>
<tr>
<td>SQLTEXT viewing</td>
<td>Enables users to view SQLTEXT information in current activity and summaries.</td>
<td>CQM.SQLTEXT.qmid</td>
</tr>
</tbody>
</table>

Note: If a user requests to access data they are not authorized to view, The following message displays: CQM132E Authorization failed. The security system has determined that additional authorization is required to perform the selected operation. If this message is received unexpectedly, then verify that the configuration of your RACF data set profiles and facility class profiles is correct.

For host variable viewing and collection, Db2 Query Monitor checks a user’s access when it sees a new workload, when it’s the time to start sampling, and before it writes sampled data into the staging tables. If the user does not have READ access to the class at any of those three checkpoints, an error is reported.

Important: A user who can schedule host variable collection can direct DB2 Query Monitor to save host variable information into DB2 tables whose security is controlled by that user. For this reason, DB2 Query Monitor administrators should be careful when granting users who are granted READ access to CQM.EO.HOSTV.qmid and CQM.HOSTV.qmid and should consider the security of the tables that will hold host variable information. To view host variables in the Activity Browser, the user must have READ access to CQM.HOSTV.qmid
4. To control access to the dynamic LPA facility, you must set up the following RACF FACILITY class profiles:

- Db2 Query Monitor requires UPDATE access to the following RACF FACILITY class profile: CSVDYLPA.ADD.CQC*

For more information, see 5.6.3 Controlling Adding A Module to LPA after IPL in z/OS V1R7.0 MVS Planning: Operations (SA22-7601).

Preparing to customize CAE components

Follow these steps to prepare your CAE components for customization.

Procedure

1. For existing installations, apply all required maintenance. In addition to the maintenance requirements that are documented in the program directory, make sure that your system meets the requirements described in “Maintenance - APARs and PTFs” on page 44.

2. For new and existing installations, review network and firewall requirements. For more information, see “Network and firewall requirements” on page 33.

3. If you are running on USS, review the capacity guidelines. For more information, see “Capacity requirements - USS” on page 37.

4. If you will be using High-Availability Fault-Tolerance (HAFT), review the HAFT guidelines. For more information, see “High-Availability Fault-Tolerance requirements” on page 34.

5. Review integration point information and CAE component compatibility requirements. For more information, see “Integration with other products” on page 22 and “CAE component compatibility” on page 43.

Transferring the necessary set up executable files to a Windows PC

The installation of CAE components on Windows is performed via executable files that can be transferred from the highlevel.SCQMTRAN library.

Procedure

1. Open a command prompt and change directories to the location to which you want to download the installers.

2. Establish an FTP connection using the ftp command and log in with your TSO user name and password.

3. Specify a binary transfer using the bi command.

4. Transfer the necessary files from highlevel.SCQMTRAN to a Windows PC using the binary FTP get command of the following format:

   get 'membername' filename.exe

where:

membername
   The highlevel.SCQMTRAN member to be transferring. For example:

   **CQMCAEAL**
   Installs the CAE Server.

   **CQMCAEPT**
   Installs any applicable maintenance for the CAE Server.

   **CQMCAEWI**
   Installs the Watchdog on a Backup CAE Server.
filename

The file name (of your choice) that is given to the file that is transferred to the Windows PC. For simplicity, we recommend using a file name that matches the SCQMTRAN member name.

For example:

For installation of the CAE Server (or the Primary CAE Server in High Availability Fault Tolerance installations):

Transfer `highlevel`.SCQMTRAN member CQMCAEAL using the following command:

```
get 'CQMCAEAL' cqmcaearl.exe
```

For information about installing cqmcaearl.exe, refer to the following topics as appropriate for your installation:

- “Installing a single CAE Server - Windows” on page 117
- “Installing the CAE Server on USS - Procedure” on page 118
- “Installing the Primary CAE Server and Watchdog - Windows” on page 121
- “Installing the Primary CAE Server and Watchdog - USS” on page 125

For installation of maintenance for the CAE Server:

Transfer `highlevel`.SCQMTRAN member CQMCAEPT using the following command:

```
get 'CQMCAEPT' cqmcaep.exe
```

For information about installing cqmcaep.exe, refer to the following topics as appropriate for your installation:

- “CAE Server maintenance - Windows” on page 44
- “CAE Server maintenance - USS” on page 45

For installation of the watchdog on Backup CAE Servers:

Transfer `highlevel`.SCQMTRAN member CQMCAEWI using the following command:

```
get 'CQMCAEWI' cqmcaewi.exe
```

For information about installing cqmcaewi.exe, refer to the following topics as appropriate for your installation:

- “High-Availability Fault-Tolerance” on page 12
- “Installing the Primary CAE Server and Watchdog - Windows” on page 121
- “Installing the Primary CAE Server and Watchdog - USS” on page 125

Setting up an MVS user ID to run the CAE Agent

We recommend that you use a dedicated MVS user ID to run the CAE Agent.

Procedure

Grant read access to all of the CQM facility classes for the user ID. The user ID for the CAE Agent requires this authority to browse data, start and stop monitoring, edit profiles, read interval data sets. Ensure that the MVS user ID has an OMVS segment so that it can access the network using TCP/IP.

Notes:

a. Only those CAE Browser Client users who have administrative privileges have access to the Configuration Browser.

b. The MVS user ID that is running the CAE Agent needs to have all the power for all the actions that all users of the CAE Browser Client will perform. For example, if you want to enable the ability to cancel a thread, the MVS user ID running the CAE Server requires the necessary DB2 and RACF privileges to do
so. Additionally, if a CAE Browser Client user wants to cancel a thread via the CAE Browser Client, the MVS user ID the user enters when requested to do so must also have the necessary DB2 privileges to do so. If that user does not have the necessary DB2 privileges to cancel a thread they will be prohibited from doing so (even if the CAE Agent MVS user ID has the necessary privileges).

**Setting up a Host Variable Agent to act as a database connection proxy**

A Host Variable Agent is a CAE Agent that coordinates the host variable collection process for one or more Query Monitor Subsystems on an LPAR. Follow these steps to set up a Host Variable Agent to act as a database connection proxy.

**Before you begin**

Review the following considerations:

- No more than one CAE Agent can perform host variable collection for a Query Monitor Subsystem at a time (two CAE Agents cannot perform host variable collection for the same Query Monitor Subsystem at the same time; although a single CAE Agent can perform host variable collection for multiple Query Monitor Subsystems). Therefore, the CAE Browser Client of only one CAE Server / CAE Agent can be used for host variable collection.

- Db2 Query Monitor uses staging tables to store the collected host variable information. The staging tables can reside in different DB2 subsystems than the DB2 subsystem where the host variable collection takes place. The staging table DB2 subsystem can be on a different LPAR. Immediate reading and writing to staging tables is done by the Host Variable Agent, which acts as a database connection proxy for the CAE Server.

- To enable a user to **collect host variable information**, you must ensure that user has access to the SAF FACILITY class profile CQM.EO.HOSTV.qmid. To enable a user to **view host variable information** (in current activity and summaries) you must ensure that user has access to the SAF FACILITY class profile CQM.HOSTV.qmid. For more information, see “Reviewing and setting proper authorizations” on page 55.

**Procedure**

1. To set up a CAE Agent to act as a database connection proxy for the staging tables, add a DB2PARMS DD to the CAE Agent JCL, SCQMSAMP member CQMCAE. The DD should point to a control file that contains an entry for each staging table DB2 subsystem that is going to be used for storing collected host variable information. A control file can be shared between the Host Variable Agent and one or more Query Monitor Subsystems. For example:

   ```
   //CQMPROC EXEC PGM=CQMCAE,REGION=700M,DYNAMNBR=200,TIME=1440
   //STEPLIB DD DISP=SHR,DSN=CQM.PRD0330.LOADLIB
   //        DD DISP=SHR,DSN=CQC.PRD0330.LOADLIB
   //        DD DISP=SHR,DSN=RS01.CQM330.IBMTAPE.SFECLOAD
   //SYSPRINT DD SYSOUT=A
   //OUTDSC OUTPUT DEST=HOLD
   //CEEDUMP DD SYSOUT=A
   //CEEEOPTS DD DSN=RKOPTS.CQM0330.PARMLIB(CQMCEE),DISP=SHR
   //CQMPRMS DD DSN=ROCKET.USER.PARMLIB(CQMCAE33),DISP=SHR
   //DB2PARMS DD DISP=SHR,DSN=RS01.CQMSTBL.CONTROL
   ```

2. Ensure that the Db2 Query Monitor plan is bound on the database where the staging tables are held. This allows the CAE Agent to access staging tables.

3. You can now collect host variables. See “Collecting host variables” on page 375.
Worksheets: Gathering required data set names

Identify and record the data set names that will be used during the customization process and make sure that requirements for certain data sets are met.

Data set names for Tools Customizer

Identify and record the following Tools Customizer data set names:

<table>
<thead>
<tr>
<th>Data set name</th>
<th>Description</th>
<th>Special requirements</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCCQDENU</td>
<td>Metadata library for Tools Customizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCCQLOAD</td>
<td>Executable load module library for Tools Customizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCCQMENU</td>
<td>ISPF messages for Tools Customizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCCQPENU</td>
<td>ISPF panels for Tools Customizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCCQSAMP</td>
<td>Sample members for Tools Customizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCCQTENU</td>
<td>Table library for Tools Customizer</td>
<td>You must have write access to this data set.</td>
<td></td>
</tr>
</tbody>
</table>

Data set names for Db2 Query Monitor

Identify and record the following Db2 Query Monitor data set names. During the customization process, you will enter the following values on panel CCQPPRD.

<table>
<thead>
<tr>
<th>Data set name</th>
<th>Description</th>
<th>Special requirements</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCQMDBRM</td>
<td>DBRM library for Db2 Query Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCQMLOAD</td>
<td>Executable load module library for Db2 Query Monitor</td>
<td>You must APF authorize this data set.</td>
<td></td>
</tr>
<tr>
<td>SCQMMENU</td>
<td>ISPF messages for Db2 Query Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCQMPENU</td>
<td>ISPF panels for Db2 Query Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCQMSAMP</td>
<td>Sample members for Db2 Query Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCQMDENU</td>
<td>Metadata library for Db2 Query Monitor product parameters</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Data set names for FEC (common code)**

Identify and record the following FEC data set names. During the customization process, you will enter the following values on panel CCQPPRD.

<table>
<thead>
<tr>
<th>Data set name</th>
<th>Description</th>
<th>Special requirements</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFECDBRM</td>
<td>FEC DBRM library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFECLOAD</td>
<td>Executable load module library for Db2 Query Monitor</td>
<td>You must APF authorize this data set.</td>
<td></td>
</tr>
<tr>
<td>SFECMENU</td>
<td>FEC ISPF messages for Db2 Query Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFECPENU</td>
<td>FEC ISPF panels for Db2 Query Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFECsamp</td>
<td>Sample FEC members for Db2 Query Monitor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Data set names of other libraries**

Identify and record the following data set names. During the customization process, you will enter the following values on the Setup panel.

<table>
<thead>
<tr>
<th>Data set name</th>
<th>Description</th>
<th>Special requirements</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discover output data set</td>
<td>Contains the output that is generated when you run the Db2 Query Monitor Discover EXEC. The Db2 Query Monitor Discover EXEC retrieves the metadata and values for the parameters from a previous customization of Db2 Query Monitor. The default name of the data set is DB2TOOL.CCQ110. DISCOVER. You can change the default value on the Tools Customizer Settings panel or the Discover Customized Product Information panel.</td>
<td>You must have write access to this data set.</td>
<td></td>
</tr>
<tr>
<td>Data set name</td>
<td>Description</td>
<td>Special requirements</td>
<td>Your data set name</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Data store data set</td>
<td>Contains product, LPAR, and DB2 parameter values, and DB2 entry associations. Tools Customizer uses this data set to permanently store all information that is acquired about the product, DB2 subsystems, and LPAR when you customize products on the local LPAR. The default name of the data set is DB2TOOL.CCQ110. DATASTOR. You can change the default value on the Tools Customizer Settings panel.</td>
<td>You must have write access to this data set.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 13. Data set names of other libraries (continued)

<table>
<thead>
<tr>
<th>Data set name</th>
<th>Description</th>
<th>Special requirements</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product customization library</td>
<td>Contains the customization jobs that Tools Customizer generates for Db2 Query Monitor. To customize Db2 Query Monitor, submit the members of the data set in the order in which they are displayed on the Finish Product Customization panel. The data set naming convention is: hIQ.$LPAR-name$.xyzvrm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>where:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• hIQ is the value of the Customization library qualifier field on the Tools Customizer Settings panel (CCQPSET)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• LPAR-name is the four-character LPAR name</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• xyzvrm is the three-letter product identifier with the version, release, and modification level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For example, the data set name might be DB2TOOL.PRODUCT.CUST.$MVS1$.XYZ410.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### APF authorizing load libraries

Db2 Query Monitor requires that the target load libraries `highlevel.SCQMLOAD` and `highlevel.SFECLOAD` be APF authorized.

**Procedure**

1. Include the `highlevel.SCQMLOAD` and `highlevel.SFECLOAD` libraries as part of your system APF-authorized list. Contact your systems administrator if you encounter difficulties starting Db2 Query Monitor.

2. Add the program FEC$TSOC to the AUTHPGM and AUTHTSF sections of member IKJTSO00 in SYS1.PARMLIB. For more information on IKJTSO00, refer to the z/OS MVS Initialization and Tuning Reference (SA22–7592).
3. Changes you make to SYS1.PARMLIB require an IPL command for the PARMLIB updates to take effect. Perform an IPL for the PARMLIB updates to take effect.

**Worksheets: Gathering parameter values for Db2 Query Monitor**

During the customization process, you will need to provide parameter values for Db2 Query Monitor, for Db2, and for your LPAR.

Use the worksheets in this topic to record the appropriate parameter settings for your purposes, and then use these worksheets during the customization process. The worksheets are organized based on the order of the customization panels in the Tools Customizer.

**Product customization library**

**Description**

The product customization library field shown on the **Product Parameters** panel (CCQPPRD) is read-only.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sample or default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product customization library</td>
<td>No</td>
<td>This value is derived from the user-specified customization library qualifier on the <strong>Tools Customizer Settings</strong> panel (CCQPSET).</td>
</tr>
</tbody>
</table>

**Common parameters section**

**Description**

The parameters in this task are required for all customizations. During the customization process, you will enter these values on panel CCQPPRD.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Db2 Query Monitor for z/OS data set high-level qualifier</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Started task proclib</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Started task proclib volume name</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Started task proclib SMS storage class</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>FEC data set high-level qualifier</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Required?</td>
<td>Discovered?</td>
<td>Default value</td>
<td>Your value</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>-----------</td>
<td>-------------</td>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td>Db2 Data Access Common Collect data set high-level qualifier</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The high-level qualifier for the CQC data sets.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 control file</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The data set name of the Db2 Control File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 interval file</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The data set name of the interval file.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 profile file</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The data set name of the Db2 profile file.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameter file data set name</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The data set name of the Db2 Query Monitor parameter file.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAE Server address</td>
<td>No</td>
<td>Yes</td>
<td>0.0.0.0</td>
<td></td>
</tr>
<tr>
<td>The CAE Server Listener Address.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 Query Monitor Subsystem name</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The Query Monitor Subsystem name.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Customization values for the Discover EXEC**

**Description**

Use the following worksheet to identify and record the customization values for the Tools Customizer Discover EXEC. The values in this worksheet are for extracting information from a product that has already been customized. During the customization process, you will enter these values on panel CCQPDSC.

*Note:* Complete this worksheet only if you are recustomizing a product that has previously been customized by using Tools Customizer.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sample or default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discover EXEC library</td>
<td>The name of the Discover EXEC Library that you entered on the settings panel.</td>
</tr>
<tr>
<td>Discover EXEC name</td>
<td>CQMDISC</td>
</tr>
<tr>
<td>Discover output data set</td>
<td>The name of the discover output library that you entered on the settings panel.</td>
</tr>
</tbody>
</table>
### Table 16. Customization values for the Discover EXEC (continued)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sample or default value</th>
<th>Your value</th>
</tr>
</thead>
</table>
| **Db2 Query Monitor for z/OS parameters location**  
  The location of the Db2 Query Monitor parameters file. | HLQ.V3R3.SCQMSAMP(CQMPARMS)      |            |
| **Db2 Query Monitor for z/OS CAE Agent parameters location**  
  The location of the Db2 Query Monitor CAE Agent parameters file. | HLQ.V3R3.SCQMSAMP(CQMCPRMS)      |            |

### Task: Create customized Db2 Query Monitor for z/OS jobs

**Description**
- This task creates customized Db2 Query Monitor jobs. During the customization process, you will enter these values on panel CCQPPRD.
- This task is **required**.

**Jobs generated**
- This task generates the following jobs: A0CNTFL, A1#CTLAA, A2INTER, A3PROFS, and A4BINDAA.

### Table 17. Customized Db2 Query Monitor jobs

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Require d?</th>
<th>Discove red?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
</table>
| **Allocate and initialize the Db2 Control file**  
  This subtask allocates and initializes the Db2 Control File using the specified storage class and volume name. | Yes        | No           | None         |            |
| **Update the Db2 SSID entries in the Db2 Control File**  
  This subtask updates the Db2 Control File. | Yes        | No           | None         |            |
| **Allocate and initialize the interval processing file**  
  This subtask allocates and initializes the interval processing file using the specified storage class and volume name. | Yes        | No           | None         |            |
| **Allocate and initialize the profile file**  
  This subtask allocates and initializes the profile file using the specified storage class and volume name. | Yes        | No           | None         |            |
| **Bind Db2 Query Monitor packages and plan**  
  This subtask binds the plan for the Db2 Query Monitor packages and plans. Only one bind job is required for each data sharing group. | Yes        | No           | None         |            |
Task: Create necessary Db2 Query Monitor for z/OS jobs for offload

Description
This task creates the necessary Db2 Query Monitor jobs for offload. During the customization process, you will enter these values on panel CCQPPRD.

This task is Optional.

Jobs generated
This task generates the following jobs: A5DROPAA, A6DDLAA, A7XDLSSA, A8COMMAA, A9INDEAA, B0@WDBA, B1@LSTAA, B2QRY0AA, B3GRTBAA.

Table 18. Db2 Query Monitor jobs for offload

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create DDL to drop the Db2 Query Monitor for z/OS objects</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask creates the DDL to drop the Db2 Query Monitor objects.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create offload tables</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask creates the Db2 Query Monitor offload tables.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create statement type table</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask creates the Db2 Query Monitor statement type table.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create table comments</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask creates table comments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create optional indexes</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask creates optional indexes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offload Interval data to Db2 tables</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask offloads interval data to Db2 tables.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-level qualifier for interval offload</td>
<td>(Required)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The high-level qualifier for the Db2 Query Monitor interval offload.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Statement Type Table</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask loads the statement type table.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customize SQL to run the sample queries</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask customizes SQL to run sample queries.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create DDL to grant public access to Db2 Query Monitor for z/OS tables</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>This subtask creates the DDL to grant public access to Db2 Query Monitor tables.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Task: Create Db2 Query Monitor for z/OS batch reports

Description
This task creates the necessary Db2 Query Monitor jobs for offload. During the customization process, you will enter these values on panel CCQPPRD.

This task is Optional.

Jobs generated
This task generates the following jobs: B4RBINAA, B5VRUNAA.

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch Report data sets high-level qualifier</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>The data set high-level qualifier for batch reports.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batch report volume name</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>The volume name for batch reports.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batch report SMS storage class</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>The SMS storage class for batch reports.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bind the plan for the batch reports</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>This subtask binds the plan for the Db2 Query Monitor batch reports.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customize the JCL to run the batch reports</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>This subtask customizes the JCL to run the Db2 Query Monitor batch reports.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Task: Customize the Db2 Query Monitor for z/OS started task

Description
This task creates the necessary Db2 Query Monitor jobs for offload. During the customization process, you will enter these values on panel CCQPPRD.

This task is Optional.

Jobs generated
This task generates the following jobs: B6PROC, B7MSTR.

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create the started task for Db2 Query Monitor for z/OS</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Creates the started task for Db2 Query Monitor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create a shutdown script for the master address space</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Creates a shut down script for the master address space.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Task: Customize the Db2 Query Monitor for z/OS CAE Server or CAE Agent

Description
This task customizes the Db2 Query Monitor CAE Server or CAE Agent. During the customization process, you will enter these values on panel CCQPPRD.

This task is Optional.

Jobs generated
This task generates the following jobs: B8CAE, B9CAESV, C0CUNPX, C1CUPPT.

Table 21. Create the CAE Agent and CAE Server on Windows for Db2 Query Monitor for z/OS

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create the CAE agent for Db2 Query Monitor for z/OS</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>CAE server address (Required) The CAE Server address.</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>ISPF Listener port (Required) The port used by the CAE Agent to listen for incoming connections from the ISPF client.</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Server/Listener port (Required) The port at which the CAE Server listens for incoming connections from the CAE Agent. The SERVER_PORT parameter in CQMCPMRS.</td>
<td>Yes</td>
<td>Yes</td>
<td>3448</td>
<td></td>
</tr>
<tr>
<td>Backup CAE server address The Backup CAE Server address.</td>
<td>No</td>
<td>Yes</td>
<td>0.0.0.0</td>
<td></td>
</tr>
<tr>
<td>Backup Server/Listener port The Backup CAE Server listener port.</td>
<td>No</td>
<td>Yes</td>
<td>3448</td>
<td></td>
</tr>
<tr>
<td>Listener agent port low (Required) The lowest listener port number for the CAE Agent. Valid values are numeric, 5 digits maximum, in a range between 1 and 65535. Default 53000.</td>
<td>Yes</td>
<td>Yes</td>
<td>53000</td>
<td></td>
</tr>
<tr>
<td>Listener agent port high (Required) The highest listener port number for the CAE Agent. Valid values are numeric, 5 digits maximum, in a range between 1 and 65535. Default 53005.</td>
<td>Yes</td>
<td>Yes</td>
<td>53005</td>
<td></td>
</tr>
<tr>
<td>Agent name The CAE Agent name.</td>
<td>No</td>
<td>Yes</td>
<td>CQMCAE</td>
<td></td>
</tr>
</tbody>
</table>
Table 22. Create the USS CAE Server for Db2 Query Monitor for z/OS

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Require d?</th>
<th>Discovere d?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create the USS CAE server for Db2 Query Monitor for z/OS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>USS VAR_HOME path</strong></td>
<td>Yes</td>
<td>No</td>
<td>userhome/cqmv3r3/var</td>
<td></td>
</tr>
<tr>
<td>(Required) The USS VAR_HOME path.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>USS JAVA path</strong></td>
<td>Yes</td>
<td>No</td>
<td>/user/lpp/java/IBM/J8.0_64</td>
<td></td>
</tr>
<tr>
<td>(Required) The USS Java path.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>USS LOG path</strong></td>
<td>Yes</td>
<td>No</td>
<td>/var/cqm/logs</td>
<td></td>
</tr>
<tr>
<td>(Required) The location to which CAE Agent logs are stored on z/OS.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HTTPS port number</strong></td>
<td>No</td>
<td>No</td>
<td>443</td>
<td></td>
</tr>
<tr>
<td>Specifies the HTTPS port on the CAE Server that the CAE Browser Client connects to.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>USS binary file path</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>(Required) The USS binary file path.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>USS VAR_HOME path</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>(Required) Specifies the USS VAR_HOME file path, USS binary file path, and USS VAR_HOME path values.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UNPAX CAE PTF</strong></td>
<td>Yes</td>
<td>No</td>
<td>The default USS Binary File Path is /proj/cqmv3r3/bin. The default USS VAR_HOME Path is /proj/cqmdata.</td>
<td></td>
</tr>
<tr>
<td>This subtask unpaxes the CAE PTF using the specified USS binary file path and USS VAR_HOME path values.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Task: Create the collector parameter file

Description
This task creates the necessary Db2 Query Monitor jobs for offload. During the customization process, you will enter these values on panel CCQPPRD.
This task is *Optional.*

**Jobs generated**

This task generates the C2PRMCR job.

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CQMPARMS volume name</strong></td>
<td>No</td>
<td>Yes</td>
<td>The volume name for CQMPARMS.</td>
</tr>
<tr>
<td><strong>CQMPARMS SMS storage class</strong></td>
<td>No</td>
<td>Yes</td>
<td>The storage class for CQMPARMS.</td>
</tr>
<tr>
<td><strong>Collector AUTHID</strong></td>
<td>No</td>
<td>Yes</td>
<td>Defaults to the user ID under which the started task will run.</td>
</tr>
<tr>
<td><strong>Master proname</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>None.</td>
</tr>
<tr>
<td><strong>Db2 Query Monitor for z/OS group</strong></td>
<td>No</td>
<td>Yes</td>
<td>None.</td>
</tr>
<tr>
<td><strong>Db2 Query Monitor for z/OS alert limit</strong></td>
<td>No</td>
<td>Yes</td>
<td>10</td>
</tr>
<tr>
<td><strong>Collect Db2 catalog objects</strong></td>
<td>No</td>
<td>Yes</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Data set full</strong></td>
<td>No</td>
<td>Yes</td>
<td>IGNORE</td>
</tr>
<tr>
<td><strong>Interval</strong></td>
<td>No</td>
<td>Yes</td>
<td>720</td>
</tr>
<tr>
<td><strong>Interval midnight</strong></td>
<td>No</td>
<td>Yes</td>
<td>N</td>
</tr>
<tr>
<td><strong>Maximum SQLCODE detail</strong></td>
<td>No</td>
<td>Yes</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 23. Specify collector parameters subtask

---

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<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum SQLCODES</td>
<td>No</td>
<td>Yes</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>The limit on the number of unique SQLCODES for which information is collected.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum memory allocations</td>
<td>No</td>
<td>Yes</td>
<td>2048</td>
<td></td>
</tr>
<tr>
<td>The maximum amount of global shared memory that will be allocated by Db2 Query Monitor for internal Integrated Storage Manager spaces.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collect object statistics</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicates whether or not to collect object statistics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summarization OPTKEYS</td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The level of granularity for summary buckets.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interval RETAIN count</td>
<td>No</td>
<td>Yes</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>How many prior intervals are to be retained on DASD after interval processing is complete.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum global shared memory size</td>
<td>No</td>
<td>Yes</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>The maximum amount of global shared memory in gigabytes that are allocated by Db2 Query Monitor for all purposes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMS data class</td>
<td>No</td>
<td>Yes</td>
<td>Null</td>
<td></td>
</tr>
<tr>
<td>The SMS data class for the allocation of the Performance History Files.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMS management class</td>
<td>No</td>
<td>Yes</td>
<td>Null</td>
<td></td>
</tr>
<tr>
<td>The SMS management class for the allocation of the Performance History Files.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMS storage class</td>
<td>No</td>
<td>Yes</td>
<td>Null</td>
<td></td>
</tr>
<tr>
<td>The SMS storage class for the allocation of the Performance History Files.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit name</td>
<td>No</td>
<td>Yes</td>
<td>Null</td>
<td></td>
</tr>
<tr>
<td>The UNITNAME parameter enables you to specify an esoteric name, generic device type or a device address for the backstore data sets.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume name</td>
<td>No</td>
<td>Yes</td>
<td>Null</td>
<td></td>
</tr>
<tr>
<td>The VOLUME parameter enables you to specify a volume for the backstore data sets.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step or parameter</td>
<td>Required?</td>
<td>Discovered?</td>
<td>Default value</td>
<td>Your value</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------</td>
<td>-------------</td>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>DB2CDATA DSN mask</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td></td>
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<tr>
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<td><strong>SQLCDATA secondary allocation</strong>&lt;br&gt;The secondary space quantity for the SQLCDATA Performance History File.</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>SQLCDATA allocation space units</strong>&lt;br&gt;The space units (CYLS or TRKS) for allocation of the SQLCDATA Performance History File.</td>
<td>No</td>
<td>Yes</td>
<td>CYLS</td>
<td></td>
</tr>
<tr>
<td><strong>SQLCDATA SMS data class</strong>&lt;br&gt;The SMS data class for the SQLCDATA Performance History File.</td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>SQLCDATA SMS management class</strong>&lt;br&gt;The SMS management class for the SQLCDATA Performance History File.</td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>SQLCDATA SMS storage class</strong>&lt;br&gt;The SMS storage class for the SQLCDATA Performance History File.</td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>SQLCDATA unit name</strong>&lt;br&gt;An esoteric name, generic device type or a device address for the SQLCDATA Performance History File.</td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>SQLCDATA volume name</strong>&lt;br&gt;The volume for the SQLCDATA Performance History File.</td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>TEXTDATA DSN mask</strong>&lt;br&gt;The data set name for the TEXTDATA Performance History File.</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Step or parameter</td>
<td>Require d?</td>
<td>Discovered?</td>
<td>Default value</td>
<td>Your value</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------</td>
<td>-------------</td>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>TEXTDATA primary allocation</strong></td>
<td>No</td>
<td>Yes</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>The primary space quantity for the TEXTDATA Performance History File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEXTDATA secondary allocation</strong></td>
<td>No</td>
<td>Yes</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>The secondary space quantity for the TEXTDATA Performance History File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEXTDATA allocation space units</strong></td>
<td>No</td>
<td>Yes</td>
<td>CYLS</td>
<td></td>
</tr>
<tr>
<td>The space units (CYLS or TRKS) for allocation of the TEXTDATA Performance History File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEXTDATA SMS data class</strong></td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The SMS data class for the TEXTDATA Performance History File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEXTDATA SMS management class</strong></td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The SMS management class for the TEXTDATA Performance History File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEXTDATA SMS storage class</strong></td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The SMS storage class for the TEXTDATA Performance History File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEXTDATA unit name</strong></td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>An esoteric name, generic device type or a device address for the TEXTDATA Performance History File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEXTDATA volume name</strong></td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The volume for the TEXTDATA Performance History File.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum host variables per alert</strong></td>
<td>No</td>
<td>Yes</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>The size of the storage allocation for the ALERT HOST VARIABLE SPACE inside the Query Monitor Subsystem.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum objects per alert</strong></td>
<td>No</td>
<td>Yes</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>The size of the storage allocation for the ALERT EXCP OBJECTS SPACE inside the Query Monitor Subsystem.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Debug mode for IBM Software Support</strong></td>
<td>No</td>
<td>Yes</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Turns on Db2 Query Monitor debug mode and produces diagnostic messages (in the range CQM9000-CQM-9999) for use by IBM Software Support.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 23. Specify collector parameters subtask (continued)

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Require d?</th>
<th>Discove red?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capturing agent for IBM Software Support</strong></td>
<td>No</td>
<td>Yes</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Turns on the capturing agent. For use by IBM Software Support. This parameter should not be specified without the advice of IBM Software Support.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ISM constraint age</strong></td>
<td>No</td>
<td>Yes</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Controls how much time must have passed since the last storage constraint occurrence for a given ISM storage space before the constraint event is considered to have been relieved.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number of ISM error blocks</strong></td>
<td>No</td>
<td>Yes</td>
<td>256</td>
<td></td>
</tr>
<tr>
<td>Determines the number of ISM Error Blocks that are allocated when Db2 Query Monitor initializes. If this value is too low, message CQM1219W might be issued.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number of ISM error message blocks</strong></td>
<td>No</td>
<td>Yes</td>
<td>256</td>
<td></td>
</tr>
<tr>
<td>The number of ISM Error Message Blocks that are allocated when Db2 Query Monitor initializes. If this value is too low, duplicate ISM error messages may be issued for the same space and reason instead of incrementing the occurrence count.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ISM error detail</strong></td>
<td>No</td>
<td>Yes</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Controls whether CQM1203I and CQM1204I messages are issued to provide detailed information for ISM Storage Constraint situations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Task: Configure the Product Start-up CLISTs**

**Description**
- This task binds the CQM SQL. During the customization process, you will enter these values on panel CCQPRD.
- This task is required.

**Jobs generated**
- This task generates the following jobs: C3CLST1, C3CLST2.

### Table 24. Configure the start-up CLISTs

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Require d?</th>
<th>Discove red?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configure Startup CLISTs</strong></td>
<td>Yes</td>
<td>No</td>
<td>Selected</td>
<td></td>
</tr>
<tr>
<td>This subtask configures the start-up CLISTS.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 24. Configure the start-up CLISTs (continued)

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Startup CLIST library</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The library for the Db2 Query Monitor CLIST.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Startup CLIST volume name</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The start-up CLIST volume name.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Startup CLIST SMS storage class</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The start-up CLIST storage class.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SQL Performance Analyzer CLIST library</strong></td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The SQL Performance Analyzer CLIST library.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Startup CLIST 1</strong></td>
<td>Yes</td>
<td>No</td>
<td>CQM</td>
<td></td>
</tr>
<tr>
<td>The name of the first startup CLIST. This CLIST allocates the libraries used by Db2 Query Monitor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Startup CLIST 2</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The start-up CLIST 2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Task: Add Db2 Query Monitor to the Launchpad**

**Description**
This task adds Db2 Query Monitor to the Db2 Administration Tool Launchpad. During the customization process, you will enter these values on panel CCQPRD.

This task is optional.

**Jobs generated**
This task generates the C5LNCH job.

### Table 25. Add Db2 Query Monitor to the Launchpad

<table>
<thead>
<tr>
<th>Step or parameter</th>
<th>Required?</th>
<th>Discovered?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Create REXX to add Db2 Query Monitor to the Launchpad</strong></td>
<td>Yes</td>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>This step creates the REXX to add Db2 Query Monitor to the Launchpad.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Db2 Admin Tool library high-level qualifier</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The Db2 Admin Tool library high-level qualifier.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Db2 Admin Tool library</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The Db2 Admin Tool library.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Db2 Parameters section**

**Description**
This section contains Db2 parameters. All parameters are required. During the customization process, you will enter these values on panel CCQPDB2.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Require d?</th>
<th>Discove red?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Db2 subsystem ID</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>A distinct instance of a relational database management system (RDBMS) that is not part of a data sharing group. An example of a Db2 subsystem name is DB01.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Group attach name</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The name that is used by the TSO/batch attachment, the call attachment facility (CAF), DL/I batch, utilities, and the Resource Recovery Services attachment facility (RRSAF) as a generic attachment name. An example of a group attach name is DSG1. If the Group attach name field is blank, this causes the Group attach name to be blanked-out for all other products that you customized using Tools Customizer.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General Db2 Information</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>Mode</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The mode in which the Db2 subsystem is running. Valid values are:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compatibility mode on all listed versions except Db2 10.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NFM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New function mode on all listed Db2 versions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level number</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The version, release, and modification level of the Db2 subsystem. Valid values are 101, 111, and 121.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For Db2 V11 CM or ENFM, you can use a mode of “NFM” and a Level Number of 101.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Required</td>
<td>Discovered</td>
<td>Default value</td>
<td>Your value</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>----------</td>
<td>------------</td>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Db2 Libraries - common</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Library</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Run Library</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exit Library</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bootstrap data set</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 Utilities - commons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSAFF for Db2 utilities</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Plan name for the DSNTEP2 utility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Db2 Query Monitor for z/OS Collector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring profile</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>Db2 Query Monitor for z/OS Configuration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQL authorization ID</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>BIND Owner ID</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The BIND Owner ID and the SQL authorization ID are often the same, but do not have to be.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Require d?</th>
<th>Discove red?</th>
<th>Default value</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Db2 Query Monitor for z/OS schema name</strong></td>
<td>No</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The schema name (the creator of the Db2 Query Monitor objects and qualifier of Db2 Query Monitor and batch report packages). The value provided in this field is used in a SET CURRENT SCHEMA statement in the generated DDL and as qualifier when binding Db2 Query Monitor packages and Batch Report packages and plan. It is optional and has no default value. If blank, the value of the SQL authorization ID is used instead. For more information, see: <a href="https://www.ibm.com/support/knowledgecenter/en/SSEPEK_12.0.0/intro/src/tpc/DB2z_schemaqualifiers.html">https://www.ibm.com/support/knowledgecenter/en/SSEPEK_12.0.0/intro/src/tpc/DB2z_schemaqualifiers.html</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Db2 Query Monitor for z/OS PLAN name</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The plan name.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Db2 ZPARMS member name</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>The Db2 ZPARMS member name.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Db2 Control File Parameters</strong></td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>Update Db2 control file?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specifies whether to update the parameters for a Db2 subsystem in the DB2PARMS control file.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Required?</td>
<td>Discovered?</td>
<td>Default value</td>
<td>Your value</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-------------</td>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td>Db2 Query Monitor for z/OS Database Objects</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Create the Db2 Query Monitor for z/OS Database?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicates whether or not to create the Db2 Query Monitor database.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 Query Monitor for z/OS database name</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The database name.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 Query Monitor for z/OS table space bufferpool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The table space bufferpool.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 Query Monitor for z/OS LOB table space bufferpool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The LOB table space bufferpool.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use inline LOBs?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specifies whether INLINE LOBs are to be used for the SQL text entries in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the offload tables.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inline LOBs are supported in Db2 V10 and later releases. The page size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of the LOB bufferpool determines the amount of data that is inlined.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Db2 Query Monitor for z/OS index bufferpool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The index bufferpool.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STOGROUP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The storage group.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 5. Starting and preparing Tools Customizer for use

Use the provided REXX EXEC to start Tools Customizer. The first time that you use Tools Customizer, you must modify the settings that Tools Customizer uses to customize Db2 Query Monitor.

Starting Tools Customizer

Start Tools Customizer by running a REXX EXEC from the ISPF Command Shell panel.

Before you begin
Tools Customizer must be SMP/E installed. You must know the high-level qualifier of where the Tools Customizer libraries reside. The high-level qualifier is considered to be all the segments of the data set name except the lowest-level qualifier, which is SCCQEXEC.

Attention: Ensure that Tools Customizer load libraries are not APF authorized. APF authorizing Tools Customizer libraries results in an abend.

About this task
To run the REXX EXEC, you must either change the placeholder in the EXEC for the high-level qualifier of the Tools Customizer EXEC library or pass the high-level qualifier as a parameter when you run the EXEC. The REXX EXEC is in the CCQTCZ member of the EXEC library.

Procedure
1. Optional: Change the placeholder for the high-level qualifier in the REXX EXEC:
   a) Find the EXEC library data set for Tools Customizer. The name of the data set is high_level_qualifier.SCCQEXEC.
   b) Edit data set member CCQTCZ and replace the <TCZ_HLQ> string with the high-level qualifier of the EXEC library data set.
      For example, if the name of the Tools Customizer EXEC library is CCQTCZ.USABSAND.SCCQEXEC, replace <TCZ_HLQ> with CCQTCZ.USABSAND.

      You have to change the placeholder for the high-level qualifier only once. When you run the REXX EXEC, you do not have to pass the high-level qualifier as a parameter.

2. Run the REXX EXEC (CCQTCZ):
   a) From the ISPF Primary Option Menu, select option 6.
      The ISPF Command Shell panel is displayed.
   b) Specify the EX command to run the REXX EXEC.
      For example, if the Tools Customizer EXEC library is CCQTCZ.USABSAND.SCCQEXEC and you changed the placeholder for the high-level qualifier in the REXX EXEC, specify:

      ```
      EX 'CCQTCZ.USABSAND.SCCQEXEC (CCQTCZ) '
      ```

      If you did not change the placeholder for the high-level qualifier in the REXX EXEC, specify:

      ```
      EX 'CCQTCZ.USABSAND.SCCQEXEC (CCQTCZ) ' 'CCQTCZ.USABSAND'
      ```

      You can also specify a trace data set name and a user profile when you run the REXX EXEC.
The default trace data set name is USERID.CCQ.TRACE. To specify a different trace data set name, append the trace data set name to the command. For example, to specify a trace data set name of CCQTCZ.MYTRACE, enter:

```
EX 'CCQTCZ.USABSAND.SCCQEXEC(CCQTCZ)' 'CCQTCZ.USABSAND, CCQTCZ.MYTRACE'
```

To specify a user profile other than your own, append the user profile name to the command. For example, to specify a user profile of SHRPROF, enter:

```
CCQTCZ.USABSAND.SCCQEXEC(CCQTCZ)' 'CCQTCZ.USABSAND, CCQTCZ.SHRPROF'
```

Tools Customizer will use the settings from the specified profile. This profile will be updated when you exit Tools Customizer, but your own profile will remain unchanged.

**Results**
The IBM Customizer Tools for z/OS main menu panel is displayed.

**What to do next**
If you are running Tools Customizer for the first time, you must modify the Tools Customizer user settings. If you have already set the Tools Customizer user settings, either customize or recustomize Db2 Query Monitor.

---

**Modifying Tools Customizer user settings**

Before you can customize Db2 Query Monitor with Tools Customizer, you must review the settings that Tools Customizer uses. You might have to change the default values to suit your environment. In most cases, you can change the Tools Customizer values at any time. For example, after you have customized Db2 Query Monitor and are customizing a different product or solution pack, you might have to change the settings.

**Procedure**

1. On the IBM Tools Customizer for z/OS main panel (CCQPHME), specify option 0, *User settings for Tools Customizer*.
   
   The Tools Customizer Settings panel (CCQPSET) is displayed, as shown in the following figure:

   ![Figure 3. The Tools Customizer Settings panel (CCQPSET)](image)

   **Note:** An asterisk next to a field indicates that the field is required.
2. Review the values for the following required fields. Use the default value or specify your own value. You must have appropriate READ and WRITE access to the data sets that are specified.

**Customization library qualifier**

The high-level qualifier that is used as the prefix for the customization library. The customization library is a data set in which the generated jobs to customize Db2 Query Monitor are stored. WRITE access to this qualifier is required.

For each product to be customized, the first value that is specified for the qualifier is always used, even if you change it after you have generated the customization jobs. For example, if you customize a product and then specify a new qualifier for recustomization, although the new qualifier is saved and displayed, the original value is used.

To maintain multiple instances of Tools Customizer, specify a unique customization library qualifier for each instance of Tools Customizer.

Data set names that exceed 42 characters must be enclosed in single quotation marks (').

**Volume serial**

The volume name in which the customization library will reside. If you don't specify a volume name, it will be assigned by the system.

**Use DB2 group attach**

Determines the value that is used in the CONNECT statements in the generated customization jobs. Specify YES for data sharing environments, which causes the group attach name to be used. Specifying NO, in most cases, causes the SSID to be used in the Db2 CONNECT statement.

**Important:** This field has no effect when you are customizing a product on a Db2 subsystem that is not a member of a data sharing group. In this case, the Db2 subsystem ID (SSID) is always used in the CONNECT statements in the generated customization jobs.

When you are customizing a product on a Db2 subsystem that is a member of a data sharing group, how the Db2 subsystem is defined and the value of the **Use DB2 group attach** field determines the value that is used in the CONNECT statements in the generated jobs. The following table shows whether the SSID or the group attach name is used:

<table>
<thead>
<tr>
<th>Db2 subsystem definition</th>
<th>Value of the Use DB2 group attach field</th>
<th>Value that is used in the CONNECT statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Db2 subsystem is defined with an SSID.</td>
<td>Yes</td>
<td>Group attach name</td>
</tr>
<tr>
<td>The Db2 subsystem is not defined with an SSID.</td>
<td>Yes or No</td>
<td>Group attach name</td>
</tr>
<tr>
<td>Note 1: If you generate jobs for multiple Db2 subsystems that are defined with an SSID and belong to the same data sharing group, the SSID of the first Db2 subsystem that is selected is used.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For example, assume that on the **Customizer Workplace** panel, you generated jobs for the following Db2 subsystems:

- **DB2C**, which is a stand-alone Db2 subsystem
- **DB2A**, which is a Db2 subsystem that is a member of data sharing group DSG1
- A Db2 subsystem that was not defined with an SSID that is a member of data sharing group DSGA

The following figure shows how these Db2 entries might be listed on the **Customizer Workplace** panel:
The following table shows which values are used in the CONNECT statements in the generated jobs, based on the value of the **Use DB2 group attach** field.

<table>
<thead>
<tr>
<th>SSID</th>
<th>GrpAttach</th>
<th>Value of the Use DB2 group attach field</th>
<th>Value that is used in the CONNECT statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2C</td>
<td>--</td>
<td>Yes</td>
<td>SSID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>SSID</td>
</tr>
<tr>
<td>DB2A</td>
<td>DSG1</td>
<td>Yes</td>
<td>Group attach name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>SSID</td>
</tr>
<tr>
<td>--</td>
<td>DSGA</td>
<td>Yes</td>
<td>Group attach name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>Group attach name</td>
</tr>
</tbody>
</table>

### Tools Customizer metadata library
The name of the data set that contains the metadata that is used to display the Db2 parameters. The parameters that are displayed on the **DB2 Parameters** panel depend on the parameters that you define and the tasks and steps that you select on the **Product Parameters** panel for the product that you are customizing. For example, the Db2 parameters that are required, based on the selected tasks and steps, are displayed on the **DB2 Parameters** panel, and you can edit them. If they are not required, they are not displayed. Read access to this data set is required. Data set names that exceed 42 characters must be enclosed in single quotation marks (').

### Discover output data set
The name of the data set in which the output from the Db2 Query Monitor Discover EXEC is stored. Each product has its own Discover EXEC. The Discover EXEC retrieves the product and Db2 parameters from a previously customized product. Write access to this data set is required. Data set names that exceed 42 characters must be enclosed in single quotation marks (').

### Volume serial
The volume name in which the discover output data set will reside. If you don't specify a volume name, it will be assigned by the system.

### Data store data set
The name of the data set where Tools Customizer stores information about product and Db2 parameter values. Information about which products are associated with which Db2 entries (Db2 subsystems, Db2 group attach names, and Db2 data sharing members) is also stored in this data set. Data set names that exceed 42 characters must be enclosed in single quotation marks ('). The specified data store data set can be used with only one invocation of Tools Customizer at a time. Data set names that exceed 42 characters must be enclosed in single quotation marks (').

### Volume serial
The volume name in which the data store data set will reside. If you don't specify a volume name, it will be assigned by the system.

### User job card settings for customization jobs
The job card information to be inserted into the generated jobs for customizing a product. The default value is the job statement information from the **ISPF Batch Selection** panel.
The first line of the job card automatically begins with the following information:

```
//          JOB
```

where characters 3 - 10 are reserved by Tools Customizer for the job name and includes a blank space after JOB. This name cannot be edited. Information that you specify on the first line of the job card cannot exceed 57 characters. This character limit includes a continuation character. All other lines of the job card cannot exceed 72 characters.

3. Press End to save and exit.

If the Discover output data set and the data store data set that you specified do not exist, Tools Customizer creates them.

**Important:** If the ISPF sessions unexpectedly ends before you exit Tools Customizer, the fields on the Tools Customizer Settings panel (CCQPSET) will be repopulated with default values, and you will be required to review them or specify new values again.

**Results**

The values are saved, and the **IBM Tools Customizer for z/OS** main menu panel (CCQPHME) is displayed again.

**What to do next**

You are ready to customize or recustomize Db2 Query Monitor or to change parameter settings.
Chapter 6. Customizing Db2 Query Monitor

Using Tools Customizer to customize Db2 Query Monitor consists of identifying the product to customize; defining any required Db2 Query Monitor and Db2 parameters; generating the customization jobs; and submitting the jobs.

Customization roadmaps describe the steps that you must complete to customize Db2 Query Monitor. Separate roadmaps are provided for the three most common types of customizations.

Use the following table to determine which roadmap corresponds to your environment.

<table>
<thead>
<tr>
<th>Environment description</th>
<th>Roadmap</th>
</tr>
</thead>
<tbody>
<tr>
<td>You do not have a customized version of Db2 Query Monitor, and you need to customize it for the first time.</td>
<td>“Roadmap: Customizing Db2 Query Monitor for the first time” on page 95</td>
</tr>
<tr>
<td>You have already customized a version of Db2 Query Monitor, and you want to use the same parameter values to customize a different version.</td>
<td>“Roadmap: Customizing a new version of Db2 Query Monitor from a previous customization” on page 96</td>
</tr>
<tr>
<td>You have a customized version of Db2 Query Monitor, but you want to change one or more parameter values.</td>
<td>“Roadmap: Recustomizing Db2 Query Monitor” on page 97</td>
</tr>
</tbody>
</table>

Roadmap: Customizing Db2 Query Monitor for the first time

This roadmap lists and describes the steps that are required to customize Db2 Query Monitor for the first time.

If you are customizing a previous version of Db2 Query Monitor, see “Roadmap: Customizing a new version of Db2 Query Monitor from a previous customization” on page 96.

Before you complete these steps, ensure that the following prerequisites have been met:

- All of the product customization steps that must be done before Tools Customizer is started are complete.
- Tools Customizer is started.
- The Tools Customizer settings have been reviewed or modified, and saved.

Complete the steps in the following table to customize Db2 Query Monitor for the first time.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specify the product metadata library for the product that you want to customize. The name of this library is hlq.SCQMDENU.</td>
<td>“Specifying the metadata library for the product to customize” on page 98</td>
</tr>
<tr>
<td>2</td>
<td>Create new Db2 entries and associate them with Db2 Query Monitor.</td>
<td>“Creating and associating Db2 entries” on page 101</td>
</tr>
<tr>
<td>3</td>
<td>Define the required parameters.</td>
<td>“Defining parameters” on page 102</td>
</tr>
<tr>
<td>4</td>
<td>Generate the customization jobs for the product or for the Db2 entries on which Db2 Query Monitor is ready to be customized.</td>
<td>“Generating customization jobs” on page 106</td>
</tr>
</tbody>
</table>
Table 30. Steps for customizing Db2 Query Monitor for the first time (continued)

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Submit the generated customization jobs.</td>
<td>“Submitting customization jobs” on page 107</td>
</tr>
</tbody>
</table>

The following table lists some of the common administrative tasks that you might need to do during the customization process.

Table 31. Administrative tasks

<table>
<thead>
<tr>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browse the different types of parameters.</td>
<td>“Browsing parameters” on page 108</td>
</tr>
<tr>
<td>Copy an existing Db2 entry to the list of Db2 entries on which Db2 Query Monitor can be customized.</td>
<td>“Copying Db2 entries” on page 109</td>
</tr>
<tr>
<td>Remove one or more Db2 entries from the associated list.</td>
<td>“Removing Db2 entries” on page 110</td>
</tr>
<tr>
<td>Delete one or more Db2 entries from the master list.</td>
<td>“Deleting Db2 entries” on page 111</td>
</tr>
<tr>
<td>Display a list of customization jobs that have been previously generated.</td>
<td>“Displaying customization jobs” on page 111</td>
</tr>
<tr>
<td>Maintain the customization jobs in the customization library.</td>
<td>“Maintaining customization jobs” on page 112</td>
</tr>
</tbody>
</table>

Roadmap: Customizing a new version of Db2 Query Monitor from a previous customization

This roadmap lists and describes the steps for customizing a new version of Db2 Query Monitor based on the existing customization values of a previous version of the same product.

Use this roadmap even if the previous version of Db2 Query Monitor was not customized by using Tools Customizer.

Before you complete these steps, ensure that the following prerequisites have been met:

- All of the product customization steps that must be done before Tools Customizer is started are complete.
- Tools Customizer is started.
- The Tools Customizer settings have been reviewed or modified, and saved.

Complete the steps in the following table to customize a new version of Db2 Query Monitor from a previous customization.

Table 32. Steps for customizing a new version of Db2 Query Monitor from a previous customization

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specify the product metadata library for the product that you want to customize. The name of this library is $hlq.SCQMDENU.</td>
<td>“Specifying the metadata library for the product to customize” on page 98</td>
</tr>
<tr>
<td>2</td>
<td>Use the Db2 Query Monitor Discover EXEC to discover information about the version of Db2 Query Monitor that you previously customized manually.</td>
<td>“Discovering Db2 Query Monitor information automatically” on page 99</td>
</tr>
</tbody>
</table>
Table 32. Steps for customizing a new version of Db2 Query Monitor from a previous customization (continued)

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Define the required parameters.</td>
<td>“Defining parameters” on page 102</td>
</tr>
<tr>
<td>4</td>
<td>Generate the customization jobs for the product or for the Db2 entries on which Db2 Query Monitor is ready to be customized.</td>
<td>“Generating customization jobs” on page 106</td>
</tr>
<tr>
<td>5</td>
<td>Submit the generated customization jobs.</td>
<td>“Submitting customization jobs” on page 107</td>
</tr>
</tbody>
</table>

The following table lists some of the common administrative tasks that you might need to do during the customization process.

Table 33. Administrative tasks

<table>
<thead>
<tr>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browse the different types of parameters.</td>
<td>“Browsing parameters” on page 108</td>
</tr>
<tr>
<td>Copy an existing Db2 entry to the list of Db2 entries on which Db2 Query Monitor can be customized.</td>
<td>“Copying Db2 entries” on page 109</td>
</tr>
<tr>
<td>Remove one or more Db2 entries from the associated list.</td>
<td>“Removing Db2 entries” on page 110</td>
</tr>
<tr>
<td>Delete one or more Db2 entries from the master list.</td>
<td>“Deleting Db2 entries” on page 111</td>
</tr>
<tr>
<td>Display a list of customization jobs that have been previously generated.</td>
<td>“Displaying customization jobs” on page 111</td>
</tr>
<tr>
<td>Maintain the customization jobs in the customization library.</td>
<td>“Maintaining customization jobs” on page 112</td>
</tr>
</tbody>
</table>

Roadmap: Recustomizing Db2 Query Monitor

This roadmap lists and describes the steps to change parameter values and regenerate customization jobs for Db2 Query Monitor after you have customized it for the first time.

The new customization jobs will replace the customization jobs that were previously generated and stored in the customization library. Part of the recustomization process includes selecting or deselecting optional tasks or steps, changing the definitions of parameters that have already been defined, or both. Use the method in this roadmap instead of deleting customization jobs from the customization library.

Before you complete these steps, ensure that the following prerequisites have been met:

- All of the product customization steps that must be done before Tools Customizer is started are complete.
- Tools Customizer is started.

Complete the steps in the following table to recustomize Db2 Query Monitor.

Table 34. Required steps for recustomizing Db2 Query Monitor

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specify the product metadata library for the product that you want to recustomize. The name of this library is hlq.SCQMDENU.</td>
<td>“Specifying the metadata library for the product to customize” on page 98</td>
</tr>
</tbody>
</table>
Table 34. Required steps for recustomizing Db2 Query Monitor (continued)

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Edit the specific tasks, steps, or parameters that need to be changed.</td>
<td>• “Defining Db2 Query Monitor parameters” on page 103</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• “Defining Db2 parameters” on page 104</td>
</tr>
<tr>
<td>3</td>
<td>Generate the customization jobs for the product or for the Db2 entries on which Db2 Query Monitor is ready to be customized.</td>
<td>“Generating customization jobs” on page 106</td>
</tr>
<tr>
<td>4</td>
<td>Submit the new generated customization jobs.</td>
<td>“Submitting customization jobs” on page 107</td>
</tr>
</tbody>
</table>

The following table lists some of the common administrative tasks that you might need to do during the customization process.

Table 35. Administrative tasks

<table>
<thead>
<tr>
<th>Description</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browse the different types of parameters.</td>
<td>“Browsing parameters” on page 108</td>
</tr>
<tr>
<td>Copy an existing Db2 entry to the list of Db2 entries on which Db2 Query Monitor can be customized.</td>
<td>“Copying Db2 entries” on page 109</td>
</tr>
<tr>
<td>Remove one or more Db2 entries from the associated list.</td>
<td>“Removing Db2 entries” on page 110</td>
</tr>
<tr>
<td>Delete one or more Db2 entries from the master list.</td>
<td>“Deleting Db2 entries” on page 111</td>
</tr>
<tr>
<td>Display a list of customization jobs that have been previously generated.</td>
<td>“Displaying customization jobs” on page 111</td>
</tr>
<tr>
<td>Maintain the customization jobs in the customization library.</td>
<td>“Maintaining customization jobs” on page 112</td>
</tr>
</tbody>
</table>

**Specifying the metadata library for the product to customize**

You must specify a metadata library for the product that you want to customize.

**About this task**

The product metadata library contains the information that determines which tasks, steps, and parameters are required to customize Db2 Query Monitor. This information controls what is displayed on the **Product Parameters** panel and the **DB2 Parameters** panel.

After Db2 Query Monitor has been SMP/E installed, the default name of the product metadata library is `high_level_qualifier.SCQMDENU`, where `high_level_qualifier` is all of the segments of the data set name except the lowest-level qualifier.

**Procedure**

1. Specify option 1 on the **Tools Customizer for z/OS** panel.
   The **Specify the Product or Pack Metadata Library** panel is displayed. This panel contains a list of the product metadata libraries that you specified most recently. If you are using Tools Customizer for the first time, this list is empty, as shown in the following figure:
2. Use one of the following methods to specify the product metadata library:

- Type the name of a fully qualified partitioned data set (PDS) or an extended partitioned data set (PDSE) in the Product or pack metadata library field. Double quotation marks (""") cannot be used around the name. Single quotation marks (') can be used but are not required. If you are customizing Db2 Query Monitor for the first time, you must use this method.

- Place the cursor in any column of the Recent Metadata Libraries list, and press Enter to populate Product or pack metadata library field. Press Enter again to select product or pack for customization.

Results
If you are customizing Db2 Query Monitor for the first time, the Run Discover EXEC panel is displayed. Otherwise, the Customizer Workplace panel is displayed.

What to do next
- Complete the steps that correspond to your environment:

  **Customizing Db2 Query Monitor for the first time**
  Do not run the Db2 Query Monitor Discover EXEC. Press End. The Customizer Workplace panel is displayed. If your environment requires associated Db2 entries, ensure that they are created and associated. If your environment does not require associated Db2 entries, skip this step, and edit Db2 Query Monitor parameters.

  **Customizing Db2 Query Monitor from a previous or current customization**
  Press Enter to run the Db2 Query Monitor Discover EXEC. The Discover Customized Product Information panel is displayed. Specify the required information for running the EXEC.

---

**Discovering Db2 Query Monitor information automatically**

You can use the Db2 Query Monitor Discover EXEC to discover information from a previous or current customization of Db2 Query Monitor.

**About this task**

**Tip:** Using the Db2 Query Monitor Discover EXEC to discover information from a previous or current customization saves time and reduces errors that can occur when parameters are specified manually.

Db2 Query Monitor provides the Discover EXEC that you will run. Therefore, the information that can be discovered depends on Db2 Query Monitor.

Parameter values that are discovered and parameter values that are specified manually are saved in the data store. If parameter values for the product that you want to customize exist in the data store, Tools Customizer issues a warning before existing values are replaced.
Procedure

1. On the **Customizer Workplace** panel, issue the DISCOVER command.

   If you chose to run the Db2 Query Monitor Discover EXEC on the pop-up panel after you specified the product to customize, skip this step.

   **Tip:** You can run any Tools Customizer primary command by using either of the following methods:
   - Place the cursor on the name of the primary command, and press Enter.
   - Type the primary command name in the command line, and press Enter.

   The **Discover Customized Product Information** panel is displayed, as shown in the following figure:

   ```
   CCQPDISC             Discover Customized Product Information           HH:MM:SS
   Command ===>                                                  Scroll ===> PAGE
   For the product you are customizing, the Discover EXEC retrieves product
   information from an already customized product. Specify the required
   information. To save your information and run the Discover EXEC, issue the RUN
   command. To save your information and stay on this panel, issue the SAVE
   command. To verify the syntax of your information without saving it, press
   Enter. To save and exit, press End.
   Commands: RUN  SAVE
   Discover EXEC for Extracting Information from an Already Customized product
   *Discover EXEC library . . . 'CQM.CQM330.SCQMDENU'
   Discover EXEC name . . . . : CQMDISCO
   *Discover output data set . . 'CQM.CQM330.DISCOVER'
   Information for Discover EXEC
   *DB2 Query Monitor for z/OS parameters location
   HLQ.V3R3.SCQMsamp(CQMPARMS)
   ``

   **Figure 5. The Discover Customized Product Information panel**

   2. Either accept the default values for the following input fields that Tools Customizer generates, or replace the default values with your own values:

   **Discover EXEC library**
   
   The fully qualified data set name that contains the Db2 Query Monitor Discover EXEC.

   **Discover EXEC name**
   
   The name of the Db2 Query Monitor Discover EXEC.

   **Discover output data set**
   
   The fully qualified data set where output from the Db2 Query Monitor Discover EXEC is stored.

   3. Either accept or change the default values in the **Information for Discover EXEC** fields.

   These fields are generated by Db2 Query Monitor. They show the information that is required to run the Db2 Query Monitor Discover EXEC.

   4. Issue the RUN command to run the Db2 Query Monitor Discover EXEC.

   Alternatively, save your information without running the Db2 Query Monitor Discover EXEC by issuing the SAVE command.

   If you issue the RUN command to run the Db2 Query Monitor Discover EXEC, the parameter information is discovered for Db2 Query Monitor, and the **Customizer Workplace** panel is displayed.

Results

The discovered parameter values for Db2 Query Monitor replace any existing values.

What to do next

The next step depends on your environment:

- If Db2 entries were not discovered, or if you need to customize Db2 Query Monitor on new Db2 entries, create and associate the entries.
- If Db2 entries were discovered and you want to customize Db2 Query Monitor on only these entries, define the parameters.
Creating and associating Db2 entries

You can create new Db2 entries and associate them with Db2 Query Monitor.

About this task

The list of associated Db2 entries is on the Customizer Workplace panel.

Procedure

1. Issue the ASSOCIATE command on the Customizer Workplace panel. The Associate DB2 Entry for Product panel is displayed, as shown in the following figure:

   Figure 6. The Associate DB2 Entry for Product panel

2. Create Db2 entries.
   
   If you need to associate Db2 entries that are already in the master list, skip this step and go to step 3.
   a) Issue the CREATE command to create one Db2 entry, or issue CREATE nn to create multiple Db2 entries, where nn is the number of new entries to be created.

   Figure 7. The Create DB2 Entries panel

   b) In the appropriate columns, specify a Db2 subsystem ID, Db2 group attach name, or Db2 data sharing member name for the Db2 entry that you want to create, and press Enter.

   Valid values are 1 - 4 characters. You can use symbolic characters. You cannot use blanks.
Tips:

- To insert multiple Db2 entries, specify the \texttt{I}nn line command, where \textit{nn} is the number of Db2 entries to be inserted.

- You will define specific parameters for these new Db2 entries, such as parameters that define a subsystem as primary, on the \textbf{DB2 Parameters} panel. This panel is displayed after you select these new Db2 entries and issue the line command to generate the jobs, after you issue the primary command to generate the jobs for all associated Db2 entries, or when you manually edit the Db2 parameters.

The \textbf{Associate DB2 Entry for Product} panel is displayed, and the new Db2 entry is displayed in the master list, as shown in the following figure:

```
CCQPDAD Associate DB2 Entry for Product Row 1 to 3 of 3
Command ==>>
Scroll ==>>
Select any of the following DB2 entries to add them to the Customizer Workplace panel. You use the Customizer Workplace panel to choose the DB2 subsystems, data sharing members, and group attach names on which to customize the product.

Commands: CREATE - Create new DB2 entries

DB2 Entries
Line commands: A - Associate  C - Copy  D - Delete
Cmd SSID GrpAttch
*    *  
DBAA -- 
DBAB -- 
DBAC -- 

------------------------------ End of DB2 entries -----------------------------
```

\textit{Figure 8. Associate DB2 Entry for Product panel}

c) Repeat steps b and c for each Db2 entry that you want to create.

d) When you have created all the Db2 entries, associate them with Db2 Query Monitor, or press End to display the \textbf{Customizer Workplace} panel.

3. Associate Db2 entries.

a) Specify \texttt{A} against one or more Db2 entries in the master list, and press Enter to associate them with Db2 Query Monitor.

\textbf{Results}

The \textbf{Customizer Workplace} panel is displayed with the associated Db2 entries displayed in the associated list.

\textbf{What to do next}

Define the parameters.

\textbf{Related concepts}

Tools Customizer terminology

Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

\textbf{Defining parameters}

To customize Db2 Query Monitor, you must define Db2 Query Monitor parameters and Db2 parameters, if your customization requires Db2 entries.

\textbf{About this task}

You must define the Db2 Query Monitor parameters first for the following reasons:

- If you ran the Db2 Query Monitor Discover EXEC, you must review the values that were discovered.
• If you select optional tasks and steps on the Product Parameters panel that affect the Db2 entry on which you will customize Db2 Query Monitor, additional parameters might be displayed on the DB2 Parameters panel.

• If other steps must be completed in a specific sequence, customization notes on the Product Parameters panel will display the correct sequence.

Defining Db2 Query Monitor parameters
Db2 Query Monitor parameters are specific to Db2 Query Monitor.

About this task
If you ran the Db2 Query Monitor Discover EXEC, you must review the parameters that were discovered.

Procedure
1. Specify E next to the Product parameters field on the Customizer Workplace panel, and press Enter.

   The Product Parameters panel is displayed, as shown in the following figure. If other steps must be completed in a specific sequence before you define the Db2 Query Monitor parameters, a note labeled Important will display the correct sequence on this panel.

   Figure 9. The Product Parameters panel

You can use the following primary commands on this panel:

SAVE
   Saves the specified product or component parameter values.

VERIFY / VERIFYOFF
   Use the VERIFY and VERIFYOFF commands to turn on and off parameter verification of product or component parameters. Before you can generate customization jobs, you must verify that all required parameters are set to a valid value. The product or component parameter status of Verify Values on the Customize Workplace panel indicates that the values have not been verified.
Enter these commands either by typing them in the command field and pressing Enter or by positioning the cursor on the command and pressing Enter. When VERIFY is active, VERIFYOFF is displayed so that you can toggle between the two states. By default, verification is turned on when you display the **DB2 Parameters** panel, and the verification state is reset to VERIFY every time you exit the Customization Workplace panel by pressing PF3.

Turning verification off is useful when you need to exit the panel before you have entered all of the required parameters, but you want to save the parameters that you have specified. When you disable verification, it is disabled only for the Product or Component Parameters Values panel.

2. Select any required tasks and steps, and specify values for any parameters. After you select a task or step with a slash (/), put the cursor in the selected field and press Enter.

   If tasks, steps, and parameters are required, they are preselected with a slash (/). Otherwise, they are not preselected.

   All of the required parameters have default values, which you can either accept or change.

   **Tips:**
   - In the command line, specify the KEYS command, and map EXPAND to one of the function keys.
   - For a detailed description of all input fields, put the cursor in the field, and press F1 or the key that is mapped to Help.
   - The following elements apply to specific fields:
     - **Add** is displayed when parameters can have multiple values but currently have only one value. To specify multiple values in these fields, place the cursor on **Add**, and press Enter. Use the displayed panel to add or delete additional values.
     - **List** is displayed when the complete list of valid values for the fields is too long to be displayed on the panel. To see the complete list of values, place the cursor on **List**, and press F1 or the key that is mapped to Help.
     - **More** is displayed when input fields contains multiple values. To see all of the values in the field, place the cursor on **More**, and press Enter.

3. Optional: Select other tasks and steps with a slash (/) and press Enter to activate the input fields. Either accept or change the default values that are displayed.

4. Press End to save your changes and exit, or issue the **SAVE** command to save your changes and stay on the **Product Parameters** panel.

**Results**

The **Customizer Workplace** panel is displayed, and the status of the product parameters is Ready to Customize.

**What to do next**

If the status of other parameters on the **Customizer Workplace** panel is Incomplete, Verify Values, or Discovered, edit these parameters.

**Related tasks**

- Defining Db2 parameters
  
  Db2 parameters are parameters for a Db2 entry.

**Defining Db2 parameters**

Db2 parameters are parameters for a Db2 entry.

**About this task**

If you did not run the Db2 Query Monitor Discover EXEC, you must create and associate one or more Db2 entries before you can define the Db2 parameters. For more information, see “Creating and associating Db2 entries” on page 101.
Procedure

1. Specify E next to one or more Db2 entries in the associated list, which is in the Associated Db2 Entries and Parameter Status section on the **Customizer Workplace** panel, and press Enter.

   The **DB2 Parameters** panel is displayed, as shown in the following figure:

   ![Figure 10. The DB2 Parameters panel](image)

   You can use the following primary commands on this panel:

   **SAVE**
   Saves the specified product or component parameter values.

   **VERIFY / VERIFYOFF**
   Use the VERIFY and VERIFYOFF commands to turn on and off parameter verification of Db2 parameters. Before you can generate customization jobs, you must verify that all required parameters are set to a valid value. The Db2 parameter status of Verify Values on the Customize Workplace panel indicates that the values have not been verified.

   Enter these commands either by typing them in the command field and pressing Enter or by positioning the cursor on the command and pressing Enter. When VERIFY is active, VERIFYOFF is displayed so that you can toggle between the two states. By default, verification is turned on when you display the **DB2 Parameters panel**, and the verification state is reset to VERIFY every time you exit the Customization Workplace panel by pressing PF3.

   Turning verification off is useful when you need to exit the panel before you have entered all of the required parameters, but you want to save the parameters that you have specified. When you disable verification, it is disabled only for the **DB2 Parameters Values** panel.

2. Specify values for all parameters that are displayed.

   **Tips:**
   - In the command line, specify the KEYS command, and map EXPAND to one of the function keys.
   - For a detailed description of all input fields, put the cursor in the field, and press F1 or the key that is mapped to Help.
   - The following elements apply to specific fields:
- **Add** is displayed when parameters can have multiple values but currently have only one value. To specify multiple values in these fields, place the cursor on **Add**, and press Enter. Use the displayed panel to add or delete additional values.

- **List** is displayed when the complete list of valid values for the fields is too long to be displayed on the panel. To see the complete list of values, place the cursor on **List**, and press F1 or the key that is mapped to Help.

- **More** is displayed when input fields contains multiple values. To see all of the values in the field, place the cursor on **More**, and press Enter.

Many parameters have default values, which you can either accept or change.

1. Press End to save your changes and exit, or issue the SAVE command to save your changes and stay on the same panel.

**Results**
The status of the Db2 entries that you selected on the **Customizer Workplace** panel is Ready to Customize.

**What to do next**
If the status of other parameters on the **Customizer Workplace** panel is Incomplete, Verify Values, or Discovered, edit these parameters.

**Related tasks**
- Defining Db2 Query Monitor parameters
- Db2 Query Monitor parameters are specific to Db2 Query Monitor.

### Generating customization jobs

To generate customization jobs for Db2 Query Monitor and any associated Db2 entries, issue the GENERATEALL command, or select one or more Db2 entries on which to customize Db2 Query Monitor.

**Procedure**
Generate the customization jobs by using one of the following methods.

- If you want to generate customization jobs at the product level and for any associated Db2 entries, issue the GENERATEALL command, and press Enter.
- If you want to generate customization jobs for specific Db2 entries, select the Db2 entries by specifying the G line command against them, and press Enter. The available Db2 entries are in the associated list in the Associated Db2 Entries and Parameter Status section.

**Important:** Regenerating customization jobs will replace any existing jobs, including jobs that you might have manually modified after they were generated.

**Results**
If the status is Incomplete or Discovered for Db2 Query Monitor parameters or Db2 parameters, Tools Customizer automatically starts an editing session for the types of parameters that are required. The session continues until the panel for each type of required parameter has been displayed.

**What to do next**
If an automatic editing session is started, accept the displayed parameter values or define values for the required types of parameters, select optional parameters, tasks, or steps for your environment, and save the parameter values. Otherwise, the customization jobs are generated, and you can submit them.

**Tip:** If the customization jobs are generated, but you are not ready to submit them, you can see them later by issuing the JOBLIST command on the **Customizer Workplace** panel. The JOBLIST command displays the **Finish Product Customization** panel, which you can use to submit the jobs.
Submitting customization jobs

Submit the customization jobs to customize Db2 Query Monitor.

**Before you begin**

Ensure that the correct jobs are generated.

**About this task**

The following figure shows part of the **Finish Product Customization** panel. The table on this panel shows the customization jobs that are generated by Tools Customizer. They are grouped by job sequence number.

<table>
<thead>
<tr>
<th>Command</th>
<th>Scroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCQPCMC Finish Product Customization Row 1 to 8 of 8 CSR</td>
<td></td>
</tr>
</tbody>
</table>

Submit the members in the order in which they apply to all Db2 entries. To submit the job, browse the member and issue the TSO SUBMIT command, or browse the customized library and submit the jobs from there.

**Product to Customize**

- **Product metadata library**: CQM.CQM330.SCQMDENU > LPAR . . : RS22
- **Product name**: IBM DB2 Query Monitor > **Version**: 3.3.0
- **Configuration ID**: CQM > **Description**: IBM DB2 Query Monitor

**Line Commands**: E - **Edit** B - **Browse**

**Product customization library**: USER01.TCZ.$RS22$.CQM330

<table>
<thead>
<tr>
<th>Cmd Member</th>
<th>SSID GrpAttch Template Date Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0V3AA</td>
<td>--          --      CQMV33 2017/10/25 Configure Startup CLIST 1</td>
</tr>
<tr>
<td>A1V3AA</td>
<td>--          --      CQM33C 2017/10/25 Configure Startup CLIST 2</td>
</tr>
<tr>
<td>A2#DAAAA  DB2A --      CQM#DDL 2017/10/25 Create DB2 Objects</td>
<td></td>
</tr>
<tr>
<td>A9#BAAAA  DB2A --      CQM#BD8N 2017/10/25 CQM Binds</td>
<td></td>
</tr>
<tr>
<td>B3GRAAAA  DB2A --      CQMGRAN8 2017/10/25 Grant Execute Authority</td>
<td></td>
</tr>
<tr>
<td>B4CNAA     --          --      CQM#CNTFL 2017/10/25 Create Control File</td>
<td></td>
</tr>
<tr>
<td>B5CFAAAA  DB2A --      CQMCF2UP 2017/10/25 Update CQM Control File</td>
<td></td>
</tr>
</tbody>
</table>

--- End of customized jobs ---

**Figure 11. The Finish Product Customization panel**

The member-naming conventions depend on whether the customization jobs are for Db2 entries, and LPAR, or the product.

The **New** file indicates if the job member is newly created/updated. It is either YES or NO. YES indicates the job member is newly created or updated, and it needs to be submitted for customization. NO indicates the job member is not newly created/updated, it does not need to be submitted for customization.

**Customization jobs for Db2 entries**

The members use the following naming convention:

\<job_sequence_number><job_ID><DB2_entry_ID>\n
where

**job_sequence_number**

Two alphanumeric characters, A0 - Z9, that Tools Customizer assigns to a customization job. The number for the first template in the sequence is A0, the number for the second template is A1, and so on.

**job_ID**

Characters 4 - 7 of the template name, if the template name contains five or more characters. Otherwise, only character 4 is used. Db2 Query Monitor assigns the template name.
**DB2_entry_ID**
Two alphanumeric characters, AA - 99, that Tools Customizer assigns to a Db2 entry.

For example, the XYZBND{DB2_entry_ID} job is generated from the XYZBNDGR template, and the XYZ4{DB2_entry_ID} job is generated from the XYZ4 template. If the jobs are generated on two Db2 entries, the following member names are listed sequentially: A0BNDGAA, A0BNDGAB, A14AA, A14AB.

**Customization jobs for the product**
The members use the following naming convention:

```
<job_sequence_number><job_ID>
```

where

**job_sequence_number**
Two alphanumeric characters, A0 - Z9, that Tools Customizer assigns to a customization job. The number for the first template in the sequence is A0, the number for the second template is A1, and so on.

**job_ID**
Characters 4 - 8 of the template name, if the template name contains five or more characters. Otherwise, only character 4 is used. For example, for the XYZMAKE template, the job ID is MAKE. For the XYZM template, the job ID is M. Db2 Query Monitor assigns the template name, and it is displayed in the Template column.

For example, the XYZBNDGR job is generated from the XYZBNDGR template, and the XYZ4 job is generated from the XYZ4 template. The following member names are listed sequentially: A0BNDGR, A14.

**Procedure**
1. Submit the generated customization jobs by following the process that you use in your environment or by using the following method:
   a) Specify B or E against a customization job or the product customization library, and press Enter.
      An ISPF browsing or editing session is started.
   b) Browse the customization job or each member in the library to ensure that the information is correct.
   c) Run the TSO SUBMIT command.
2. Press End.

**Results**
Db2 Query Monitor is customized, and the Customizer Workplace panel is displayed. The status is Customized for the Db2 entries on which Db2 Query Monitor was customized.

**What to do next**
You can generate more customization jobs for other Db2 entries, view a list of customization jobs that you previously generated, or recustomize Db2 Query Monitor.

**Browsing parameters**
You can browse the product or component parameters and the Db2 parameters in read-only mode.

**Procedure**
1. On the Customizer Workplace panel, specify B next to the Product parameters field or the Db2 entry that you want to browse, and press Enter.
The panel that corresponds to your specification is displayed.

2. Press End to exit.

## Copying Db2 entries

You can copy associated and not associated Db2 entries to other Db2 entries or to new Db2 entries.

### About this task

Go to the step that applies to your environment:

- To copy an associated Db2 entry to another associated Db2 entry or to an entry that is not associated, go to step 1.
- To copy an associated Db2 entry to a new entry, go to step 2.
- To copy a Db2 entry that is not associated to a new entry, go to step 3.

### Procedure

1. To copy an associated Db2 entry to another associated Db2 entry or to an entry that is not associated, complete the following steps:
   a) Specify C against a Db2 entry in the associated list of Db2 entries on the Customizer Workplace panel, and press Enter.
      The Copy Associated DB2 Entry panel is displayed.
   b) Select one or more Db2 entries to which information will be copied by specifying the / line command, and press Enter.
      The Associated column indicates whether the Db2 entry is associated.
      **Tip:** To copy information into all of the Db2 Entries in the list, issue the SELECTALL primary command, and press Enter.
      The Copy DB2 Parameter Values panel is displayed.
   c) Specify an option for copying common and product-specific Db2 parameter values.
      Common Db2 parameter values apply to all Db2 entries for all products that you have customized by using Tools Customizer. Product-specific Db2 parameter values apply only to the product that you are currently customizing.
      • To copy the common Db2 parameter values and the product-specific Db2 parameter values, specify option 1, and press Enter.
      • To copy only the product-specified Db2 parameter values, specify option 2, and press Enter.
      In some cases, the Db2 parameter values might contain the Db2 subsystem ID as an isolated qualifier in data set names. For example, in the DB01.DBO1TEST.DBO1.SANLLOAD, data set name, the DBO1 subsystem ID is isolated in the first and third qualifiers but is not isolated in the second qualifier. When the Db2 subsystem ID is an isolated qualifier in data set names, the Change DB2 Subsystem ID in DB2 Parameter Values panel is displayed. Otherwise, the Customizer Workplace panel is displayed.
   d) If the Change DB2 Subsystem ID in DB2 Parameter Values panel is displayed, specify an option for changing the subsystem IDs. Otherwise, skip this step.
      • To change the subsystem ID in isolated qualifiers in data set names, specify option 1, and press Enter.
      • To use the same subsystem ID in all values, specify option 2, and press Enter.
      The Customizer Workplace panel is displayed with the copied associated entry in the list.

2. To copy an associated Db2 entry to a new entry, complete the following steps:
   a) Specify C against a Db2 entry in the associated list of Db2 entries on the Customizer Workplace panel, and press Enter.
The **Copy Associated DB2 Entry** panel is displayed.

b) Issue the CREATE command.

The **Create DB2 Entries** panel is displayed.

c) Specify the SSID, the group attach name, or both in the appropriate columns for each new Db2 entry, and press Enter.

**Tip:** To add rows for additional entries, specify the \( \text{In}n \) line command, where \( nn \) is the number of entries to be created, and press Enter.

The **Copy Associated DB2 Entry** panel is displayed with the new entries in the list. The new entries are preselected.

d) Press Enter to complete the copy process.

The **Customizer Workplace** panel is displayed with the copied entries in the list.

### 3. To copy a Db2 entry that is not associated to a new entry, complete the following steps:

a) Issue the ASSOCIATE command on the **Customizer Workplace** panel.

The **Associate DB2 Entry for Product** panel is displayed.

b) Select one or more Db2 entries by specifying the / line command, and press Enter.

The **Copy a DB2 Entry** panel is displayed.

c) Specify the SSID, the group attach name, or both in the appropriate columns for the new Db2 entry, and press Enter.

The **Associate DB2 Entry for product** panel is displayed with the copied entry in the list.

d) If you want to associate the copied entry, specify A against it, and press Enter.

The **Customizer Workplace** panel is displayed with the copied entries in the list.

**What to do next**

Edit any of the parameters or generate the jobs.

**Related concepts**

Tools Customizer terminology

Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

---

**Removing Db2 entries**

You can remove Db2 entries from the associated list.

**About this task**

When you remove Db2 entries from the associated list, any customization jobs for the entries are removed from the list of jobs on the **Finish Product Customization** panel, and they are deleted.

**Procedure**

On the **Customizer Workplace** panel, specify R next to one or more Db2 entries that you want to remove, and press Enter.

The selected Db2 entries are removed from the associated list and added to the master list on the **Associate DB2 Entry for Product** panel, and the customization jobs are deleted.

**Related concepts**

Tools Customizer terminology
Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

### Deleting Db2 entries

You can delete Db2 entries from the master list.

**About this task**
When you delete Db2 entries from the master list, any associations and all customization jobs for products that are customized on the entries will be deleted.

**Procedure**

1. On the **Customizer Workplace** panel, issue the ASSOCIATE command. The **Associate DB2 Entry for Product** panel is displayed.
2. Specify D next to one or more Db2 entries that you want to delete, and press Enter.
   - If the entry is associated with any products, the **Delete Associated DB2 Entry** panel for the first Db2 entry that you selected is displayed. Otherwise, the **Delete DB2 Entry** panel is displayed.
3. To delete the Db2 entries, press Enter.
   - If the Db2 entries are associated with any products in the table on the **Delete Associated DB2 Entry** panel, any associations and all customization jobs for the products that are customized on it are deleted. Otherwise, only the Db2 entries are deleted. If you selected multiple Db2 entries to delete, the next Db2 entry that you selected is displayed on either the **Delete Associated DB2 Entry** panel or the **Delete DB2 Entry** panel. Otherwise, the **Associate DB2 Entry for Product** panel is displayed.

**What to do next**
If you selected multiple Db2 entries to delete, repeat step 3 until all selected entries are deleted. Then, continue the customization process.

### Displaying customization jobs

You can view a list of the members that contain the customization jobs before or after you submit the jobs.

**About this task**
The customization jobs that you generate for one Db2 entry are also displayed when you customize Db2 Query Monitor for another Db2 entry later.

**Procedure**

On the **Customizer Workplace** panel, issue the JOBLIST command.

The **Finish Product Customization** panel is displayed. This panel shows the list of jobs that you have previously generated. They are grouped by job sequence number. Use this panel to browse or edit the generated jobs before you submit them.
Maintaining customization jobs

Instead of deleting customization jobs outside of Tools Customizer, you can maintain the correct jobs for Db2 Query Monitor by completing the steps for recustomization.

About this task

You cannot delete or rename customization jobs from the customization library by starting an ISPF browse or edit session from the Finish Product Customization panel. If you try to delete customization jobs by using this method, the CCQC034S message is issued. If you try to rename customization jobs, the CCQC035S message is issued.

If you delete or rename customization jobs from the customization library by using ISPF outside of Tools Customizer, Tools Customizer will not recognize that the jobs were deleted, and the Finish Product Customization panel will still display them. If you browse or edit jobs that were deleted from the library outside of Tools Customizer, the CCQC027S message is issued.

Procedure

To maintain the correct customization jobs in the customization library, complete the steps for recustomization.

Using Tools Customizer in a multiple-LPAR environment

Currently, Tools Customizer supports only the local LPAR; however, you can propagate customizations to additional LPARs by using either of two different methods.

About this task

In a multiple-LPAR environment, Tools Customizer identifies the LPAR to which you are logged on. Tools Customizer uses this LPAR name for several different parameter settings, one of which is the data store. When you use the data store during the customization of Db2 Query Monitor that is on a different LPAR, Tools Customizer issues message CCQD586S, which indicates that the product has already been customized based on values from the data store on the first LPAR. This message is issued to prevent the data store from becoming corrupted.

This behavior occurs in the following conditions:

- Tools Customizer is installed on a DASD device that is shared by multiple LPARs.
- After a product is customized by using Tools Customizer, the data store is copied to another LPAR.

Procedure

To customize products running against a Db2 subsystem on an LPAR where Tools Customizer is not installed, consider using one of the following methods:

Install one instance of Tools Customizer on one LPAR

If you intend to reuse the customization values for all the instances of your products on all LPARs, use this method.

- Associate all the Db2 entries in this one instance of Tools Customizer. The LPARs on which the Db2 subsystems reside do not matter.
- Generate the customization jobs for each Db2 entry.
- Copy the generated customization jobs to the LPAR to run against the specific Db2 entries. Some LPAR-specific edits might be required. You can make these edits in the customized jobs that you copied. Note that this situation is one of the few situations where you might need to make manual changes to the jobs that are customized by Tools Customizer.
Install one instance of Tools Customizer on each LPAR
If you do not want to reuse previous customization values and you want to start new customizations, use this method.

Important: This method will likely not be the preferred approach for most organizations because most organizations tend to use similar or identical customization values for each product instance on all LPARs.
Db2 Query Monitor's CAE components include the CAE Agent, the CAE Server, and the CAE Browser Client.

**Note:** If you are migrating from a previous version of Db2 Query Monitor, see “Upgrading” on page 46.

**Topics:**

### Installing the CAE Agent

The CAE Agent requires several installation and customization tasks. You must configure an MVS user ID to run the CAE Agent, define CAE parameters, and customize the JCL needed to initiate the CAE Agent. There are special considerations if you are using the fault-tolerant CAE Server customization.

The CAE Agent is required for the CAE Server to be able to access information from the Query Monitor Subsystem on an LPAR. There is one CAE Agent per LPAR, regardless of the number of Query Monitor Subsystem. The CAE Agent can run either as a started task or as a batch job under the control of JES.

The CQM CAE started task contains a CQMCPRMS DD statement that points to the member in the Db2 Query Monitor control data set that contains the parameters that control the behavior of the CAE Agent. When you initiate the CAE started task, it starts the CAE Agent, which will attempt to connect to the CAE Server. It will also attempt to start listening for incoming connections from the CAE Server.

If the CAE Agent is unable to listen at any of the designated listener ports, it will terminate with a CQMC0020E message. Once the CAE Agent connects to the CAE Server, users will now be able to use the CAE Browser Client to view Db2 Query Monitor data from the system on which that CAE Agent is running. In addition, the CAE Agent will start polling for alerts to send to the CAE Server. You do not need to do anything to let the CAE Agent know about the existence of any monitoring agents, it will automatically discover them.

### Tailoring the JCL necessary to initiate the CAE Agent

The JCL necessary to initiate the CAE Agent is located in SCQMSAMP library member CQMCAE.

**Procedure**

Edit SCQMSAMP member CQMCAE according to the instructions in the member.

**Note:**

a. Be sure to configure the CQMCPRMS DD statement in CQMCAE such that it points to the member in the Query Monitor control data set that contains the CAE startup parameters governing the behavior of the CAE Agent.

b. The address space for the CAE Agent requires that the available central storage space is, at a minimum, equal to that specified in the REGION SIZE in the CQMCAE sample JCL (70MB).

c. You should be aware of any IEFUSI exit criteria that might limit the available region size for this address space.

### Defining CAE Agent parameters (CQMCPRMS)

The CQMCAE program uses parameters to define the location of the CAE Server, the port at which the CAE Server is accepting network connections, equivalent information for the Backup CAE Server (if
implemented) and the frequency at which the CAE Agent should attempt to reconnect to the CAE Server (if necessary).

**About this task**

These parameters are defined in an 80-byte sequential or partitioned data set that you must allocate to the CQMCPRMS DD (in SCQMSAMP library member CQMCAE) and place in the Db2 Query Monitor control data set. A sample parameter file is included in SCQMSAMP(CQMCPRMS).

**Procedure**

1. Copy CQMCPRMS to the appropriate location on your system.
2. Verify that the parameters are valid for your environment
3. Edit the parameter file as necessary for your objectives.

   **Note:** The SERVER_ADDRESS, LISTENER_PORTS, and ISPF_LISTENER_PORT parameters are required in CQMCPRMS. All other parameters are optional. The SERVER_ADDRESS addresses can be IP address(es) or DNS names.

4. Edit the CQMCPRMS DD in the CAE started task JCL (SCQMSAMP member CQMCAE) to point to the CQMCPRMS data set you just customized.

**Installing the CAE Server**

The CAE Server can be installed on either Windows or USS. Additionally, the CAE Server can function alone (single-server installation) or as part of a HAFT installation.

Refer to the following topics for the various installation scenarios:

- To install a single CAE Server on Windows, see “Installing a single CAE Server - Windows” on page 117.
- To install a Primary CAE Server and a Backup CAE Server for HAFT on Windows, see “Installing the Primary CAE Server and Watchdog - Windows” on page 121.
- To install a single CAE Server on USS, see “Installing the CAE Server on USS - Procedure” on page 118.
- To install a Primary CAE Server and a Backup CAE Server for HAFT on USS, see “Installing the Primary CAE Server and Watchdog - USS” on page 125.

**Considerations**

When deciding whether to use the CAE Server on Windows or USS, consider the following:

- The CAE Server is typically deployed on Windows in order to reduce resource consumption on the mainframe.
- High-Availability Fault Tolerant installation on USS involves fewer steps than failover installation on Windows.
- If you implement the CAE Server on Windows, there is no runtime USS requirement. Although the SMP/E installation process automatically installs the USS CAE Server components during the SMP/E installation process, those components can be ignored and do not need to be configured if you plan to run the CAE Server on Windows.

**Installation log**

The installation log is created in the folder where Db2 Query Monitor is being installed.
Installing a single CAE Server - Windows

Follow these steps to perform a standard installation of the CAE Server on Windows.

**Procedure**

1. Obtain the necessary setup executable files. For more information, see “Transferring the necessary setup executable files to a Windows PC” on page 59.

2. Stop any Db2 Query Monitor services (or other KBM services such as that of IBM/Tivoli® Storage Optimizer) that are currently running prior to launching the installation program. If a Db2 Query Monitor service (or other KBM service such as that of IBM/Tivoli Storage Optimizer) is running, the installation wizard will display a message indicating you must quit the install and shut down all Db2 Query Monitor processes prior to reattempting the installation.

3. Launch the installer. You specified the name of the installer when you transferred it to your PC, for example `cqmcaeaal.exe`.

4. Click Next.

5. Specify the location to which you would like to install Db2 Query Monitor and click Next.

6. Specify where you would like to create product icons and click Next.

   Valid options include:

   **In a new program group**
   - Creates a new program group (accessible via the Start > Programs menu) to hold your product icons. Specify the new program group label in the box.

   **In an existing program group**
   - Places product icons into an existing program group (accessible from the Start > Programs menu). Select the program group from your existing program groups.

   **In the Start menu**
   - Places product icons in the Start menu.

   **On the desktop**
   - Places product icons on the desktop.

   **In the Quick Launch bar**
   - Places product icons in the Quick Launch bar.

   **Other**
   - Places product icons in a location of your choosing.

   **Don't create icons**
   - No product icons are created.

   **Create icons for all users**
   - Icons are created for all users in the chosen location.

7. Choose whether to import a secure socket certificate file, allow Db2 Query Monitor to create a host-based certificate or use a default localhost certificate.

   The following options are available:

   **Import certificate**
   - The browser behavior depends on the quality and appropriateness of the certificate that is imported.

   **Create certificate**
   - This option enables you to specify the hostname (Db2 Query Monitor attempts to present a good default). If the browser user specifies that host the only warning should be about the self-signing.

   **Use default localhost certificate**
   - This option causes the browser to warn users about the hostname mismatch with the certificate.
   - The browser will also warn users that it is being self-signed.

   **Note:**
• Contact your network and or security administrators if you need assistance obtaining certificates for the CAE Server.

8. Click Next.
   
   If you specified Import Certificate, you will be prompted to enter the certificate file location.
   
   If you specified Create Certificate, you will be prompted to enter the host name for the certificate.
   
   If you specified Use Default Localhost, you will receive a warning message about the self-signed certificate request.
   
   To clear the message click OK.

9. If you have a prior installation of Db2 Query Monitor from which you wish to import data, click Yes and specify the location of the prior installation. Click Next.

10. A pre-installation summary displays a list of the location, features, and size of the intended installation.
    
    Verify that all items are correct and, if so, click Install. If corrections are required, click Previous to re-specify installation parameters.

11. When the installation has completed, an Install Complete panel displays a summary of the installation. Click Done to quit the installer.

### Installing a single CAE Server - USS

Db2 Query Monitor provides you with the option of installing the CAE Server on USS. This option is available for sites that do not want to install the CAE Server on the standard CAE Server platform (Windows) who would prefer to install the CAE Server on USS instead.

### Installing the CAE Server on USS - Procedure

Follow these steps to install a single CAE Server on USS.

**Before you begin**

Read “File system locations for the CAE Server on USS” on page 431 before you begin the installation of the CAE Server to ensure that you fully understand the required configuration.

The topics in this section apply to sites running the CAE Server on USS. The topics in this section do not apply to sites running the CAE Server on Windows.

The CAE Server is typically deployed on Windows in order to reduce resource consumption on the mainframe.

Failover installation on USS involves fewer steps than failover installation on Windows.

**Procedure**

The preferred method for installing a single CAE Server on USS is to use Tools Customizer. For more information, see “Worksheets: Gathering parameter values for Db2 Query Monitor” on page 66.

**Note:**

• You should still review the sections that follow to understand the manner in which the environment variables must be customized.

• When you generate the TCz jobs unpax for server, you should generate the unpax for the PTF job at same time.

Alternatively, you can follow these steps to perform a manual installation of the CAE Server on USS:

1. After you complete the SMP/E installation, customize and run SCQMSAMP library member CQMCUNPX to UNPAX the USS installation.

   There are two environment variables that must be customized: CQM_VAR_HOME and CQM_CAE_CFG_PAX.
**CQM_VAR_HOME**

The value for CQM_VAR_HOME environment variable must match the value specified in the CQMCAESV JCL. The CQM_VAR_HOME FS location requires at least 250 available MB and it must be mounted read/write while the CAE Server is running.

The CAE Server must have write permission to all files and directories in CQM_VAR_HOME.

In the fault-tolerant deployment, the directory must be visible to both the Primary CAE Server and Backup CAE Servers and must be the CQM_VAR_HOME for the Primary CAE Server and Backup CAE Servers.

**CQM_CAE_CFG_PAX**

The value for CQM_CAE_CFG_PAX environment variable must be set to the PAX member of the data set. For example:

CQM_CAE_CFG_PAX=CQM.CQM0330.SCQMTRAN(CQMCPXPT)

2. Check the file SCQMTRAN for a member name CQMCPXPT. That member will contain the cumulative maintenance for the files in the CQM_VAR_HOME FS location. If there is a CQMCPXPT member, then you must customize and run SCQMSAMP library member CQMCUPPT.

3. Run SCQMSAMP library member CQMCUPPT whenever you have maintenance that affects the CAE, to apply the updates from the latest PTF to CQM_VAR_HOME.

**Important:**

- **CQM_VAR_HOME** – The value for CQM_VAR_HOME value must be the same in CQMCAESV, CQMCPXPT, and CQMCUPPT.

- **CQM_CAE_CFG_PAX** – The value for CQM_CAE_CFG_PAX_PTF environment variable must be set to the PAX PTF member of the data set. For example:

  CQM_CAE_CFG_PAX_PTF=CQM.CQM0330.SCQMTRAN(CQMCPXPT)

  - The PARM parameter in CQMCUPPT must end in column 71 and be continued in column 16 to avoid job failure with message FSUM9209 cannot execute: reason code = 0b1b011f: EDC5111I Permission denied. For example, a valid PARM parameter with a long path would be formatted as follows:

    ```
    //SERVER EXEC PGM=BPXBATCH,REGION=400M,TIME=NOLIMIT,
    //PARM='SH /xxxxxx/xxxx/xxxx/xxxx/xxxx/long/path/to/cqm/vXrX/bin/unpax config pt
    //f'
    //
    //
    ```

**Writing CAE Server log files to SYSOUT**

Writing the CAE Server log files to SYSOUT instead of to an FS location enables easy access to the CAE Server log files.

**Note:** If you choose to write the CAE Server log files to SYSOUT, ensure that the spool is sufficiently large to hold the output that might be produced.

When you run the CAE Server as a PROC and you want to write the CAE Server log files to SYSOUT, change DD STDOUT to SYSOUT=*.

For example, change the following:

```
To:

```c
//*MESSAGE STARTING CQM CAE SERVER
//SERVER EXEC PGM=BPXBATCH,REGION=800M,TIME=NOLIMIT,
// PARM='SH /u/username/cqm/bin/start_cae_server'
// PARM='SH /u/username/cqm/bin/start_cae_server -shutdown'
//STDOUT   DD SYSOUT=* 
//STDOUT  DD PATH='/var/cqm/logs/cae_server.log',
//           PATHOPTS=(OWRONLY,OCREAT,OAPPEND),
//           PATHMODE=(SIRWXU,SIRWXG,SIRWXO)
//STDENV   DD *
CQM_VAR_HOME=/configuration/location
CQM_JAVA=/usr/lpp/java/IBM/J8.0_64
CQM_LOGS=/var/cqm/logs
CQM_HEAP=500
/*
```

Configuring an MVS user ID to run the CAE Server on USS
We recommend that you use a dedicated MVS user ID to run the CAE Server.

Procedure

1. Create an OMVS segment.
2. Define a user ID and group ID for the OMVS segment.
3. Allocate the directory, whose path name is specified by CQM_LOGS in SCQMSAMP(CQMCAESV).
   Ensure the proper access authority is in place. All of the user IDs that will be launching the CAE Server must have read, write, and execute permissions to that path.

Notes:

   a. The directory specified by CQM_LOGS requires 200 MB of free space. The start-up script will delete all log files except for the five most recent. The log files will not yield useful diagnostics if the free space allocated for them fills up. Db2 Query Monitor will continue to function properly, but problems will not be captured if they occur.

   Note: Use an ISPF command such as tso ishell to view the logs.

   Storage space usage should be checked periodically to verify that sufficient space is available for logging any problems that occur.

   b. The directory specified by CQM_LOGS can be shared across z/OS images.

Starting the CAE Server for the first time on USS
The first time you start up the CAE Server on USS, initialization can be significantly slower than subsequent start-ups. If you cannot connect to your CAE Browser Client to the CAE Server immediately following initial CAE Server start-up, wait several minutes and retry.

High-Availability Fault-Tolerance

Db2 Query Monitor's High-Availability Fault-Tolerance (HAFT) capability enables you to assign a CAE Server as a backup for a Primary CAE Server. The Backup CAE Server ensures that the monitoring of queries continues if the Primary CAE Server fails. If the Primary CAE Server fails, the Backup CAE Server starts automatically and provides all the functionality that was provided by the Primary CAE Server.

To accomplish this, the Primary CAE Server continuously stores events, alerts, and configurations (custom views, filters, etc.) in a shared file system that can be accessed by the Backup CAE Server. This enables the Backup CAE Server to access and process events, alerts, configurations if failure occurs.

Each Backup CAE Server runs a Watchdog. A Watchdog is a Windows service (or, if you are running the CAE Server on the mainframe, a USS process) that monitors the status of the Primary CAE Server. When the Watchdog loses communication with the Primary CAE Server, it refers to various timeout values (initial, shutdown, and expired) to determine how long to wait before starting the Backup CAE Server.

When appropriate, the Watchdog starts the Backup CAE Server. This occurs automatically and does not
require operator intervention. For information about specifying the parameters controlling High-Availability Fault-Tolerance, see "CAE Agent parameters - CQMCPRMS" on page 538, "CAE Server parameters - CQMCAESV - USS" on page 542, and "CAE Server properties - cqm.server.properties - Windows" on page 549.

When the Primary CAE Server is down, the Backup CAE Server continues writing alerts and configuration changes to the shared drive. When the Primary CAE Server is started again, it reads this information; no data loss occurs.

After the Watchdog starts a Backup CAE Server, the Watchdog listens for the Primary CAE Server to re-establish contact. If the Watchdog detects the Primary CAE Server is running, it stops the Backup CAE Server and lets the Primary CAE Server resume full operation.

When a switch occurs from the Primary CAE Server to the Backup CAE Server (or from the Backup CAE Server back to the Primary CAE Server), any active CAE Browser Clients are disconnected. To re-establish connection, CAE Browser Client users must direct their web browsers to access the active CAE Server.

Note:
- The Primary CAE Server and the Backup CAE Server must be installed on a separate PCs (for Windows) or on separate LPARS (for USS).
- Events that do not persist (such as self events) are not transferred when the Backup CAE Server starts. You can use MITs Configuration to enable or disable event persistence (using the option Retain this event until it clears, even if the server is restarted).
- HAFT can be deployed on either Windows or USS, but it must be deployed on the same operating systems across all CAE Servers (primary and backup).
- By setting up a single DNS name that resolves to multiple IP addresses, you can use that DNS name for the Primary CAE Server as well as any Backup CAE Servers and avoid having to specify different DNS names when a failure occurs.

Stopping the Watchdog cancels the ability to monitor the presence of the Primary CAE Server.

Note: These parameters define the Watchdog service name, log name, and names that display in menus, and descriptions:
- serviceNameWatchdog=CQMWatchdog
- serviceLogWatchdog=CQMWatchdog
- serviceDisplayNameWatchdog="DB2 Query Monitor Watchdog Server"
- serviceDescriptionWatchdog="DB2 Query Monitor Failover Management"

Defining CAE Agent parameters (CQMCPRMS) - High-Availability Fault-Tolerance
If you are using a fault-tolerant CAE Server configuration, add the address of the secondary server using the parameter BACKUP_ADDRESS. The BACKUP_ADDRESS you specify can be an IP address or DNS name.

Installing the Primary CAE Server and Watchdog - Windows
You can configure a Backup CAE Server to help prevent CAE data from being lost or unavailable if the Primary CAE Server fails. This configuration is referred to as High-Availability Fault-Tolerance. The use of a Backup CAE Server enables you to continue to use the CAE to monitor your query activity.

Installing the Primary CAE Server
Follow these steps to install the Primary CAE Server.

Before you begin
For High-Availability Fault-Tolerance to work when the Primary CAE Server is unavailable, the installation folder must be on a storage device that is independent of the CAE Server. For higher availability, that storage device should also be fault tolerant. Before beginning the installation of the Primary CAE Server, set up a directory for the primary server. Specify a folder on a fault-tolerant storage device that has been
mapped to a drive letter. Do not specify a UNC path such as `\\Server\folder`. You will use this folder in step 8 of the following procedure.

**Procedure**

1. Obtain the necessary setup executable files. For more information, see “Transferring the necessary set up executable files to a Windows PC” on page 59.

2. Stop any Db2 Query Monitor services (or other KBM services such as that of IBM/Tivoli Storage Optimizer) that are currently running prior to launching the installation program. If a Db2 Query Monitor service (or other KBM service such as that of IBM/Tivoli Storage Optimizer) is running, the installation wizard will display a message indicating you must quit the install and shut down all Db2 Query Monitor processes prior to reattempting the installation.

3. Launch the installer.

4. Click **Next**.

5. Specify the location to which you would like to install Db2 Query Monitor and click **Next**.

6. Specify where you would like to create product icons and click **Next**.

   Valid options include:

   **In a new program group**
   Creates a new program group (accessible via the **Start > Programs** menu) to hold your product icons. Specify the new program group label in the box.

   **In an existing program group**
   Places product icons into an existing program group (accessible from the **Start > Programs** menu). Select the program group from your existing program groups.

   **In the Start menu**
   Places product icons in the **Start** menu.

   **On the desktop**
   Places product icons on the desktop.

   **In the Quick Launch bar**
   Places product icons in the Quick Launch bar.

   **Other**
   Places product icons in a location of your choosing.

   **Don't create icons**
   No product icons are created.

   **Create icons for all users**
   Icons are created for all users in the chosen location.

7. If you have a prior installation of Db2 Query Monitor from which you want to import data, click **Yes** and specify the location of the prior installation. Click **Next**.

8. Choose whether to import a secure socket certificate file, allow Db2 Query Monitor to create a host-based certificate or use a default localhost certificate.

   The following options are available:

   **Import certificate**
   The browser behavior depends on the quality and appropriateness of the certificate that is imported. To import the a certificate, edit and run SCQMSAMP library member CQMICERT..

   **Create certificate**
   This option enables you to specify the hostname (Db2 Query Monitor attempts to present a good default). If the browser user specifies that host the only warning should be about the self-signing. To create a certificate, edit and run SCQMSAMP library member CQMCCERT. After you run CQMCCERT, you must then run CQMICERT on the newly created certificate to import the certificate. This enables the CAE Server to use the certificate you created with CQMCCERT.
Use default localhost certificate
This option causes the browser to warn users about the hostname mismatch with the certificate. The browser will also warn users that it is being self-signed.

Note: Talk to your network and or security administrators for assistance with obtaining certificates or to discuss obtaining certificates for the CAE Server. For general information about certificates, see “Certificates requirements - USS and Windows” on page 34.

For more information about certificates, see “Certificates requirements - USS and Windows” on page 34.

Note:
• You can import a certificate later with the certificate import script.
• If you are using Windows 7 or Windows Vista and intend to install or import CAE Browser Client certificates using cqm_cert_install.bat or cqm_import_certs.bat, you must use a command prompt with administrator privileges. To do so, navigate to \windows\system32 in Windows Explorer, right-click cmd.exe, select Run as administrator. Then execute the scripts required.

9. Click Next.
If you specified Import Certificate, you are prompted to enter the certificate file location.
If you specified Create Certificate, you are prompted to enter the host name for the certificate.
If you specified Use Default Localhost, you receive a warning message about the self-signed certificate request.
To clear the message click OK.

10. A pre-installation summary displays a list of the location, features, and size of the intended installation.
    Verify that all items are correct and, if so, click Install. If corrections are required, click Previous to re-specify installation parameters.

11. When the installation has completed, an Install Complete panel displays a summary of the installation. Click Done to quit the installer.

Specifying the account that the service will log on as
You must specify the account under which the Db2 Query Monitor Windows Service will log on.

About this task
The following requirements apply to that account:
• The account must have sufficient privilege to start a Windows Service on the PC which the Primary CAE Server or Backup CAE Server is installed (one way to achieve this is to add the user to the Administrators group on the machine that the service will run on).
• The account must have authority to read from and write to the mapped network drive into which the Primary CAE Server or the Backup CAE Server is being installed.

Additionally:
• We strongly recommend that the PC in question be a member of a Windows domain. We also recommend that the user belong to the same windows domain and have administrator privileges on the machine on which the Primary CAE Server or Backup CAE Server is to be started.
• We recommend that the PC providing the share be in the same Windows domain. The share in question must have read/write authority for the Primary CAE Server and Backup CAE Server.

Procedure
1. Right-click the My Computer icon on your desktop and select Manage.
The Computer Management window displays.
2. Expand the Services and Applications node of the tree structure displayed in the left panel.
3. Highlight the **Services** node to display Windows Services in the right panel of the **Computer Management** window.

4. Select the **This account** option.

5. Type the account name in the box to the right of the **This account** option.

6. Type the password in the **Password** and **Confirm password** boxes.

7. Click **OK**.

**Installing the Watchdog**
The Watchdog ensures CAE data is not lost or made unavailable if the Primary CAE Server fails.

**About this task**

**Procedure**

1. Obtain the necessary setup executable files. For more information, see “Transferring the necessary set up executable files to a Windows PC” on page 59.

2. Stop any Db2 Query Monitor services (or other KBM services such as that of IBM/Tivoli Storage Optimizer) that are currently running prior to launching the installation program. If a Db2 Query Monitor service (or other KBM service such as that of IBM/Tivoli Storage Optimizer) is running, the installation wizard will display a message indicating you must quit the install and shut down all Db2 Query Monitor processes prior to reattempting the installation.

3. Launch the installer. The name of the installer is the filename you gave it when transferring it to your PC, for example `cqmcaewi.exe`.

4. Click **Next**.

5. Specify the location of the previously installed CAE Server and click **Next**.

6. Specify where you would like to create product icons and click **Next**.

   Valid options include:

   **In a new program group**
   - Creates a new program group (accessible via the **Start > Programs** menu) to hold your product icons. Specify the new program group label in the box.

   **In an existing program group**
   - Places product icons into an existing program group (accessible from the **Start > Programs** menu). Select the program group from your existing program groups.

   **In the Start menu**
   - Places product icons in the **Start** menu.

   **On the desktop**
   - Places product icons on the desktop.

   **In the Quick Launch bar**
   - Places product icons in the Quick Launch bar.

   **Other**
   - Places product icons in a location of your choosing.

   **Don't create icons**
   - No product icons are created.

   **Create icons for all users**
   - Icons are created for all users in the chosen location.

7. Specify the appropriate failover parameters.

   **Agent group**
   - (Default: None) The CAE Agent group name. This is the WINS name of the Primary CAE Server. If you are unsure, start the Primary CAE Server and look for a line in the CAE Server log similar to the following:[14:20:56.827] : Starting 'QM Server' in agentGroup 'AGENT_GROUP_NAME'... and use the value of `AGENT_GROUP_NAME`.

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Portal address
(Default: None) The IP address of the Primary CAE Server.

Portal Port
The CAE portal port. This is the port used for initial connection by CAE Server, Watchdog and Backup CAE Server. The default portal port is 3444.

Initial failover wait time (seconds)
(Default: 180 seconds) Determines how long the Watchdog waits after it starts to receive a response from the Primary CAE Server. If no response is received by this time, the Watchdog starts a server to run as the new primary.

Expired failover wait time (seconds)
(Default: 0 seconds) Determines how long the Watchdog will wait after communication with the Primary CAE Server has been lost. That is, when do you want the secondary server to start after the primary has failed. Set this timer to the time it usually takes for the Primary CAE Server to restart after a power failure or explicit shutdown / restart.

Shutdown failover wait time (seconds)
(Default: 600 seconds) Determines how long the Watchdog will wait after receiving a message from the primary that it is shutting down. That is, the primary was given an explicit stop command. Set this timer to the average time it takes for the operator on the primary machine to perform maintenance and issue a start command for the Primary CAE Server.

8. Click Next. An install preview displays a list of the location, features, and size of the intended installation. Verify that all items are correct and, if so, press Next. If corrections are required, press Back to re-specify installation parameters.


Note: You must modify the CAE Agent started task JCL to include the IP addresses of the Primary CAE Server and Backup CAE Server (using the BACKUP_ADDRESS parameter).

Modifying the timeout values
During the installation of secondary servers you are prompted to set timeout values but these values can be changed at any time.

Procedure
1. At a dos prompt, cd to the <install folder>/bin directory and enter the command watchdog_install.bat config to launch watchdog configuration.
2. Specify the appropriate timeout values.
3. Restart the Watchdog service.

Installing the Primary CAE Server and Watchdog - USS
The only failover installation steps necessary on USS is to make the ZFS/HFS install directory available on other LPAR's via shared DASD.

About this task
Note: The user ID for the primary server and the failover servers must be exactly the same from the Unix perspective. That is they must have the same Unix UID, since both processes must be able to read and modify files created by the other process.

Procedure
1. Install the CAE Server on different LPARS that run from shared DASD. They have to be installed to the same directories in order for configurations (such as Actions and Responses) and blackboard information stored to disk to be available to failover servers in the event of a failover.
2. After completing installation, you must modify the CAE Agent started task JCL to include the IP addresses of the primary and secondary sites.
3. The JCL required to start-up the watchdog process is included in `highlevel.SCQMSAMP(CQMCAEWD)`.
    Customize the start-up JCL according to the instructions in the member.

**Creating and importing a hostname-based, self-signed certificate - Windows**

Follow these steps to create and import a hostname-based, self-signed certificate for a CAE Server on Windows.

**Note:** If you are using Windows 7 and intend to create or import a secure socket certificate file using `cqm_cert_install.bat` or `cqm_import_certs.bat`, you must use a command prompt with administrator privileges. To do so, navigate to `\windows\system32` in Windows Explorer, right-click on `cmd.exe`, select **Run as administrator**. Then execute the scripts required.

**Creating a hostname-based, self-signed certificate - Windows**

To create a hostname-based, self-signed certificate, run the `cqm_cert_install.bat` script located in the bin directory of your Db2 Query Monitor installation, `cae_install_dir\bin`.

Use the following syntax to control the behavior of the `cqm_cert_install.bat` script:

```
cqm_cert_install hostname args
```

**hostname**

(Required) The hostname associated with the certificate.

**args**

(Optional) The argument that overrides the default certificate install behavior. The following argument is supported:

```
-certs directory
```

Where `directory` is the directory to which created certificates are placed. If you do not specify the `/certs directory` option, the default directory `cae_install_dir\certs` is used.

**Importing a certificate that you previously created or purchased - Windows**

To import a certificate that you previously created or purchased, place the certificate file in the default location, `cae_install_dir\certs`, and run the `cqm_import_certs.bat` script located in the bin directory of your Db2 Query Monitor installation, `cae_install_dir\bin`.

Use the following syntax to control the behavior of the `cqm_import_certs.bat` script:

```
cqm_import_certs args
```

By default, `cqm_import_certs` takes the certificate from `\certs` folder, adds it to the defaultKeystore.jks in the main root, and puts the certificate in `\addedcerts` folder.

**args**

(Optional) Arguments that override default certificate import behavior. These arguments include the following:

```
-addcedcerts directory
```

Specifies the `directory` into which imported certificates are moved. The default value is `addedcerts`. If the importing process is successful, then `cqm_import_certs` moves certificates or truststores from `/certs` to `/addedcerts`.

```
-certs directory
```

Specifies the `directory` from which created certificates are imported. The default directory to which the certificate is placed is `cae_install_dir\certs`.

```
-importincacerts password
```

Import the certificates into `\DB2 Query Monitor v3.2\bin\jre\lib\security\cacerts` without requiring you to specify the `-truststore` or `-storepass` parameters. You can optionally use parameters `-truststore` or `-storepass` to override the default path or password for cacerts.
**-srcstorepass** *password*

The *password* for the imported file. There is no default password for the imported file.

**Note:** The generated hostname-based and localhost self-signed certificates require a password, but the script defaults to that password so it is not required when importing a certificate that was created using `cqm_cert_install.bat`.

**-storepass** *password*

The *password* to the default keystore. There is no default password for the default keystore.

**-truststore** default_keystore

Specifies the *default_keystore*, the Java KeyStore (JKS), which is your repository of certificates. The default value is `defaultKeystore.jks`.

**-override**

Overrides an existing certificate of the same name in `defaultKeystore.jks`.

The import script updates the `defaultKeystore.jks` file with the new certificate, and, if successful, places the imported certificate file in the `cae_install_dir\addedcerts` directory, by default.

**Examples**

**Importing a certificate into the default truststore and specifying a password:**

```
cqm_import_certs -importincacerts -srcstorepass my_password
```

**Specifying a password for a certificate you are importing**

```
cqm_import_certs hostname -srcstorepass my_password
```

---

**Creating and importing a hostname-based, self-signed certificate - USS**

Follow these steps to create and import a hostname-based, self-signed certificate for a CAE Server on USS.

**Creating a hostname-based, self-signed certificate - USS**

To create a hostname-based, self-signed certificate for the CAE Server on USS, edit SCQMSAMP member `CQMCCERT` according to the instructions in the member. Run `CQMCCERT` to create a new certificate inside the `certs` directory of the directory defined by `CQM_VAR_HOME`.

After you run `CQMCCERT`, you must then run `CQMICERT` on the newly created certificate to import the certificate. This enables the CAE Server to use the certificate you created with `CQMCCERT`.

**Importing a certificate that you previously created or purchased - USS**

To import a certificate that you previously created or purchased for the CAE Server on USS:

1. Stop the CAE Server.
2. Customize and run SCQMSAMP member `CQMICERT` according to the instructions in the member.
3. Restart the CAE Server.

---

**Defining secure connections**

Follow these steps to define a secure connection to a Db2 subsystem or DSM Server.

**About this task**

If you want to define a secure connection between Db2 Query Monitor and a network peer (such as a Db2 subsystem or DSM Server), Db2 Query Monitor must trust that peer. There are two methods to achieve this:
Procedure
1. (Preferred method) The certificate provided by the peer is a non-expired certificate signed by a well-known certificate authority (such as Thawte, VeriSign, etc.) that is already trusted by the Java VM that you are using to run the CAE Server. If you are able to use this preferred method, then you do not need to import a certificate into the CAE Server.
2. The CAE Server is explicitly told to trust the certificate from the peer. For this option, obtain the certificate from the peer (the peer certificate must not include a private key) and import the certificate into a Db2 Query Monitor truststore.

Note:
- The CAE Server has a default truststore.
- Db2 Query Monitor is also capable of using non-default truststores. For more information, contact IBM Software Support.

Importing certificates into the default truststore - Windows
Follow these steps to import certificates into the default truststore for a CAE Server running on Windows. The <Default TrustStore> for a CAE Server running on Windows corresponds to `<cae_install_dir>/bin/jre/lib/security/cacerts`.

About this task
Use this method if you are unable to use the preferred method of defining a secure connection, which is to obtain a non-expired certificate signed by a well-known certificate authority.

Procedure
1. Run `<cae_install_dir>/bin/cqm_import_certs.bat` with the following additional argument - importincacerts
   The -importincacerts option imports the certificates from `<cae_install_dir>/certs`, by default, or from the custom location you specify using the -certs directory argument.
   The certificates are imported into `<cae_install_dir>/bin/jre/lib/security/cacerts`. For more information see “Creating and importing a hostname-based, self-signed certificate - Windows” on page 126.
2. Verify that you have not imported a certificate with a private key.
   a) After you have imported the certificate into the default truststore, restart the CAE Server.
   b) Connect your web browser to the CAE Server.
   c) If you do not receive any new certificate warnings, then the certificate import was successful. If you receive a certificate warning, verify that the warning is not for the certificate you just imported. If the warning is for the certificate you just imported, we recommend you consult your network administrator for assistance.
3. After importing certificates into the default truststore, you can define a secure archive and DSM connection that uses the truststore you added.
   a) Follow the steps described in “Adding an Archive Connection” on page 362.
   b) When defining the new archive connection be sure to:
      - Check the Use SSL box to use SSL for the connection.
      - From the Truststore list, select the appropriate truststore.
Importing certificates into the default truststore - USS

Follow these steps to import certificates into the default truststore for a CAE Server running on Windows. The `<Default TrustStore>` for a CAE Server running on USS corresponds to `$SCQM_VAR_HOME\defaultKeystore.jks`.

About this task
Use this method if you are unable to use the preferred method of defining a secure connection, which is to obtain a non-expired certificate signed by a well-known certificate authority.

Procedure

1. Stop the CAE Server.
2. Edit SCQMSAMP member CQMICERT according to the instructions in the member.
3. Run SCQMSAMP member CQMICERT.
4. Verify that you have not imported a certificate with a private key.
   a) After you have imported the certificate into the default truststore, restart the CAE Server.
   b) Connect your web browser to the CAE Server.
   c) If you do not receive any new certificate warnings, then the certificate import was successful. If you receive a certificate warning, verify that the warning is not for the certificate you just imported. If the warning is for the certificate you just imported, we recommend you consult your network administrator for assistance.
5. After importing certificates into the default truststore, you can define a secure archive connection that uses the truststore you added.
   a) Follow the steps described in “Adding an Archive Connection” on page 362.
   b) When defining the new archive connection be sure to:
      • Check the Use SSL box to use SSL for the connection.
      • From the Truststore list, select the appropriate truststore.
The proper configuration of a Query Monitor Subsystem allows you to collect the data you need to tune your SQL while using as few resources as possible.

Gathering and analyzing performance data

This step describes how to gather performance data about your system and use that data to decide how to best setup monitoring profiles and define reasonable exception and alert thresholds.

Question: Do you have an existing base of SQL metrics?

Yes: If you already have existing base of SQL metrics (such as average elapsed time, average CPU time, number of SQL calls), then you can use these metrics to determine a good initial monitoring profile workload. You can often obtain a base of SQL metrics from SMF data using a tool such as IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS. The base profile you derive from this data can be in place the first time the Query Monitor Subsystem is started.

No: If you do not have an existing base of SQL metrics, then you can use Db2 Query Monitor to gather information about SQL volume, average CPU use, average elapsed time, and SQLCODEs throughout your systems. This process requires at least 2.5 days, as described below:

• Customize Db2 Query Monitor and initiating the Query Monitor Subsystem (requires at least 0.5 days)
  The initial setup and configuration should have the Query Monitor Subsystem monitoring one or more DB2 subsystems without specifying a monitoring profile. In this configuration the Query Monitor Subsystem started task gathers summary data only. There will not be any data in exceptions, alerts, or current activity. Set MAX_SQLCODES and MAX_SQLCODE_DETAIL in CQMPARMS to 250 and between 50 and 100 as recommended in the section on CQMPARMS below, ensuring that data about SQLCODEs is collected. The Query Monitor Subsystem issues the following message (where ssid is the Db2 subsystem name), which can be ignored:
  CQM3302I **WARNING** MONITORING AGENT FOR ssid WILL NOT COLLECT EXCEPTION DATA OR CURRENT ACTIVITY

• Run Db2 Query Monitor to collect summary data (requires 24 hours)
  After Db2 Query Monitor is configured to collect summary data, let it run for 24 hours, if possible.

• Analyze and review data to determine appropriate thresholds (requires 1 day)
  After collecting summary data for 24 hours, you should have enough data to enable you to determine the appropriate thresholds. Review the data (using the Activity Summaries and SQLCODE options in Db2 Query Monitor) to determine the appropriate thresholds to use for the monitoring profile lines in your monitoring profile.

Question: How many Query Monitor Subsystems does your site need?

Recommendation: A Query Monitor Subsystem can monitor up to 64 DB2 subsystems on a single z/OS LPAR. In general, one Query Monitor Subsystem for each z/OS LPAR is recommended.

Exceptions: The following scenarios describe situations in which the one Query Monitor Subsystem per z/OS LPAR does not apply. In the situations described below, more than one Query Monitor Subsystem per LPAR is appropriate:

• Different DB2 subsystems might have different monitoring requirements.
  A DB2 subsystem used by development might have a longer interval length or retention period than a DB2 subsystem that is used by QA or in a production environment. You can use the INTERVAL and RETAIN parameters to specify the interval length and retention period appropriate for these cases.
• **The Db2 Query Monitor user’s view of DB2 subsystems being monitored should be limited.**

  Access to the Db2 Query Monitor data from a given Query Monitor Subsystem can be restricted using an external security system such as RACF. If an installation decides to set up a specific Query Monitor Subsystem for each DB2 subsystem to be monitored, users could be restricted to only being allowed to access Query Monitor Subsystems for DB2 subsystems where the user is also authorized. You can use the CAE Browser Client to access Db2 Query Monitor data on all DB2 subsystems on all LPARs that are connected to the CAE Server.

---

**Customizing the Db2 Query Monitor parameter file (CQMPARMS)**

Db2 Query Monitor uses a set of parameters that define how Db2 Query Monitor is implemented, including the Query Monitor Subsystem name, the monitored DB2 subsystems, and interval length. These parameters are stored in a data set allocated to the CQMPARMS DD statement in the Db2 Query Monitor JCL. **This data set should be allocated as a partitioned data set (PDS) with a separate member for each set of startup parameter definitions.**

Each individual Query Monitor Subsystem must have its own set of startup parameters. Using a PDS allows all of the startup parameters for the various Query Monitor Subsystems to be stored in a single data set. In addition, the individual members can be edited while the Query Monitor Subsystem is active. If a sequential data set is used for each Query Monitor Subsystem, the parameters can only be changed while the Query Monitor Subsystem is shut down.

**Data set sizing**

The allocation specifications for the Performance History Files are also defined in CQMPARMS. Typically, once the parameters are set up, they are seldom if ever changed. Refer to “Space requirement calculation” on page 783 for instructions on calculating the space for these data sets. You will need to know the volume and mix of SQL being executed in order to perform the calculations. This can be determined from several sources such as:

- IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS statistical reports
- Data from an SQL monitor product (such as Db2 Query Monitor)
- Other Db2 capacity planning products.

If the volume and mix of SQL in the workload cannot be easily determined, a simple method is to use the default allocations in whole cylinders. Track the number of extents used by the data sets during the first few days or weeks that Db2 Query Monitor is running. If the data sets take multiple extents during every interval, then increase the primary allocation until the data will fit in a single extent during intervals when the SQL volume is low.

During intervals when SQL volume is highest, the Performance History Files should always be allowed to take multiple extents. This helps to minimize the DASD used for the Performance History Files because it avoids over-allocation of the Performance History Files for intervals when SQL volumes are low.

SMS management is highly recommended for the Performance History Files. There are nine unique data sets created for each interval. Using a RETAIN parameter of 96 will result in 864 Performance History Files being created and retained.

---

**Deciding how many monitoring profiles to create**

It is recommended that you create a separate monitoring profile for each Db2 subsystem that you want to monitor. This approach reduces the number of monitoring profile lines in each monitoring profile and might reduce overhead.

The exception to this recommendation is when you create a monitoring profile for a data sharing group. When using data sharing, you should use one monitoring profile for all members of the data sharing group, because thresholds, OPTKEYS settings, and SQLCODE exclusions will usually be the same for all data sharing group members.
Creating a monitoring profile

Monitoring profiles enable you to tailor how Db2 Query Monitor monitors specific workloads.

Refer to Chapter 17, “Working with monitoring profiles,” on page 291 for a description of how to create a monitoring profile. After you have created a monitoring profile, refer to the sections below for information about how to configure monitoring profile lines to a monitoring profile.

Creating one or more monitoring profile lines

A monitoring profile consists of one or more monitoring profile lines. Each monitoring profile line applies to one workload and consists of the following elements.

• Line type (Include or Exclude)
• Miscellaneous flags
• Workload definition
• Exception thresholds
• Exception limit
• SQLCODEs excluded from exceptions
• Alert thresholds
• SQLCODEs excluded from alerts
• SQLCODEs excluded from summary collection
• OPTKEYS overrides

A sample of the Update Profile Line Panel is shown below.
Figure 12. Update Profile Line panel

The steps that follow enable you to create an individual monitoring profile line.

**Excluding SQLCODEs from exception and alert processing**

Most SQLCODEs are excluded from exception and alert processing. Only the first matching profile line is used for evaluating the SQLCODEs to be excluded. This means that the list of exclude alert SQLCODEs
must be included on every profile line in order to ensure that the SQLCODEs are excluded for all workloads. In general, the following rules apply to the alert and exception processing of SQLCODEs.

- In general, SQLCODEs that are used as application coding techniques should be excluded from exception processing (they should not be allowed to produce exceptions).
- In general, almost all SQLCODEs should be excluded from alert processing (they should not be allowed to produce alerts). Alerts should only be generated for SQLCODEs that are important enough to require that a DBA take immediate action. An exception to this would be the case where the Db2 Query Monitor user wants to use the alert message board as a management technique for storing SQLCODEs.

**Question: What SQLCODEs should be excluded from exception and alert processing?**

Collect summary data about the SQLCODEs at your site and build an SQLCODE exclusion list for use in your monitoring profile lines. The simplest way to build the SQLCODE exclusion list is as follows:

1. Allow Db2 Query Monitor to collect summary SQLCODE data for 24 hours.
2. Load the collected SQLCODE data into the Performance History Database.
3. Query the Performance History Database to get a list of all the distinct SQL codes collected.
4. Build the most generic line profile line first. In the example shown above, that means the last line.
   a. Specify Y for **Exclude Exception SQLCODEs** and for **Exclude Alert SQLCODEs**.
   b. Enter the list of SQLCODES from item 3 on the Exception SQL Code Exclusion List panel, and then hit F3.
   c. Enter the same list on the Alert SQL Code Exclusion List panel.
   d. Save the workload definition line.

When you have created a single monitoring profile line that has the SQLCODE exclusion list, you can copy and edit that line as needed:

1. Replicate the generic line.
2. Edit the new line and change the workload definition, thresholds and exclude SQLCODEs as appropriate. Remember, you started with a complete list of excludes when the line was replicated.
3. Move the new line to the appropriate place in the monitoring profile.

**Setting alert and exception thresholds**

This topic describes how to set alert and exception thresholds.

During the creation of an INCLUDE monitoring profile line, you can specify the conditions that, when exceeded, cause the generation of an exception or an alert. These conditions include CPU time, elapsed time, getpages, SQL calls, and exception limit.

The purpose of alerts is to bring unusual activity to the attention of a human operator. There is some overhead associated with an alert, so you should set thresholds that are high enough to avoid too much resource consumption by the CAE Agent and CAE Server.

A good approach to use when setting alert thresholds is to assess whether your site's operators and DBAs can respond to each individual alert that is generated. Another way to evaluate an alert threshold is to consider that if an email is sent for each alert generated, would the resulting alerts be generated faster than you would want to receive e-mails? If so, the alert threshold is probably too low.

The best thresholds vary depending on the kinds of workloads they target. Another way of thinking about the alert threshold is this: if an SQL section exceeds the alert threshold, a human operator would want to take the time to look at this SQL section and consider whether or not to cancel it. For example, > 5 seconds of CPU, or > 20 seconds elapsed.

With regard to SQL codes, you should evaluate whether an error requires human intervention. For example, would an application developer or DBA actually take some action as a result of knowing that this individual SQL error occurred?
While the alert system can handle 5 alerts a second or more (per CAE Agent) for short periods, if you are averaging more than 5 alerts a minute in the CAE Server, the CAE Server will start to consume too much memory over the course of a day.

The most common reasons for receiving too many alerts are:

- Not having a good list of SQL codes in the **SQL Codes excluded** for alerts. Many sites should exclude -803, since it is a fairly common coding technique to insert first, update if necessary based on a -803.

- Setting alert thresholds too low for CPU, Elapsed, Getpages, and/or SQL Calls. If you want to look at the activity after the fact, you can set thresholds to store the activity as an exception. Alerts are for immediate attention. The profiles facility in CQM allows you to set different thresholds for different workloads (e.g. 5 seconds elapsed may be cause for concern for a transactional workload, but not for a batch workload).

**Determining OPTKEYS overrides**

This step describes how to determine the OPTKEYS overrides you should create. This involves first determining the environments in which a monitoring profile is to be used and the resulting OPTKEYS overrides settings.

**Sandbox DB2 subsystem**

Monitoring profiles intended to be used for a sandbox DB2 subsystem are typically created to verify the installation of the Db2 Query Monitor. These monitoring profiles typically consist of a single profile line with very low exception and alert thresholds. In addition, all OPTKEYS override settings are normally specified as Y. This results in summarizing all the SQL by all possible OPTKEYS and generating exceptions for most, if not all, of the SQL executed in the DB2 subsystem. This is typically not a problem as the sandbox DB2 subsystem is an extremely well controlled and the low-volume environment.

**Development DB2 subsystem**

In a development DB2 subsystem, Db2 Query Monitor is typically used in a problem determination mode, instead of a true performance profile mode. Since the volume is typically much lower than production, OPTKEYS settings may be dramatically different than a production environment.

- CALLS is almost universally specified in a development DB2 environment.
- TEXT or PTEXT is typically activated in a development DB2 environment where dynamic SQL is used by the applications. TEXT is used when the application uses parameter markers in their SQL, and PTEXT is used when literal values are used in dynamic SQL.
- AUTHIDS is frequently used in a development environment in order to attract what SQL each programmer is executing.
- CORRID is not normally used in the development DB2 system.
- CORRNAME is usually specified even in development for CICS applications. CORRNAME strips the CORRID and uses the transaction name.
- The OPTKEYS specific to distributed applications (WSUSER, WSTRAN, WSNAME) are typically used if they are being coded by the applications. If the application is not supplying those fields, the OPTKEYS are typically not specified.

**QA DB2 subsystem**

Monitoring profiles that are intended for use with a QA DB2 subsystem are typically mirror images of the production monitoring profiles. An exception might be that the exception and alert thresholds are set lower than they would be in a production environment. This lower setting might compensate for a lower transaction rate or volume of data in a QA DB2 subsystem.

**Production DB2 subsystem - single application**

For a production DB2 subsystem with a single application, the monitoring profile, often consists of a single profile line. An exception to this might be the use of one monitoring profile line for batch work and a second monitoring profile line for online transactions. There might also be good reason to add additional monitoring profile lines to the monitoring profile when using different exceptions and alert thresholds or OPTKEYS overrides.
Production DB2 subsystem - multiple applications

For a production DB2 subsystem shared by multiple applications, there will usually be at least one monitoring profile line per application. This allows for different exceptions and alert thresholds, based on the individual application requirements. It also allows for tailoring the OPTKEYS overrides to the individual applications.

Setting production OPTKEYS
All of the OPTKEYS described in this section are optional, none are required for the proper function of Db2 Query Monitor. All OPTKEYS increase the volume of data collected by Db2 Query Monitor and should be used with caution.

Setting the TEXT and PTEXT OPTKEYS
Use the TEXT and PTEXT OPTKEYS to collect more detailed data about applications that use dynamic SQL.

Question: Does this application use dynamic SQL?
Yes:
   Does the SQL use parameter markers?
   Yes:
      Set the override OPTKEYS(TEXT) to Y.
   No:
      Set the override of OPTKEYS(PTEXT) to Y.

No:
The OPTKEYS settings of TEXT or PTEXT have no effect on data collection.

Setting the AUTHIDS OPTKEY
The AUTHIDS OPTKEY should be used with caution. It has the potential of causing Db2 Query Monitor to exponentially expand the volume of detail collected. There are situations where the AUTHIDS OPTKEY can provide a useful navigation path into the application SQL. (for example, when a single AUTHID represents an entire application). Distributed applications which use an application gateway server are typically good candidates for using the AUTHIDS override.

If the application uses a unique AUTHID for each end user, then the AUTHIDS OPTKEY will most likely generate excessive data volumes. Examples of this usage are typically TSO based applications.

Note: Exception and alert records will always contain the primary AUTHID regardless of the AUTHIDS OPTKEY setting for the workload causing the exception or alert to be generated.

Question: Is this DB2 subsystem in development or production?
Development DB2 subsystem
   For a development DB2 subsystem, consider setting the override OPTKEYS(AUTHID) to Y. This provides a summary of all of the SQL executed by each individual user. This level of summarization is useful in a development environment for debugging purposes.

Production DB2 subsystem
   For a production DB2 subsystem, consider setting the override OPTKEYS(AUTHID) to N. Unless there is a compelling reason to collect a summary of the SQL statements for each AUTHID, this OPTKEY should be used with extreme caution in a production environment. In some production environments there may be literally thousands of AUTHIDs all executing the same SQL statements. This can result in very high memory usage in Db2 Query Monitor and excessive DASD utilization in the Performance History Files. On the other hand, in some DB2 subsystems, this can be a very useful OPTKEY. If a single unique AUTHID is used for each application then the AUTHID OPTKEY can be very useful.
Setting the CORRID and CORRNAME OPTKEYS
The CORRID OPTKEY is the unaltered Correlation ID used by DB2 for the SQL statement. The CORRNAME OPTKEY indicates whether or not the CORRNAME field will be added to the uniqueness criteria for all future DB2 SQL statements.

The CORRNAME OPTKEY directs Db2 Query Monitor to move only certain subsets of bytes from the originating DB2 correlation ID to the target summarization record during the collection process. These subsets of bytes vary depending on the type of connection to DB2 (for example, TSO, BATCH, RRSAF, CICS, IMS). The bytes that will be moved for the various connection types are shown below (the remaining right-most bytes will be space padded with EBCDIC blanks):

- TSO, CAF, RRSAF - Bytes 1-8 of the originating correlation ID
- CICS - Bytes 5-8 of the correlation ID (Transaction ID)
- IMS - Bytes 5-8 of the correlation ID (IMS PST#)

Note: OPTKEYS(CORRNAME) and OPTKEYS(CORRID) are mutually exclusive (only one or the other can be specified at any time). If OPTKEYS(CORRID) is used, the regular CORRID is collected, if OPTKEYS(CORRNAME) is coded, the field is filled in according to the TSO/CAF/RRSAF/CICS/IMS descriptions above.

Question: Is this a CICS application?
Yes
Set the override of OPTKEYS(CORRNAME) to Y. In the CICS environment, the CORRNAME OPTKEY is a translation of the CORRID to the four-character CICS transaction code. This allows for CICS transactions which use pool threads to summarize into a single bucket based on the transaction code.

No
Set the override OPTKEYS(CORRNAME) to N.

Setting the CALLS OPTKEY
Use the CALLS OPTKEY to collect more detailed performance metrics about the component parts of individual SQL statements.

Question: Do you need the ability to measure the performance metrics of the component parts of an individual SQL statement (such as PREPARE, OPEN, FETCH)?
Yes
Set the override OPTKEYS(CALLS) to Y. This enables the collection of performance metrics down to the individual call component of every unique SQL statement.

No
Set the override OPTKEYS(CALLS) to N.

Setting the WSTRAN, WSUSER, and WSNAMEN AME OPTKEYS
The WSTRAN, WSUSER, and WSNAME OPTKEYS are unique to distributed applications.

WSTRAN
The name of the workstation submitting the SQL. This OPTKEY is the equivalent of the CORRNAME OPTKEY on a CICS transaction. However, this OPTKEY applies to distributed transactions

WSUSER
The WSUSER OPTKEY is the DISTSERV equivalent of the AUTHID OPTKEY. As with the AUTHID OPTKEY, selecting the WSUSER OPTKEY may cause Db2 Query Monitor to collect and excessive amount of summary data. Care should be used when specifying this OPTKEY.

WSNAME
The WSNAMEN NAME OPTKEY is the name of the workstation from which the SQL was submitted. As with the WSUSER OPTKEY, selecting this OPTKEY might cause Db2 Query Monitor to collect and excessive amount of summary data.
Arranging monitoring profile lines in the proper sequence

Monitoring profile lines are evaluated in the sequence in which they appear in the monitoring profile.

The first matching monitoring profile line (and only the first matching monitoring profile line), is used to evaluate what to do with the SQL statement. Therefore, the sequence of the lines in the monitoring profile is very important. Only fields in the workload definition section of the monitoring profile line are used for matching criteria.

The search is ended once a monitoring profile line is matched, whether or not the SQL statement qualifies for an exception or alert based on the thresholds in that profile line. An SQL statement is evaluated against the thresholds on one, and only one, workload definition line.

The workload definition lines are arranged in the monitoring profile so that the most frequently matched line is first and the workload definition lines follow are ordered by their decreasing frequency of use.

There are exceptions to this rule. If there is a catch-all line with an asterisk ("*"") for all matching criteria, that line must be placed last in the sequence. If there are lines with more specific criteria, then these should be placed before those with less specific criteria. For example, a profile line that matches on plan name DSNTEP71 should be placed before one that matches on the more generic plan name of DSN*. Or, a profile line that matches on program name DSN* and AUTHID FRED should be placed before one that matches only on program name DSN*. Once a workload definition line in the monitoring profile is matched, the search is over and subsequent lines in the profile will not be checked for the SQL statement.

A sample profile is shown below:

YYYY/MM/DD HH:MM:SS ----- Update Monitoring Profile ----- Row 1 of 1
Option ==>                                                  Scroll ==> PAGE
Profile Name: SAMPLE

C:I-Insert,U-Update,R-Repeat,D-Delete,C-Copy,M-Move,B-Before,A-After

<table>
<thead>
<tr>
<th>CMD</th>
<th>WORKLOAD NAME</th>
<th>INCL\EXCL</th>
<th>SSID</th>
<th>Plan</th>
<th>Program</th>
</tr>
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<td>I</td>
<td>*</td>
<td>CICS*</td>
<td>*</td>
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<tr>
<td>_</td>
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<td>I</td>
<td>*</td>
<td>IMS*</td>
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<td>*</td>
<td>HR*</td>
<td>*</td>
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<tr>
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<td>*</td>
<td>AP*</td>
<td>*</td>
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<tr>
<td>_</td>
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<td>E</td>
<td>*</td>
<td>*</td>
<td>DGO*</td>
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<td>_</td>
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<td>I</td>
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<td>I</td>
<td>*</td>
<td>RAA*</td>
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<td>All other work</td>
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<td>*</td>
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</tbody>
</table>

***************************** Bottom of Data ******************************

Figure 13. Update Monitoring Profile panel

Using the monitoring profile shown above, the following are true:

- Work coming in with a job name beginning with "CICS" will use thresholds set in the first profile line.
- Work coming in with a job name beginning with "IMS" will use thresholds set in the second profile line.
- Work coming in with a job name beginning with "HR" will use thresholds set in the third profile line.
- Work coming in with a job name beginning with "AP" will use thresholds set in the fourth profile line.
- Work coming in with a program (package/DBRM) name beginning with "DGO" and (a job name not beginning with (CICS, IMS, HR, and AP) will use thresholds set in the fifth profile line.
- Work coming in with a PLAN name beginning with "QMF" and (a job name not beginning with (CICS, IMS, HR, and AP) and a program (package/DBRM) not beginning with DGO) will use thresholds set in the sixth profile line.
- Work coming in with a PLAN name beginning with "RAA**" and (a job name not beginning with (CICS, IMS, HR, and AP) and a program (package/DBRM) not beginning with DGO) will use thresholds set in the seventh profile line.
- All other work will use thresholds set in the eighth profile line.
Another sample profile is shown below:

<table>
<thead>
<tr>
<th>Option</th>
<th>Insert, Update, Repeat, Delete, Copy, Move, Before, After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile</td>
<td>Name: SAMPLE</td>
</tr>
<tr>
<td>C:I</td>
<td>All other work</td>
</tr>
<tr>
<td>E</td>
<td>Exclude DB2 Performance Monitor</td>
</tr>
<tr>
<td>I</td>
<td>QMF work</td>
</tr>
<tr>
<td>I</td>
<td>QMF for Windows work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CMD</th>
<th>WORKLOAD NAME</th>
<th>INCL</th>
<th>EXCL</th>
<th>SSID</th>
<th>Plan</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>_</td>
<td>All other work</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>_</td>
<td>Exclude DB2 Performance Monitor</td>
<td>E</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>DGO*</td>
</tr>
<tr>
<td>_</td>
<td>QMF work</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>QMF*</td>
<td>*</td>
</tr>
<tr>
<td>_</td>
<td>QMF for Windows work</td>
<td>I</td>
<td>*</td>
<td>*</td>
<td>RAA*</td>
<td>*</td>
</tr>
</tbody>
</table>

Figure 14. Update Monitoring Profile panel

In the profile above, only the first line of the profile is used. Because every SQL statement will match the workload definition specified in the first line, the search will always end with that line.

**Recommendation when activating or refreshing monitoring profiles**

After updating, activating, or refreshing a monitoring profile, it is recommended that you start a new interval.
Chapter 9. Getting started with Db2 Query Monitor

After configuring Db2 Query Monitor, you must perform several steps to enable the product to collect SQL activity as appropriate for your site.

Topics:
- “Starting the Query Monitor Subsystem” on page 141
- “Starting the CAE Agent” on page 141
- “Starting the CAE Server” on page 142
- “Verifying that the CAE Agent and the CAE Server are connected” on page 142
- “Accessing the CAE Browser Client” on page 142

Starting the Query Monitor Subsystem

You can start the Query Monitor Subsystem independently of the CAE Server and the CAE Agent.

Procedure
Enter the MVS start command:

S taskname

Start the Query Monitor Subsystem started task, taskname.

For example:

S CQMPROC

Alternatively, you can start the Query Monitor Subsystem by submitting a batch job under the control of JES.

Starting the CAE Agent

You can start the CAE Agent independently of the Query Monitor Subsystem and the CAE Server.

Procedure
- You can start CAE Agent in SDSF by entering the MVS start command:

S taskname

Starts the CAE Agent started task, taskname.

For example:

S CQMCAE

- Alternatively, you can start the CAE Agent by submitting a batch job under the control of JES.

For example:

//CQMJOB JOB DB2QM,CLASS=A,MSGCLASS=X,NOTIFY=&SYSUID
//STEP1 EXEC CQMCAE
Starting the CAE Server

You can start the CAE Server independently of the Query Monitor Subsystem and the CAE Agent.

**Procedure**

- If you installed the CAE Server on Windows, follow these steps to start it:
  a) Right-click the **My Computer** icon on the desktop where the CAE Server is installed and select **Manage**.
  b) Expand the **Services and Applications** node of the tree structure displayed in the left panel.
  c) Highlight the **Services** node.
  d) Locate and highlight the **Db2 Query Monitor** service and click **Start**.

- If you installed the CAE Server on USS, you can start it using one of the following options:
  a) In SDSF by issue the start command, S CQMCAESV.
  b) Edit the USS CAE Server JCL to uncomment the line that includes `start_cae_server`.

```
//SERVER EXEC PGM=BPXBATCH,REGION=800M,TIME=NOLIMIT,
// PARM='SH /u/username/cqm/bin/start_cae_server -shutdown'
//STDOUT DD PATH='/var/cqm/logs/cae_server.log',
// PATHOPTS=(OWRONLY,OCREAT,OAPPEND),
// PATHMODE=(SIRWXU,SIRWXG,SIRWXO)
//STDENV DD *
CQM_VAR_HOME=/configuration/location
CQM_JAVA=/usr/lpp/java/IBM/8.0_64
CQM_LOGS=/var/cqm/logs
CQM_HEAP=500
CQM_JDBC_PORT=1112
/*
```

After editing the JCL, start the CAE Server task.

**Note:** TCP/IP must be enabled.

Verifying that the CAE Agent and the CAE Server are connected

Review the CAE Agent log information (which goes to SYSOUT) to ensure it has successfully connected to the CAE Server.

**About this task**

The following messages should be present to confirm the connection: CQMC0008I CONNECTED TO CAE SERVER, ADDRESS `server_address`, PORT `port`

Accessing the CAE Browser Client

**Procedure**

After the CAE Server has started, you can access the CAE Browser Client by pointing your web browser to the host running the CAE Server.

For example:

https://cqmcaee.company.com

**Note:**
• When accessing the CAE Browser Client, if you see a certificate error or an untrusted connection message, review the information in “Certificates requirements - USS and Windows” on page 34 and “Installing a single CAE Server - Windows” on page 117 to determine the best resolution for your site.

• The browser connects only through https.

• If the CAE Server uses the CQM_HTTPS_PORT parameter to specify a port other than 443, the value needs to be added to the url. In that case the url would be:

  https://cqmcae.company.com:port

  where port is the port number specified via CQM_HTTPS_PORT

Connecting to the base URL presents a home page that can be viewed without having to log in.

To view pages associated with the Activity Browser, the Alerts Browser, and Configuration Browser, you must log in to the CAE Server to establish a web session.

**Stopping the Query Monitor Subsystem**

You can stop the Query Monitor Subsystem independently of the CAE Server and the CAE Agent.

**About this task**

The preferred method to stop the Query Monitor Subsystem is to use the MVS stop command. This allows Db2 Query Monitor to perform normal shutdown processing and ensures that no data is lost. When you stop the Db2 Query Monitor started task, Db2 Query Monitor releases all of the storage that is used for allocation and interval processing. Interval processing is scheduled and completed before Db2 Query Monitor is stopped.

**Procedure**

In SDSF, enter the stop command:

\[P\text{ taskname}\]

  Stops the Query Monitor Subsystem started task, taskname.

For example:

\[P\text{ CQMPROC}\]

**Canceling the Query Monitor Subsystem**

If the Query Monitor Subsystem cannot be shut down normally, you can cancel the Query Monitor Subsystem task using the MVS cancel command.

**About this task**

**Important:** If possible, you should avoid using the cancel command to stop the Query Monitor Subsystem. If you use the cancel the Query Monitor Subsystem started task, any data that has been collected during the current interval is lost.

**Procedure**

• You can cancel Query Monitor Subsystem in SDSF by entering the cancel command:

\[C\text{ taskname}\]

  Cancels the Query Monitor Subsystem started task, taskname.

For example:

\[C\text{ CQMPROC}\]
Forcing termination of the Query Monitor Subsystem

During certain operations, Db2 Query Monitor enters a temporary state during which the Query Monitor Subsystem cannot be canceled. When this occurs, retry the cancel command at a later time. In the unlikely event that the Query Monitor Subsystem still does not respond to the cancel command, you can use the MVS force command to force the termination of the Query Monitor Subsystem.

Before you begin

The force command should only be used under the advice of IBM Software Support, after all other methods of shutting down the Query Monitor Subsystem have been attempted and have failed. Unpredictable results can occur after issuing the force command, including the termination of any monitored Db2 subsystems.

Before you use the force command, obtain a dump of the Query Monitor Subsystem address space, all Db2 Query Monitor data spaces, and the monitored Db2 DBM1 address spaces.

About this task

Procedure

- You can force the termination of the Query Monitor Subsystem in SDSF by entering the force command:
  
  FORCE taskname, ARM

  Forces the termination of the Query Monitor Subsystem started task, taskname. This command should only be used after all other methods of shutting down the Query Monitor Subsystem have failed.

  For example:

  ```plaintext
  FORCE CQMPROC, ARM
  ```

Starting the Master Address Space

For each z/OS image, a Support Services Address Space (also referred to as the Master Address Space) is started automatically by CQM or ADH. The first of these products that is launched on an z/OS image automatically initiates the Support Services Address Space.

Stopping the Master Address Space

Do not stop the Master Address Space unless directed to do so by IBM Software Support or by a +HOLD(ACTION) in a PTF.

About this task

- To ensure product stability, the master address space should only be stopped using the CQMMSTR job. You can customize and generate this job using Tools Customizer.
- Before stopping the Master Address Space, the CQMMSTR job verifies that no product installations are using the Master Address Space.

Procedure

1. Use Tools Customizer to generate a customized the CQMMSTR job.
2. Submit CQMMSTR.
Stopping the CAE Agent

You can stop the CAE Agent independently of the Query Monitor Subsystem and the CAE Server.

About this task

The preferred method to stop the CAE Agent (whether you started it using the start command or using a batch job under JES) is to use the MVS stop command. This allows CAE Agent to perform normal shutdown processing.

Procedure

• You can stop CAE Agent in SDSF by entering the stop command:

  **P taskname**

  Stops the CAE Agent started task, *taskname*.

  For example:

  ```
  P CQMCAE
  ```

Stopping the CAE Server

You can stop the CAE Server independently of the Query Monitor Subsystem and the CAE Agent.

Procedure

• If you installed the CAE Server on Windows, follow these steps to stop it:
  a) Right-click the **My Computer** icon on the desktop where the CAE Server is installed and select **Manage**.
  b) Expand the **Services and Applications** node of the tree structure displayed in the left panel.
  c) Highlight the **Services** node.
  d) Locate and highlight the **Db2 Query Monitor** service and click **Stop**.

• If you installed the CAE Server on USS you can stop it as follows:

  • Edit the USS CAE Server JCL to uncomment the line that includes `-shutdown`.

    ```
    //SERVER EXEC PGM=BPXBATCH,REGION=800M,TIME=NOLIMIT,
    // PARM='SH /u/username/cqm/bin/start_cae_server'
    // PARM='SH /u/username/cqm/bin/start_cae_server -shutdown'
    //STDOUT DD PATH='/var/cqm/logs/cae_server.log',
    // PATHOPTS=(OWRONLY,OCREAT,OAPPEND),
    // PATHMODE=(SIRWXU,SIRWXG,SIRWXO)
    //STDENV DD *
    CQM_VAR_HOME=/configuration/location
    CQM_JAVA=/usr/lpp/java/IBM/8.0_64
    CQM_LOGS=/var/cqm/logs
    CQM_HEAP=500
    CQM_JDBC_PORT=1112
    /*
    ```

  After editing the JCL, start the CAE Server task.

  **Note:** TCP/IP must be enabled.
Starting and stopping HAFT processes

Starting the Watchdog

The Watchdog is a process that monitors the state of the Primary CAE Server and starts a Backup CAE Server, if necessary.

Procedure

- (Windows) Start Watchdog on a Windows server using the **Computer Management** application.
  a) Open the Computer Management application on the PC where the Watchdog is installed
  b) Select **Services and Applications > Services**.
  c) In the table listing the services, locate and then right-click the **Db2 Query Monitor Watchdog Server** service and select **Start**.
- (Windows) Alternatively, start the Watchdog on a Windows server from a dos prompt.
  a) Change directories to the `<install folder>/bin` directory.
  b) Enter the command `watchdog_install.bat start`.
- (USS) Start the Watchdog on a USS server by editing the USS CAE Server JCL to specify `PARM='SH /u/username/cqm/bin/start_cae_server`.

Restarting the Watchdog

Procedure

- (Windows) Restart Watchdog using the **Computer Management** application.
  a) Open the Computer Management application on the PC where the Watchdog is installed
  b) Select **Services and Applications > Services**.
  c) In the table listing the services, locate and then right-click the **Db2 Query Monitor Watchdog Server** service and select **Restart**.
- (Windows) Alternatively, restart the Watchdog from a dos prompt.
  a) Change directories to the `<install folder>/bin` directory.
  b) Enter the command `watchdog_install.bat restart`.
- (USS) Restart the Watchdog on a USS server by editing the USS CAE Server JCL to specify `PARM='SH /u/username/cqm/bin/start_cae_server -restart`.

Stopping the Watchdog

Stopping the Watchdog stops its monitoring of the Primary CAE Server.

Procedure

- (Windows) You can stop Watchdog using the **Computer Management** application.
  a) Open the Computer Management application on the PC where the Watchdog is installed
  b) Select **Services and Applications > Services**.
  c) In the table listing the services, locate and then right-click the **Db2 Query Monitor Watchdog Server** service and select **Stop**.
- (Windows) Alternatively, you can stop the Watchdog from a dos prompt.
  a) Change directories to the `<install folder>/bin` directory.
  b) Enter the command `watchdog_install.bat stop`. 
• (USS) Stop the Watchdog on a USS server by editing the USS CAE Server JCL to specify
  PARM='SH /u/username/cqm/bin/start_cae_server -shutdown.

**Starting the Primary CAE Server**

Under normal conditions, the Primary CAE Server starts automatically.

**Procedure**

• If you installed the Primary CAE Server on Windows, follow these steps to start it:
  a) Right-click the **My Computer** icon on the desktop where the Primary CAE Server is installed and
     select **Manage**.
  b) Expand the **Services and Applications** node of the tree structure displayed in the left panel.
  c) Highlight the **Services** node.
  d) Locate and highlight the **Db2 Query Monitor** service and click **Start**.

• If you installed the Primary CAE Server on USS, you can start it using one of the following options:
  • In SDSF by issue the start command, S CQMCAESV.
  • Edit the USS Primary CAE Server JCL to uncomment the line that includes `start_cae_server`.

```
//SERVER EXEC PGM=BPXBATCH,REGION=800M,TIME=NOLIMIT,
// PARM='SH /u/username/cqm/bin/start_cae_server'
// PARM='SH /u/username/cqm/bin/start_cae_server -shutdown'
//STDOUT DD PATH='/var/cqm/logs/cae_server.log',
// PATHOPTS=(OWRONLY,OCREAT,OAPPEND),
// PATHMODE=(SIRWXU,SIRWXG,SIRWXO)
//STDENV DD *
CQM_VAR_HOME=/configuration/location
CQM_JAVA=/usr/lpp/java/IBM/8.0_64
CQM_LOGS=/var/cqm/logs
CQM_HEAP=500
CQM_JDBC_PORT=1112
/*
```

After editing the JCL, start the Primary CAE Server task.

**Note:** TCP/IP must be enabled.

**Restarting the Primary CAE Server**

Follow these steps to restart the Primary CAE Server.

**Procedure**

• If you installed the Primary CAE Server on Windows, follow these steps to restart it:
  a) Right-click the **My Computer** icon on the desktop where the Primary CAE Server is installed and
     select **Manage**.
  b) Expand the **Services and Applications** node of the tree structure displayed in the left panel.
  c) Highlight the **Services** node.
  d) Locate and highlight the **Db2 Query Monitor** service and click **Restart**.

• If you installed the Primary CAE Server on USS you can restart it as follows:
  • Edit the USS Primary CAE Server JCL to uncomment the line that includes `-restart`.

```
//SERVER EXEC PGM=BPXBATCH,REGION=800M,TIME=NOLIMIT,
// PARM='SH /u/username/cqm/bin/start_cae_server'
// PARM='SH /u/username/cqm/bin/start_cae_server -restart'
//STDOUT DD PATH='/var/cqm/logs/cae_server.log',
// PATHOPTS=(OWRONLY,OCREAT,OAPPEND),
// PATHMODE=(SIRWXU,SIRWXG,SIRWXO)
//STDENV DD *
CQM_VAR_HOME=/configuration/location
CQM_JAVA=/usr/lpp/java/IBM/8.0_64
CQM_LOGS=/var/cqm/logs
/*
After editing the JCL, start the Primary CAE Server task.

**Note:** TCP/IP must be enabled.

**Stopping the Primary CAE Server**

Follow these steps to stop the Primary CAE Server.

**Procedure**

- If you installed the Primary CAE Server on Windows, follow these steps to stop it:
  a) Right-click the **My Computer** icon on the desktop where the Primary CAE Server is installed and select **Manage**.
  b) Expand the **Services and Applications** node of the tree structure displayed in the left panel.
  c) Highlight the **Services** node.
  d) Locate and highlight the **Db2 Query Monitor** service and click **Stop**.
- If you installed the CAE Server on USS you can stop it as follows:
  - Edit the USS CAE Server JCL to uncomment the line that includes `-shutdown`.

```
//SERVER EXEC PGM=BPXBATCH,REGION=800M,TIME=NOLIMIT,
// PARM='SH /u/username/cqm/bin/start_cae_server'
// PARM='SH /u/username/cqm/bin/start_cae_server -shutdown'
//STDOUT DD PATH='/var/cqm/logs/cae_server.log',
// PATHOPTS=(OWRONLY,OCREAT,OAPPEND),
// PATHMODE=(SIRWXU,SIRWXG,SIRWXO)
//STDENV DD *
CQM_VAR_HOME=/configuration/location
CQM_JAVA=/usr/lpp/java/IBM/8.0_64
CQM_LOGS=/var/cqm/logs
CQM_HEAP=500
CQM_JDBC_PORT=1112
/*
```

After editing the JCL, start the CAE Server task.

**Note:** TCP/IP must be enabled.

**Starting the Backup CAE Server**

When the Primary CAE Server fails, the Watchdog detects this failure and automatically starts a Backup CAE Server.

**Stopping the Backup CAE Server**

Follow these steps to stop the Backup CAE Server.

**Procedure**

- If you installed the CAE Server on Windows, follow these steps to stop it:
  a) Right-click the **My Computer** icon on the desktop where the Backup CAE Server is installed and select **Manage**.
  b) Expand the **Services and Applications** node of the tree structure displayed in the left panel.
  c) Highlight the **Services** node.
  d) Locate and highlight the **Db2 Query Monitor** service and click **Stop**.
- If you installed the Backup CAE Server on USS you can stop it as follows:
• Edit the USS Backup CAE Server JCL to uncomment the line that includes -shutdown.

```bash
//SERVER EXEC PGM=BPXBATCH,REGION=800M,TIME=NOLIMIT,
//  PARM='SH /u/username/cqm/bin/start_cae_server'
//  PARM='SH /u/username/cqm/bin/start_cae_server -shutdown'
//STDOUT DD PATH='/var/cqm/logs/cae_server.log',
//  PATHOPTS=(OWRONLY,OCREAT,OAPPEND),
//STDENV DD *
CQM_VAR_HOME=/configuration/location
CQM_JAVA=/usr/lpp/java/IBM/8.0_64
CQM_LOGS=/var/cqm/logs
CQM_HEAP=500
CQM_JDBC_PORT=1112
/*
```

After editing the JCL, start the Backup CAE Server task.

**Note:** TCP/IP must be enabled.

### Stopping processing after a failover

When the Primary CAE Server fails, the Watchdog detects this and starts a Backup CAE Server. After such a failover, follow these steps to stop all Db2 Query Monitor processing.

**About this task**

After a failover occurs and the Backup CAE Server has been started, you must first restart the Primary CAE Server, then stop the Backup CAE Server, in order for the Primary CAE Server to take over. You must leave the Backup CAE Server up until after the Primary CAE Server has been stopped.

**Procedure**

1. Open a command shell.
2. Change directories to the `<install folder>/bin` directory.
   
   For example:

   ```bash
   cd C:\Program Files\IBM\DB2 Query Monitor\bin
   ```
3. Issue the following command:

   ```bash
   shutdown_cqm_server.bat -agentGroup primary_server
   ```

### Using the Db2 Query Monitor main menu

The IBM Db2 Query Monitor main menu provides access to the product's main functions.

**Procedure**

Execute the Db2 Query Monitor CLIST to access the IBM Db2 Query Monitor main menu:
Figure 15. IBM DB2 Query Monitor main menu

The main menu shows the following fields:

**DB2 QM Subsystem ID**
The Query Monitor Subsystem ID being used with the current ISPF session. You can either type a Query Monitor Subsystem ID directly into this field or select from a list of available Query Monitor Subsystems. Enter ? in this field to select a Query Monitor Subsystem from a list.

**User**
The user ID of the user who is currently operating the product.

**Release**
The version and release of Db2 Query Monitor currently running.

The main menu provides the following options:

0 - **Settings**
Set ISPF dialog options (whether or not to allow letter-style options, issue sort warnings, unstack to prior level in summaries, or dump on first error).

1 - **View Activity Summaries**
Access and refine your view of your system's query activity.

2 - **View SQLCODEs**
View the expanded text description for an SQLCODE that is supplied by the IBM utility program DSNTIAR.

3 - **View Current Activity**
Display active statements that DB2 is currently executing.

4 - **View DB2 Command Activity**
View information about the execution of DB2 commands throughout monitored systems.

5 - **View Exceptions**
View collected information about your system's SQL-related exceptional events (SQL text, object details, lock events, delay events, calls, and buffer pools).

6 - **Work with Monitoring Agents**
Activate and deactivate monitoring agents for the current Query Monitor Subsystem. View, change, or refresh the monitoring profiles associated with monitoring agents.

7 - **Setup**
Specify system parameters such as the Db2 Control File, Db2 Query Monitor plan, ZPARM, BSDS, and load library information.

8 - **Work with Profiles**
Create new monitoring profiles. Copy, update, rename, or view existing monitoring profiles.
9 - Exit Query Monitor
Exit Db2 Query Monitor.

The main menu supports the following commands:

CLEARCAE
Clear the previously selected CAE Server. After issuing the CLEARCAE command, you can access the
CAE Selection panel and select another CAE Server by typing a ? in the DB2 QM Subsystem ID field.

Selecting a CAE Server for ISPF view of data sharing group
When you access the QM Subsystem Discovery panel you are directed to the CAE Selection panel where
you can select a CAE Server to use for cross-system support.

About this task
The ISPF view of data sharing group feature allows you to share Db2 Query Monitor data from one Query
Monitor Subsystem with another Query Monitor Subsystem using the CAE Server and TCP/IP. When the
ISPF Client connects to the CAE Agent, the CAE Agent uses the CQMCRMS start up parameters
SERVER_ADDRESS and SERVER_PORT to connect to the CAE Server, making it possible to see data
across your data sharing group.

You have the option to view the Db2 Query Monitor data from the perspective of a single Db2 subsystem
or a Db2 data sharing group. You can view Db2 Query Monitor data from both current and prior intervals.

The data sharing group displays on the QM Subsystem Discovery panel. If you select the data sharing
group name, Db2 Query Monitor combines all the data from the members into a single view.

Note: ISPF view of data sharing group enables ISPF views of data sharing Db2 subsystems, it does not
support ISPF views of non-data sharing Db2 subsystems on other LPARs at this time.

If a data sharing group is chosen instead of a Query Monitor Subsystem, all the data is displayed as if the
data sharing group is a Query Monitor Subsystem that spans multiple z/OS images.

The first time you access the QM Subsystem Discovery panel, you will be prompted to select a CAE
Server and CAE Agent pair. Your selection will be saved for future ISPF sessions.

You are directed to the CAE Selection panel if any of the following apply:

• You have not previously chosen a CAE Agent for ISPF view of data sharing group via the CAE Selection
  panel.
• Your previous choice of CAE Agent for ISPF view of data sharing group is not currently available.
• You enter the CLEARCAE command on the main menu. The CLEARCAE command enables you to clear
  the previously selected CAE Agent.

Note:
• After selecting the CAE Server, your selection will be saved for future ISPF sessions.
• To clear the selected CAE Server, enter the CLEARCAE command on the main menu.
• If no CAE Servers are currently available, you will be directed to the QM Subsystem Discovery panel
  without first seeing the CAE Selection panel. In this case your previous choice of CAE Server is
  preserved.

Procedure
To select a CAE Server for use with ISPF view of data sharing group, type a ? in the DB2 QM Subsystem
ID field on the Query Monitor main menu and press Enter. The CAE Selection panel displays:
Figure 16. CAE Selection panel

Columns

**CAE Server Name**
The CAE Server name and CAE Server port that the CAE Agent tries to connect to.

**Port**
The port that the CAE Agent uses to connect to the ISPF Client.

Commands

**CLEARCAE**
Clear the previously selected CAE Server. After issuing the CLEARCAE command, you can access the **CAE Selection** panel and select another CAE Server by typing a ? in the **DB2 QM Subsystem ID** field.

**S (Select)**
Select a CAE Agent to connect to a CAE Server. Allows ISPF view of data sharing group.

*Note:* Only up to 6 CAE Agents with different agent names are supported for selection on the panel. Connection to additional CAE Agents can be done only by direct command.

Discovering Query Monitor Subsystems

You can use the **QM Subsystem Discovery** panel to view information about the Query Monitor Subsystems that are available for a z/OS image.

About this task

The Query Monitor Subsystem discovery function displays information about Query Monitor Subsystems activated since the last IPL. The discovery feature assists you in accessing the Query Monitor Subsystems that have been previously defined and started since the last IPL by automatically discovering those Query Monitor Subsystems.

*Note:* The Query Monitor Subsystem discovery function does not access the Db2 Control File (DB2PARMS) when performing discovery. The Query Monitor Subsystem refers to the Db2 Control File when connecting to a Db2 subsystem. The Db2 Control File contains no information about valid Query Monitor Subsystems.

Procedure

1. Type a ? in the **DB2 QM Subsystem ID** field on the Db2 Query Monitor main menu and press Enter. The **QM Subsystem Discovery** panel displays:
### QM Subsystems

<table>
<thead>
<tr>
<th>CMD</th>
<th>QM</th>
<th>VER</th>
<th>DB2</th>
<th>VER</th>
<th>DS GROUP</th>
<th>MSTATUS</th>
<th>CURRENT INTERVAL</th>
<th>STRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>QM01</td>
<td>330</td>
<td>db2ver</td>
<td>UNAVAIL</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
<td></td>
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<tr>
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<td>330 DB01</td>
<td>db2ver</td>
<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>330 DB02</td>
<td>db2ver</td>
<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>330 DB03</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>330 DB05</td>
<td>db2ver</td>
<td>DSG3</td>
<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>330 DB06</td>
<td>db2ver</td>
<td>DSG4</td>
<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Data Sharing

<table>
<thead>
<tr>
<th>DS GROUP</th>
<th>VER</th>
<th>DB2</th>
<th>VER</th>
<th>MSTATUS</th>
<th>CURRENT INTERVAL</th>
<th>STRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>QDS1</td>
<td>330</td>
<td>DBA6</td>
<td>db2ver</td>
<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
</tr>
<tr>
<td>QDS2</td>
<td>330</td>
<td>DBB6</td>
<td>db2ver</td>
<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
</tr>
<tr>
<td>QDS3</td>
<td>330</td>
<td>DBC6</td>
<td>db2ver</td>
<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
</tr>
<tr>
<td>QDS4</td>
<td>330</td>
<td>DBD6</td>
<td>db2ver</td>
<td>ACTIVE</td>
<td>DD/MM/YYYY - HH:MM:SS</td>
<td></td>
</tr>
</tbody>
</table>

---

**Figure 17. QM Subsystem Discovery panel**

These columns display on the **QM Subsystems** section of the **QM Subsystem Discovery** panel:

- **QM**
  - The Query Monitor Subsystem ID.

- **VER**
  - The version of Db2 Query Monitor.

- **DB2**
  - Indicates the Db2 subsystem being monitored by the Query Monitor Subsystem. If Query Monitor Subsystems are monitoring multiple Db2 subsystems from the same data sharing group, they are listed as consecutive lines. Only the first line shows the Query Monitor Subsystem in the **DS GROUP** column).

- **VER**
  - The version of Db2.

- **DS GROUP**
  - The data-sharing group attach name for the Db2 subsystem.

- **MSTATUS**
  - The monitoring status of the Query Monitor Subsystem. Valid values are:
    - **UNAVAIL**
      - The Query Monitor Subsystem is not available for collecting activity information for the Db2 subsystem.
    - **INACTIVE**
      - The Query Monitor Subsystem was started but the Db2 subsystem is stopped or the Db2 Control File is missing.
    - **ACTIVE**
      - The Query Monitor Subsystem is collecting activity information for the Db2 subsystem based on monitoring profile parameters, if a monitoring profile is assigned, and start-up parameters.

- **CURRENT INTERVAL STRT**
  - The date (MM/DD/YYYY) and time (HH:MM:SS) that the current interval started.

- **PROFILE**
  - The name of the monitoring profile in use for each Query Monitor Subsystem.
The SMF ID for the MVS where the Db2 subsystem resides.

These columns display on the Data Sharing section of the QM Subsystem Discovery panel:

**DS GROUP**
The data-sharing group attach name for the Db2 subsystem.

**VER**
The version of Db2 Query Monitor that the indicated subsystem is running.

**Db2**
Indicates the Db2 subsystem being monitored by the Query Monitor Subsystem. If Query Monitor Subsystems are monitoring multiple Db2 subsystems from the same data sharing group, they are listed as consecutive line items. Only the first line item shows the data sharing group name in the DS GROUP column.

**VER**
The version of Db2.

**MSTATUS**
The monitoring status of the Query Monitor Subsystem. Valid values are:

- **UNAVAIL**
The Query Monitor Subsystem is not available for collecting activity information for the Db2 subsystem.

- **INACTIVE**
The Query Monitor Subsystem was started but the Db2 subsystem is stopped or the Db2 Control File is missing.

- **ACTIVE**
The Query Monitor Subsystem is collecting activity information for the Db2 subsystem based on monitoring profile parameters, if a monitoring profile is assigned, and start-up parameters.

**CURRENT INTERVAL STRT**
The date (MM/DD/YYYY) and time (HH:MM:SS) that the current interval started.

**PROFILE**
The name of the monitoring profile.

**SMF**
The SMF id for the MVS where the Db2 subsystem resides.

The following commands are available on the QM Subsystem Discovery panel:

**Select**
(Line command S) Selects the Query Monitor Subsystem for use with the current session of the ISPF interface.

**CAE ispf_listener_port**
(Primary command) Sets the CAE Agent you want to use for connecting to the CAE Server.

**ispf_listener_port**
The port for the CAE Agent you to use when listening for incoming connections from the ISPF client. It is set using the ISPF_LISTENER_PORT parameter of CQMCRMS. The ISPF_LISTENER_PORT you specify must be available and cannot overlap with the ports you specify using the LISTENER_PORTS and SERVER_PORT parameters.

2. To select a Query Monitor Subsystem for use with the current session of the ISPF interface, type an S next to the appropriate line item and press Enter. The main menu displays and the Db2 Query Monitor Subsystem field is populated with the selected Query Monitor Subsystem.
Setting ISPF dialog options

Follow these steps to set the options that control the behavior of the ISPF dialog.

Procedure

1. On the **DB2 Query Monitor main menu**, type 0 in the **Option** field and press Enter.

   The **Query Monitor Dialog** Options panel is displayed:

   ```plaintext
   CQM$OPTN  Query Monitor Dialog Options
   Option    Query Monitor Dialog Options
   DB2 QM Dialog Options:               Press Enter to update dialog options or PF3/CANCEL to exit
   __ Issue Sort Warning
   __ Unstack To Prior Level In Summaries
   __ Dump on 1st error
   __ Display Full Command List on Summary Level
   ``

   *Figure 18. Query Monitor Dialog Options panel*

   These columns display on the **Query Monitor Dialog Options** panel:

   **Issue sort warning**
   
   When enabled, the sort warning is issued whenever you select sorting by SQL text. The sort warning message enables you to disable the message. Enabling this option is the only way to restore the sort warning message.

   **Unstack to prior level in summaries**
   
   When processing summary data, you can drill down from any level to any level except the one you are currently at. You can also drill down to a level that you have already viewed. When enabled, this option instructs that you are to return to the last occurrence of the specified drill down. For example, if you drill down from summaries with line commands 1,2,3,4 and then drill down by 2 again, you will return to the previous drill down for option 2. The intent is to allow you to return to a previous point to follow another path. When disabled, you will continue indefinitely.

   **Dump on 1st error**
   
   Use this option only when instructed by IBM Software Support.

   **Display full command list on summary level**
   
   When this option is selected, the full command list is shown on the **Select Summary Level** panel. When this option is not selected, an abbreviated command list is shown on the **Select Summary Level** panel.

   2. Type a / next to an option to enable it or remove the / to disable an option.

   3. Press Enter to update the dialog option settings.

   4. Press PF3 to exit the panel.

**PF3 behavior**

When you navigate the ISPF interface, be aware that data tables are not refreshed after you navigate to a detail display and return to a table display using PF3. This reduces the time required to navigate to a prior display in a drill down path. This behavior is present by default from the D-Delays, B-BP stats, Q-Misc Stats, L-Locks, V-view SQL detail displays.
Chapter 10. General ISPF tasks

These topics provide information about using the Db2 Query Monitor main menu, configuring column display, creating and using filters, navigating intervals, and other basic tasks that enable you to use the Db2 Query Monitor ISPF interface efficiently.

Topics:
- “Primary commands” on page 157
- “Column display functions” on page 159
- “Sorting by SQLTEXT” on page 171
- “Configuring filters” on page 171
- “Interval selection and navigation” on page 186
- “Modifying PF key settings” on page 189
- “Exporting SQL text to a data set” on page 190
- “Exporting the ISPF log to a data set” on page 190
- “Batch Db2 Control File loader” on page 191
- “Maintaining Performance History Files” on page 191
- “Configuring commands in CQMCMDS” on page 192
- “Setting MEMLIMIT” on page 192
- “Configuring Db2 system parameters” on page 193

Primary commands

Db2 Query Monitor supports a number of primary commands that enable you to find information, navigate panels, modify the display of data, and print information.

**FIND abc**

Finds a unique string within a panel of data where abc is the string for which you are searching. If the specified string is found, the cursor moves to the first position of the found string. If the specified string is not found a message displays to indicate that is the case. You should be as specific as possible when using the FIND command to ensure the correct return.

The FIND command can be issued with the following keywords:

- NEXT
  Finds the next instance of the search string.
- PREV
  Finds the previous instance of the search string.
- FIRST
  Finds the first instance of the search string.
- LAST
  Finds the last instance of the search string.
- ALL
  Finds all instances of the search string.

The syntax is:

```
FIND <string> <keyword>
```

OR
FIND <keyword> <string>

where <string> is the text you want to find and <keyword> is a valid keyword for the FIND command (NEXT, PREV, FIRST, LAST, or ALL).

If none of the these keywords is explicitly specified, the default behavior is for the next instance of the search term to be found. If a keyword is the only parameter, it is treated as a search string. Two keyword parameters can coexist as long as one of them is identified by surrounding quotes as the search string. Otherwise, the occurrence of multiple instances of keywords causes an error.

Examples:
To find the first instance of the word "apple", issue the command:

```
FIND apple FIRST
```

To find the next instance of the word "apple":

```
FIND apple
```

To find the last instance of the word "apple":

```
FIND apple LAST
```

To find all instances of the word "apple":

```
FIND apple ALL
```

To find all instances of the word "all", use single quotes to distinguish the search term from the keyword:

```
FIND 'all' ALL
```

Or:

```
FIND ALL 'all'
```

FORM

Reformats the display of a selected line item on a report panel such that each column becomes a row and values display in list format. To use the FORM command, type FORM in the option line, place your cursor on the line item of interest, and press Enter. The data for the selected line item will be displayed in list format showing column names and their associated values.

Notes:
1. To return to the original view from FORM view, press PF3.
2. CSETUP functions are not accessible when in FORM view. Exit FORM view to access CSETUP functionality.

NROW n

Displays the report for a subsequent row of interest where n is the number of rows (after to the currently displayed row) that you want to scroll forward (when viewing reports in FORM view). The default value of n is 1.

Note: The NROW command is only valid when viewing a report in FORM view.

PROW n

Displays the report for a previous row of interest where n is the number of rows (prior to the currently displayed row) that you want to scroll back (when viewing reports in FORM view). The default value of n is 1.

Note: The PROW command is only valid when viewing a report in FORM view.
PRINTX

The PRINTX command takes a screen shot of a report and sends it to an output queue. The default output destination is the default output queue for your site. For example, if your site's default output class is configured to send output to the hold queue, the PRINTX command sends the currently displayed report to the hold queue. You can then view the output using SDSF.

You can change the output class designation for the PRINTX command by entering PRINTX S in the command line and pressing Enter. The following panel is displayed:

*Figure 19. PRINTX Setup panel*

```
SETUP ------------------------  PRINTX Setup --------------- 2010/02/25 14:27:15
Command ==> __________________________________________

Specify new output class and press ENTER
or
press END to cancel.

If new output class is blank, default output class is used.

Current Output Class ==> DEFAULT OUTPUT MESSAGE CLASS
New Output Class     ==> _
```

Enter the desired output class in the New Output Class field and press Enter. The new output class is saved across sessions and remains in effect unless you change it. For appropriate output classes available at your site, check with your systems programmer. To change the class back to the default output message class, blank out the value in the New Output Class field.

For a snapshot of the current display (print screen), the ISPF Print command can be used. The ISPF Print command writes output to the ISPF LIST data set. See the ISPF User's Guide (SC34-4822, SC34-4823) for more information about ISPF Print.

SORT column_number direction

Sorts data (on panels of scrollable or tabular data) by column where column_number is the number of the column by which you want to sort and direction can be either A (to sort data in ascending order) or D (to sort data in descending order).

You can refer to columns only by the column number (not the column name). Column numbers are not displayed on the panel. The CMD column is column 1 and columns to the right are incremented sequentially.

Data can be sorted in ascending (A) or descending (D) order. To specify sort order, append the A or D to the end of the SORT command. The default is ascending (A). For example, to sort column 2 in descending order, type:

```
SORT 2 D
```

in the command line and press Enter. Data will be sorted by column 2 in descending order.

**Column display functions**

Column display functions (CSETUP functions) enable you to rearrange report columns, change the width of individual columns, and control the vertical ordering of columns.

**CSETUP functionality enables you to:**

- Rearrange report columns horizontally using the CFIX and CORDER options.
- Change the width of individual columns using the CSIZE option.
- Control the vertical ordering of columns using the CSORT option.

Additional column display functions enable you to:
• Scroll horizontally between columns, in both left and right directions.
• Scroll horizontally within a single report column while other report columns remain stationary on the screen.
• Insert column numbers above each display column.
• Generate a ruler at the top of the report columns beneath the headings.
• Display an entire row-column data element.

The customizations, or views, you configure using **CFIX**, **CORDER**, **CSIZE**, and **CSORT** can be saved across sessions.

The following syntax restrictions apply to the use of **CSETUP** functionality:
• Underlined text indicates the minimum acceptable abbreviation for each keyword.
• Variables are shown in italicized lowercase type.
• Keyword options are separated by vertical lines ( | ).

### Accessing the CSETUP Primary Option Menu

The **CSETUP** primary option menu enables you to access the various **CSETUP** options and configure column display functions according to your display needs.

**About this task**
The **CSETUP** command uses the following syntax:

```
CSETUP
```

Launches the **CSETUP Primary Option Menu**.

To access and use the **CSETUP Primary Option Menu**:

**Procedure**

1. On any dynamic display (for example, the **Objects Profile Display** panel, the **Utilities Profile Display** panel, or the **Jobs Profile Display** panel), type **CSETUP** (or **CSET**) in the Option line and press Enter.

   The **Setup Primary Option Menu** displays as shown in the following figure:

   ![Setup Primary Option Menu panel](image)

   **Figure 20. Setup Primary Option Menu panel**

2. Type the number corresponding to the option you want to access in the Command line and press Enter. The following options are available on the **Setup Primary Option Menu**:

   **CFIX**
   - Option 1, **CFIX**, enables you to fix and unfix columns.

   **CORDER**
   - Option 2, **CORDER**, enables you to reposition columns.

   **CSIZE**
   - Option 3, **CSIZE**, enables you to change the displayed width of columns.
**CSORT**
Option 4, **CSORT**, enables you to select one or more columns for sorting and thus modify the order of the rows displayed.

**CRESET**
Option 5, **CRESET**, enables you to reset all customizations.

**CREMOVE**
Option 6, **CREMOVE**, enables you to remove all customizations.

**PVIEW**
Option 7, **PVIEW**, enables you to toggle between permanent view and temporary view.

**Note:** You can also directly invoke each CSETUP option by typing the corresponding command (for example, **CFIX**, **CORDER**, **CSIZE**, **CSORT**, **CRESET**, **CREMOVE**, or **PVIEW**) in the option line on any dynamic display and pressing Enter.

### Fixing a column
The CFIX option enables you to fix and unfix columns. A fixed column is always located at the far left side of the display.

**About this task**
It does not shift horizontally (as unfixed columns do) when scrolling to the left or right. INNER COLUMN SCROLLING and CEXPAND may be used on a fixed column if the column is narrower than its maximum width. Certain columns may be permanently fixed in the report and cannot be unfixed by the user. Such a column has a fix status of P (permanently fixed).

A column cannot be fixed if it is larger than the available display area. There are also restrictions for fixing columns related to the size requirements of other columns.

To fix a column:

**Procedure**
1. Type **CFIX** in the option line on any display panel and press Enter.

   The **Define Fixed Columns** panel displays as shown in the following figure:

```
CFIX ------------------ Define Fixed Columns -------------- YYYY/MM/DD HH:MM:SS
Option ====>                                                                                     Scroll ===> PAGE
------------------------------------------------------------------------     +>
ROW 1 OF 9
Column Function ===> 1 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View ===> Y (Y-Perm, N-Temp)  Reset View ===> N (Y,N)
Device_Width   :  80
Old_Fixed_Width:  37       Old_Unfixed_Width:  43
New_Fixed_Width:           New_Unfixed_Width:
-------------------------------------------------------------------------------
Cmd New Old Len Column_Name
P   P   P     5 CMD
P   P   P    32 NAME
_   10 CREATOR
_   5 UPDT
_  32 DESCRIPTION
_  10 LAST_USER
-------------------------------------------------------------------------------
Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Line Cmds: F Fix U Unfix
```

**Figure 21. Define Fixed Columns panel**

The following fields appear on the **Define Fixed Columns** panel:
Column Function
Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

Permanent View
Indicates whether the view you define is permanent or temporary. Valid values are:
- Y—View customizations are permanent.
- N—View customizations are temporary.

Reset View
Resets all customizations.

Device_Width
Shows the current display device size (screen width).

Old_Fixed_Width
Shows the sum of the FIXED column widths prior to any changes in the current CFIX panel.

Old_Unfixed_Width
Shows the UNFIXED area prior to any changes in the current CFIX panel. Old_Unfixed_Width = Device_Width - Old_Fixed_Width.

New_Fixed_Width
Shows the sum of the FIXED column widths that will result if the FIX/UNIFIX changes are saved.

New_Unfixed_Width
Shows the UNFIXED area that will result if the FIX/UNIFIX changes are saved. New_Unfixed_Width = Device_Width - New_Fixed_Width.

Cmd
Field where you specify line commands. Valid line commands are F (fix) and U (unfix).

New
Displays the new CFIX view settings.

Old
Displays the previous CFIX view settings.

Len
Shows the length of the column.

Column_Name
Shows the name of the column.

2. Type F in the Cmd field next to column(s) you want to fix.
3. Type U in the Cmd field next to column(s) you want to unfix.
4. Press Enter.
   The changed values display in the New column next to the corresponding column(s).
5. Press PF3 to save changes and return to the display panel.

Repositioning columns
The CORDER option enables you to reposition report columns. If any columns are fixed, they are grouped together as the leftmost report columns. The unfixed columns are grouped together to the right of any fixed columns.

About this task
CORDER does not move a column out of its group. A fixed column cannot be relocated to the right of an unfixed column. Likewise, an unfixed column cannot be relocated to the left of a fixed column.

To reposition columns:

Procedure
1. Type CORDER in the option line on any display panel and press Enter.
The **Define Column Display Order** panel displays as shown in the following figure:

<p>| CTCORD ----------------- Define Column Display Order ----- YYYY/MM/DD HH:MM:SS |
|-------------------------|-------------------------------|</p>
<table>
<thead>
<tr>
<th>Option ====&gt;</th>
<th>Scroll ===&gt; PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Column Function ==&gt; 2 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Permanent View ==&gt; N (Y-Perm, N-Temp)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Reset View ==&gt; N (Y,N)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Cmd Fix New Old Column_Name</strong></td>
<td></td>
</tr>
<tr>
<td>--- P</td>
<td>1 CMD</td>
</tr>
<tr>
<td>--- P</td>
<td>2 NAME</td>
</tr>
<tr>
<td>---</td>
<td>3 CREATOR</td>
</tr>
<tr>
<td>---</td>
<td>4 UPDT</td>
</tr>
<tr>
<td>---</td>
<td>5 DESCRIPTION</td>
</tr>
<tr>
<td>---</td>
<td>6 LAST_USER</td>
</tr>
<tr>
<td>---</td>
<td>7 Last_UPDATED</td>
</tr>
<tr>
<td>---</td>
<td>8 CRTD_USER</td>
</tr>
<tr>
<td>---</td>
<td>9 CREATED_USER</td>
</tr>
<tr>
<td>***************************** Bottom of Data **********************************</td>
<td></td>
</tr>
</tbody>
</table>

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Line Cmds: Specify number for column position

Figure 22. Define Column Display Order panel

The following fields appear on the **Define Column Display Order** panel:

**Column Function**
- Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

**Permanent View**
- Indicates whether the view you define is permanent or temporary. Valid values are:
  - **Y**—View customizations are permanent.
  - **N**—View customizations are temporary.

**Reset View**
- Resets all customizations.

**Cmd**
- Field where you specify the number for column position.

**Fix**
- Displays fixed columns. Valid values are:
  - **F**—Indicates the column is fixed.
  - **P**—Indicates the column is permanently fixed.

**New**
- Displays the new CORDER view settings.

**Old**
- Displays the previous CORDER view settings.

**Column_Name**
- Shows the name of the column.

2. Type a number next to a column to specify its order.
3. Press Enter.
   - The new column order numbers display in the **New** column next to each column.
4. Press **PF3** to return to the display panel.
Resizing columns

The CSIZE option enables you to change the displayed width of columns.

About this task

This function is primarily intended for non-numeric data where there are large blank areas in all (or most) rows in a given column. Although the displayed width may change, the underlying data does not change.

If a column's size is less than the column maximum, it is possible that some data is not displayed. INNER COLUMN SCROLLING and CEXPAND can be used to see data outside the display range of the resized column.

Note: If the minimum and maximum column widths are equal, the column cannot be resized.

To resize columns:

Procedure

1. Type CSIZE in the option line on any display panel and press Enter.

   The Define Column Size panel displays as shown in the following figure:

   ![Define Column Size panel](image)

   The following fields appear on the Define Column Size panel:

   **Column Function**
   Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

   **Permanent View**
   Indicate whether the view you define is permanent or temporary. Valid values are:
   - Y—View customizations are permanent.
   - N—View customizations are temporary.

   **Reset View**
   Resets all customizations.

   **Device_Width**
   Shows the current display device size (screen width).

   **Old_Fixed_Width**
   Shows the sum of the FIXED column widths.

Figure 23. Define Column Size panel

The following fields appear on the Define Column Size panel:

**Column Function**
Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

**Permanent View**
Indicate whether the view you define is permanent or temporary. Valid values are:
- Y—View customizations are permanent.
- N—View customizations are temporary.

**Reset View**
Resets all customizations.

**Device_Width**
Shows the current display device size (screen width).

**Old_Fixed_Width**
Shows the sum of the FIXED column widths.
Old_Unfixed_Width
Shows the UNFIXED area.

New_Fixed_Width
Shows the sum of the FIXED column widths.

New_Unfixed_Width
Shows the UNFIXED area.

Cmd
Field where you specify the number for column position.

New
Displays the new CSIZE view settings.

Old
Displays the previous CSIZE view settings.

Min
Displays the minimum column length.

Note: If the minimum and maximum column widths are equal, the column cannot be resized.

Max
Displays the maximum column length.

Note: If the minimum and maximum column widths are equal, the column cannot be resized.

Fix
Displays fixed columns. Valid values are:
• F—Indicates the column is fixed.
• P—Indicates the column is permanently fixed.

Column_Name
Shows the name of the column.

2. Type the desired column size in the Cmd field next to the column you want to resize.

Note: The column size you specify must be between the Min and Max values shown for that column.

3. Press Enter.
The new view criteria display in the New column.

4. Press PF3 to return to the display panel.

Sort functionality
CSORT functionality enables you to select one or more columns for sorting and thus modify the order of the rows displayed on many product panels.

Columns are selected by sort priority and direction. Direction is either ascending (default) or descending. When more than one column is selected for sorting, the second column only differentiates when rows have matching data in the first column. Similarly, a third column only impacts the sort when data in both the first two columns are identical.

Defining sort columns
You can sort display data by columns. You can select up to nine columns for sorting.

About this task
A maximum of nine columns can be selected for sorting at one time. Internal requirements may create a smaller maximum. A message is issued if the maximum number of columns selected for sorting is exceeded.

Note: CSORT and SORT are synonymous.
Procedure

1. Type **CSORT** (or **SORT**) in the option line on any display panel and press Enter.

   The **Define Sort Columns** panel displays as shown in the following figure:

   ![Define Sort Columns panel](image)

   **Figure 24. Define Sort Columns panel**

   The following fields appear on the **Define Sort Columns** panel:

   **Column Function**
   Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

   **Permanent View**
   Indicate whether the view you define is permanent or temporary. Valid values are:
   - **Y**—View customizations are permanent.
   - **N**—View customizations are temporary.

   **Stop Sorting**
   Indicates whether to stop sorting as specified. Valid values are:
   - **Y**—Stop sorting.
   - **N**—Continue sorting.

   **Cmd**
   Field where you specify the sort order.

   **Dir**
   Specifies the lexicographic order for the column. Valid values are:
   - **A**—(Default) Values are listed in ascending order, smallest to largest.
   - **D**—Values are listed in descending order, largest to smallest.

   **New**
   Displays the new CSORT view settings.

   **Old**
   Displays the previous CSORT view settings.

   **Column_Name**
   Shows the name of the column.

2. Type **A** or **D** in the **Cmd** field next to the columns on which you want to base your sort.
3. Press Enter. The new sort preferences are displayed in the **New** column.
4. Press **PF3** to return to the display panel.
**Fast-path SORT command**  
The SORT command can be used as a primary (fast-path) command by typing the appropriate SORT syntax in the Option line of any report panel and pressing Enter.

The functionality supports both single and multi-column sorting and enables users to specify sort order (ascending or descending) for each column in the sort.

**Syntax for single-column sorting**  
The syntax for single-column sorting is as follows:

```
SORT column_identifier dir
```

Where `column_identifier` is either the *column name* or the *relative column number* and `dir` is the direction in which to sort the column data. Valid values for `dir` are:

- **asc**  
  (Default) Sorts data in ascending order.

- **desc**  
  Sorts data in descending order.

**Notes:**

1. There must be a space between the `column_identifier` and its `dir` (if used).

2. The *relative column number* for a column is determined based on the column's placement when visible on the screen. Thus, relative column numbers are only available for columns currently visible on the screen. Relative column numbers are determined by counting the displayed columns from left to right, with the leftmost visible column being assigned the number '1' and each successive column (reading left to right) being assigned a relative column number that is incremented by 1. **Hint:** To quickly determine the column number, use the CNUM command to toggle on the column numbers for each display column.

3. You can sort on a column that is not displayed if you use the *column name* (instead of the *relative column number*) as the `column_identifier` in the SORT syntax.

**Multi-column sorting**  
The syntax for multi-column sorting is as follows:

```
SORT column_identifier dir column_identifier dir
```

Where `column_identifier` is either the column name or the relative column number and `dir` is an optional indication of the direction in which to sort the column data. Valid values for `dir` are:

- **asc**  
  (Default) Sorts data in ascending order.

- **desc**  
  Sorts data in descending order.

The `column_identifier` and `dir` values must all be separated by spaces. The maximum number of columns that can be sorted at once is 9.

**Usage examples**  
For a report display that has three columns, all of which display on the screen:

- Column 1: Name
- Column 2 Creator
- Column 3: Status

The following examples show how you can sort these columns:
SORT NAME
Sorts display data in ascending order based on the value in the Name column (when no dir value is specified, the default sort order is ascending, thus SORT NAME and SORT NAME A are synonymous).

SORT NAME D
Sorts display data in descending order based on the value in the Name column.

SORT NAME DESC
Sorts display data in descending order based on the value in the Name column.

SORT NAME A CREATOR D
Sorts display data first in ascending order based on the value in the Name column and then sorts data in descending order based on the value in the Creator column.

SORT NAME ASC CREATOR DESC
Sorts display data first in ascending order based on the value in the Name column and then sorts data in descending order based on the value in the Creator column.

SORT 1 A
Sorts display data in ascending order based on the value in the Name column.

SORT 1 A CREATOR D
Sorts display data first in ascending order based on the value in the Name column and then sorts data in descending order based on the value in the Creator column.

SORT 3 2 1
Sorts the display data first in ascending order based on the value in the Status column, then in ascending order based on the value in the Creator column, and finally in ascending order based on the value in the Name column.

Note: When you specify a column name using any of the above formats, you may enclose it in single quotes, double quotes, or be without any quotes. For example, the following are equivalent:

SORT NAME D
SORT 'NAME' D
SORT "NAME" D

Resetting CSET customizations
The CRESET option enables you to reset all customizations.

About this task
After CRESET is issued, all fixed columns are unfixed (except for any permanently fixed columns), all selected sort columns are deselected and sorting is disabled, all column sizes are set to the initial values or maximum values if no suggested value previously existed, and original column locations are restored.

Procedure
1. To issue the CRESET option, access the Setup Primary Option Menu by typing CSET in the option line of any report display and pressing Enter.
   The Setup Primary Option Menu displays.
2. Type 5 in the command line and press Enter.
   CRESET is issued and all fixed columns are unfixed (except for any permanently fixed columns), all selected sort columns are deselected and sorting is disabled, all column sizes are set to the initial values or maximum values if no suggested value previously existed, and original column locations are restored.
3. Alternatively, you can issue the CRESET command as a primary command using the following syntax:

   CRESET
   Resets all customizations (unfixes fixed columns, deselects selected sort columns, sorting disabled, column sizes set to initial values, original column locations restored).
Removing CSET customizations

The **CREMOVE** option enables you to remove all customizations.

**About this task**

After you issue the **CREMOVE** command, all fixed columns are unfixed (except for those that are permanently fixed), all selected sort columns are deselected and sorting is disabled, all column sizes are set to their maximum values, and original column locations are restored.

**Procedure**

1. To issue the **CREMOVE** option, access the **Setup Primary Option Menu** by typing **CSET** in the option line of any report display and pressing Enter.
   
   The **Setup Primary Option Menu** displays.

2. Type 6 in the Command line and press Enter.
   
   The **CREMOVE** command is issued.

3. Alternatively, you can issue the **CREMOVE** command as a primary command using the following syntax:

   ```
   CREMOVE
   ```

   **CREMOVE**
   Removes all customizations (unfixes fixed columns, deselects selected sort columns, sorting disabled, column sizes set to maximum values, original column locations restored).

   **Note:** **CREMOVE** differs from **CRESET** in that **CREMOVE** sets all column sizes to their maximum values ignoring any initial, suggested sizes.

**Column scroll**

Column scrolling enables you to scroll horizontally between columns, in both left and right directions.

Use the following commands when viewing any dynamic display panel to scroll horizontally between columns:

- **CLEFT n**
  Enables you to scroll to the left side of the display window *n* report columns to the left.

- **CRIGHT n**
  Enables you to scroll the left side of the display window *n* report columns to the right.

**Inner column scroll**

Inner column scroll enables you to scroll horizontally within a single report column while other report columns remain stationary on the screen.

Inner column scrolling may be useful for columns that have been shortened using the **CSIZE** functionality. Use the following commands when viewing any dynamic display panel to scroll horizontally within a single report column:

- **ICLEFT**
  Enables you to scroll to the left within one report column while the other report columns remain stationary.

- **ICRIGHT**
  Enables you to scroll to the right within one report column while the other report columns remain stationary.

**Column numbers**

Column numbers can be inserted above each display column.

The inserted column numbers are relative to the leftmost display column. Use the following command to invoke column numbering:
CNUM
Enables you to toggle on/off the column numbers above each display column.

Notes:
1. The leftmost displayed column is always numbered one (1) regardless of how far to the right you scroll.
2. You can use column numbers when issuing the SORT fast-path command.
3. Column numbers are not removed by CRESET nor CREMOVE. To remove column numbers, reissue the CNUM command.

Ruler display
The COLS command enables you to generate a ruler at the top of the report columns beneath the headings.

This ruler tracks the current position within the column. The < > symbols indicate whether there is additional column data to the left or right of the displayed data. For example:

<-5----2----5->

In this example, positions 13 through 28 are displayed. There is data both to the left and right of the currently displayed area.

The COLS command can be issued by itself, as a toggle switch, or with one parameter (ON|OFF). The syntax is as follows:

COLS (ON|OFF)

Enables you to generate a ruler at the top of the report columns to track the current position within the column.

Expanding columns
The CEXPAND command enables you to display an entire row-column data element.

About this task
This command can be useful in instances when the CSIZE command has reduced a column to a width that is too narrow to display all data. Expanding columns using the CEXPAND command provides you with an alternative to inner column scrolling.

Procedure
To invoke CEXPAND, place the cursor on a row-column element and issue the CEXPAND command. The cursor position determines the row-column that expands. The CEXPAND command can be issued by itself or with two parameters (row and column). The syntax is as follows:

CEXPAND (row column)

Enables you to display an entire row-column data element where row is the number of the row and column is the number of the column (non-heading lines only) that you want to expand.

Restrictions
The following restrictions apply to CSET options.

- Total fixed column sizes cannot exceed screen width.
- Total fixed column sizes must leave enough unfixed space for the minimum allowed size for all unfixed columns. If a column is not eligible to be re-sized, the column's minimum size requirement is the same as its maximum size. Minimum and maximum sizes for all columns are shown in the CSIZE display.
- If a column has been re-sized, then its current width is treated as its smallest allowable size. When a column is re-sized its current size must fit on the screen completely. For example, on an 80-byte screen with no fixed columns, a 128-byte column can only be re-sized to 80 bytes or less (assuming no
conflicting minimum size associated with the column). If there were two 10-byte fixed columns, for a total fixed area size of 20-bytes, the 128-byte column would be limited to 60 bytes or its minimum allowed size, whichever was smaller.

**Sorting by SQLTEXT**

A warning displays after you issue the SORT command to sort by SQLTEXT for the first time.

**About this task**

| Sorting by SQLTEXT Warning | Option  ===>
|---------------------------|----------
| Sorting by SQLTEXT requires extensive CPU and storage.             | Press Enter to continue or PF3/Cancel to exit |
| Display this message again? (Y/N) | Y |

*Figure 25. Sorting by SQLTEXT Warning panel*

The **Sorting by SQLTEXT Warning** is issued the first time SORT is requested for SQLTEXT to ensure that you want to incur the overhead of reading all SQLTEXT and sorting it. If you press Enter, the SORT proceeds.

If you type N in the **Display this message again?** field, the warning is disabled and does not display the next time the SORT by SQLTEXT is requested. If you specify Y, the message is displayed again when issuing the first sort after logging on to a new session.

**Note:** The value you specify for the **Display this message again?** field is saved in your TSO user profile. If you specify N to disable the query, the message is not issued again in current or future Db2 Query Monitor sessions.

**Configuring filters**

You can use filters to specify the type of information to display for an ISPF session.

For example, if a monitoring profile specifies the collection of only DSN% job names, you can define a filter to view only those jobs submitted by a specified user ID or job name. Then the data the user sees in Db2 Query Monitor is limited to only those DSN% jobs submitted by the user specified by the filter.

**Notes:**

1. Filters do not affect the data that is collected by Db2 Query Monitor, they only filter data for display purposes.
2. The FILTER command is valid for:
   - View Current Activity - Object subpanel.
   - View Exceptions, - Objects subpanel, Calls subpanel.
   - View DB2 Command Activity
   - View Activity Summaries - All subpanels

**Accessing filters**

Follow these steps to access and work with filters.

**Procedure**

1. Type FILTER in the **Option** field of a panel that allows filtering and press Enter.

   The **Active Filters** panel is displayed:
The following fields are displayed on the Active Filters panel:

Enable Filtering
Enable or disable filters for the current display. Valid values are Y (filters are active for the current display) and N (filters are not active for the current display).

Exclude Filtered Data
Indicates whether the data you define in the filter is to be excluded from your view. Valid values are Y (excludes data matching your filter criteria from display) and N (does not exclude data matching your filter criteria from display; matching data is displayed).

Mixed case
Indicates whether the data you define in the filter contains mixed case characters. Valid values are Y (data contains mixed case) and N (data does not contain mixed case). Mixed case set to N does not alter the value you enter, it simply controls whether or not data is translated to upper case prior to display. However, if you set Mixed Case to N and you modify a value, it will be stored in upper case.

Match case
Indicates whether the filter applies as entered or whether all values are treated as if they were entirely upper case. Valid values are Y (match values as entered) and N (treat all values as upper case). Match Case set to N does not alter the value you enter, it simply controls whether or not a copy of the data values to be compared are translated to upper case prior to comparison. The combination of Mixed Case and Match Case settings operate according to the following:

- **(Default) Mixed case=Y and match case=N.** Filter values are stored as entered but filter values and field values are treated as upper case for comparison.
- **Mixed case=Y and match case=Y.** Filter value are stored as entered but filter values and field values are compared as is.
- **Mixed case=N and match case=N.** Filter values are upper cased when stored and field values are treated as upper case for comparison.
- **Mixed case=N and match case=Y.** Filter values are upper cased when stored and comparison are made to field values, as is.

Display Defined Filters
Indicates whether or not to display existing filters. Valid values are Y (displays existing filters) and N (does not display existing filters). If you specify Y in the Display Defined Filters field, you must also specify the name of the data set that contains defined filters in the Filter Dataset Name field.
Filter Dataset Name
The name of the data set you created to hold Db2 Query Monitor filters. If you specify a fully-qualified data set name, the name must be enclosed in single-quotes, for example:

'TWUSER.CQM.FILTERS'

AND/OR between columns
Indicates whether line items for a filter are joined by the AND or the OR operator. Valid values are

AND
Joins line items by the AND operator. Db2 Query Monitor data must meet the criteria of all defined filter lines for it to be displayed.

OR
Joins line items by the OR operator. Db2 Query Monitor data must meet the criteria of at least one defined filter line for it to be displayed.

The **AND/OR between columns** field defines the behavior of filter lines for different columns. For example, there might be two filter lines, one for Plan and another for Program, such as:

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>EQ</th>
<th>CQM@S*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAN</td>
<td>EQ</td>
<td>DIST*</td>
</tr>
</tbody>
</table>

In such a case, if the AND/OR between columns field is set to **AND** for an active filter, then only Db2 Query Monitor data with Programs that starts with 'CQM@S' and Plans that start with 'DIST' will display. If the AND/OR between columns field is set to **OR** for an active filter, then Db2 Query Monitor data with Programs that start with 'CQM@S' or Plans that start with 'DIST' will display.

AND/OR within a column
Indicates whether columns within a filter are joined by the AND or the OR operator. Valid values are **AND** (joins columns within a filter by the AND operator) and **OR** (joins columns within a filter by the OR operator). This field defines the behavior of filter lines that are defined for the same column. For example, there might be two filter lines for the Program column, such as:

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>EQ</th>
<th>CQM@S*</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM</td>
<td>EQ</td>
<td>+7</td>
</tr>
</tbody>
</table>

In such a case, if the AND/OR within a column field is set to **AND** for an active filter, then only Db2 Query Monitor data with Programs that starts with 'CQM@S' and end with '7' will display. If the AND/OR within a column field is set to **OR** for an active filter, then Db2 Query Monitor data with Programs that start with 'CQM@S' or end with '7' will display.

The line commands available on the Active Filters panel include:

**Create (Primary command CREATE)**
When you enter **CREATE** in the option line and press Enter, the Create Filter Line panel displays where you can define the column name, operator, and column value for the filter line.

**I - Insert**
Insert a new filter line below the selected line. The **Create Filter Line** panel is displayed, where you can define the column name, operator, and column value for the filter line.

**U - Update**
Update the column name, operator, and column value for a filter line.

**V - View**
View the column name, operator, and column value for the selected filter line.

**R - Repeat**
Repeat the selected line, placing a copy directly below the line on which you specified the R line command.

**D - Delete**
Delete the filter line.
2. Create or modify active filters as needed and press Enter to save.

**Adding filter lines**

Follow these steps to add one or more filter lines.

**About this task**

Filter lines consist of a column name, an operator, and a column value. When filtering data for display, Db2 Query Monitor:

- Examines the contents of the column that is identified in the filter's Column Name field.
- Compares the content of column to the value you specify for the Column Value field using the operator you specify (for example, EQ, GE, GT, LE, LT, NE).

If a match occurs, then the data are filtered according to the value you specify for the Exclude Filter Data field on the Active Filters panel. For example, if you specified Y in the Exclude Filter Data field, data are excluded from display when a match occurs. If you specified N in the Exclude Filter Data field, data are not excluded from display when a match occurs; instead, data that do not produce a match are excluded from display.

**Procedure**

1. Issue the FILTER command from a panel or subpanel that supports filtering. The Active Filters panel displays.

2. Type CREATE on the command line and press Enter. The Create Filter Line window displays:

```
--------------------------- Create Filter Line --------------------------
Option ==> ____________________________
Column Name   ________   (PLAN, PROGRAM, CURSOR, COLLID, CONNNAME, CORRNAME, CORRID, AUTHID, JOBNAME, SSID, WSUSER, WSNAME, WSTRAN, DBNAME, OBJNAME, CREATOR, BUFPOOL, OBJTYPE, SECTION, PAGESET, TABNAME)
Operator      EQ         (EQ, GE, GT, LE, LT, NE)
Column Value  __________________________________________________________
_________________________________________________________________
```

*Figure 27. Create Filter Line window*

The input fields that display on the Create Filter Line panel include:

**Column name**

The name of the column the filter examines when looking for a match.

*Note:* Only Column Name types that affect the display in the current panel or subpanel are applied.

**Column value**

The value on which to base the match for the filter line.

*Note:* The case of Column values is handled according to the Mixed Case and Match Case settings previously described. Column values can also be specified using special wildcard characters. The percent sign (%) is a fill character and it will match any value in that position. For example, a Column Value of ab%$d will match abcd. The asterisk(*) matches any number of characters beyond the minimum required. For example, abc* will match abcd, abcded, abcdedef, etc. If you specify a column name of BUFPOOL, the column value B* is invalid, BP* must instead be used with the asterisk. There is also a special wildcard, N/A. This value can be specified in any case regardless of the setting of Mixed Case. During data capture, some data might be unspecified or unavailable. These fields show as N/A or blank on a display. You can filter these lines using the column value of N/A. Only the EQ and NE operators can be specified with any column value specified with a wildcard (* or %) or set to N/A.
Operator
The operator used when matching column values and column names. Valid values are EQ (equal to), GE (greater than or equal to), GT (greater than), LE (less than or equal to), LT (less than), and NE (not equal to).

3. Specify a column name, operator, and column value for the filter line.
4. Press Enter. The Create Filter Line window closes and the Active Filters panel displays. The filter line you created is listed in the display area at the bottom of the panel:

---
CQM$FILT ---------------- Active Filters ----------------- Row 1 of 2
Option ===> _________________________________________________________________
Type "CREATE" on command line to create filter line
Enable Filtering........ N (Y/N) Mixed Case _ Y (Y/N)
Exclude Filtered Data.... N (Y/N) Match Case _ N (Y/N)
Display Defined Filters.. N (Y/N)
Filter Dataset Name...... _________________________________________________
AND/OR between columns... AND (AND/OR)
AND/OR within a column... OR_ (AND/OR)
---
C:I-Insert,U-Update,V-View,R-Repeat,D-Delete
---
CMD Column OP Value
- PLAN EQ PLANA
- PROGRAM EQ PROGRAM1
---
Press Enter/PF3 to update filter variables or CANCEL to exit
---
Figure 28. Active Filters panel
5. Press PF3 to save the filter and exit the Active Filters panel.

Deleting a filter line
Follow these steps to delete a filter line from a filter.

Procedure
1. Type FILTER in the Option field of a panel that allows filtering and press Enter.
2. Type D next to the filter line you want to delete and press Enter. The filter line is deleted.
   Note: You cannot delete the last line of a filter. A filter requires that at least one line must be present. You can either update the last line in the profile or delete the entire filter.
3. Press PF3 to save the filter.

Repeating a filter line
Follow these steps to repeat a filter line.

Procedure
1. Type FILTER in the Option field of a panel that allows filtering and press Enter.
2. Type R next to the filter line you want to repeat and press Enter. The filter line is repeated below the original filter line.
3. Press PF3 to save the filter and exit the Active Filters panel.
Updating a filter line

Follow these steps to update a filter line to modify its settings.

Procedure
1. Type FILTER in the Option field of a panel that allows filtering and press Enter.
2. Type U next to the filter line you want to update and press Enter.

The Update Filter Line panel is displayed:

```
--------------------------- Update Filter Line --------------------------
Option ===> ______________________________________________________________________________________
Column Name   PLAN_____   (PLAN, PROGRAM, CURSOR, COLLID, CONNNNAME, CORRNAME, CORRID, AUTHID, JOBNAME, SSID, WSUSER, WSNAME, WSTRAN, DBNAME, OBJNAME, CREATOR, BUFPOOL, OBJTYPE, SECTION, PAGESET, TABNAME)
Operator      EQ         (EQ, GE, GT, LE, LT, NE)
Column Value  fds_________________________________________________________
_________________________________________________________________
```

Figure 29. Update Filter Line panel

The input fields that display on the Update Filter Line panel include:

**Column name**
The name of the column the filter examines when looking for a match.

**Operator**
The operator used when matching column values and column names. Valid values are EQ (equal to), GE (greater than or equal to), GT (greater than), LE (less than or equal to), LT (less than), and NE (not equal to).

**Column value**
The value on which to base the match for the filter line.

3. Edit the column name, operator, and column value as necessary.
4. Press PF3 to save the filter and exit the Update Filter Line panel.

Viewing a filter line

Follow these steps to view a filter line.

Procedure
1. Type FILTER in the Option field of a panel that allows filtering and press Enter.
2. Type V next to the filter line you want to view and press Enter.

The View Filter Line panel is displayed:

```
CQM$FLTV ------------------- View Filter Line ---------------------------
Option ===> _____________________________ Scroll ===> PAGE
Column Name   PLAN
Operator      EQ
Column Value  PLANA
```

Figure 30. View Filter Line panel

The following display-only fields that are shown on the View Filter Line panel:

**Column name**
The name of the column the filter examines when looking for a match. Valid values include PLAN, PROGRAM, CURSOR, COLLID, CONNNNAME, CORRNAME, CORRID, AUTHID, JOBNAME, SSID, WSUSER, WSNAME, WSTRAN, DBNAME, OBJNAME, CREATOR, BUFPOOL, OBJTYPE, SECTION, PAGESET, and TABNAME.
**Operator**
The operator used when matching column values and column names. Valid values are **EQ** (equal to), **GE** (greater than or equal to), **GT** (greater than), **LE** (less than or equal to), **LT** (less than), and **NE** (not equal to).

**Column value**
The value on which to base the match for the filter line.

3. Press PF3 to exit the **View Filter Line** panel.

### Enabling and disabling filters

Follow these steps to enable and disable filters.

**About this task**
Enabling a filter causes Db2 Query Monitor to display data according to the criteria specified within the filter. Disabling a filter causes Db2 Query Monitor to stop using the filter’s criteria to control the display of data.

**Procedure**
1. Type **FILTER** in the **Option** field of a panel that allows filtering and press Enter.
2. Type **Y** in the **Enable Filtering** field:

```
CQM$FILT ------------ Active Filters -------------- Row 1 of 2
Option  ==> ___________________________________________
Type "CREATE" on command line to create filter line
Enable Filtering....... Y (Y/N)  Mixed Case Y (Y/N)
Exclude Filtered Data.... N (Y/N) Match Case N (Y/N)
Display Defined Filters.. N (Y/N)
Filter Dataset Name..... _______________________________
AND/OR between columns... AND  (AND/OR)
AND/OR within a column... OR_  (AND/OR)
CMD Column OP Value
- PLAN EQ PLANA
- PROGRAM EQ PROGRAM1
****************************************************************************** Bottom of Data ****************************
Press Enter/PF3 to update filter variables or CANCEL to exit
```

*Figure 31. Active Filters panel*

3. Press PF3 to save your changes and exit the **Active Filters** panel. The filter is enabled.

**Results**
To disable a filter:

1. Issue the **FILTER** command from the **View Current Activity** or **View Exceptions** panels. The **Active Filters** panel displays.
2. Type **N** in the **Enable Filtering** field:
3. Press PF3 to save your changes and exit the Active Filters panel. The filter is now disabled.

**Defined filters**

Db2 Query Monitor enables you to create filters and save them in a filter data set. The filters contained in a filter data set are referred to as defined filters.

Through the use of filter data sets and defined filters, Db2 Query Monitor provides you with the flexibility to manage your filters and share filters between Db2 Query Monitor users. You can share individual defined filters by copying their corresponding members from one filter data set to another.

To create and work with defined filters, you must first create a partitioned data set (PDS) with an LRECL 80. After you have created your filter data set, you can then define Db2 Query Monitor filters, which are saved by Db2 Query Monitor as members in your filter data set.

**Accessing filter management**

Follow these steps to access Db2 Query Monitor's filter management functionality.

**Procedure**

1. Issue the FILTER command from a panel or subpanel that supports filtering. The Active Filters panel displays.

2. Type Y in the Display Defined Filters field and specify a filter data set name in the Filter Dataset Name field. If you specify a fully-qualified data set name, the name must be enclosed in single-quotes, for example:

   'TWUSER.CQM.FILTERS'
Figure 33. Active Filters panel

3. Press Enter. The Filter Maintenance panel displays:

Figure 34. Filter Maintenance panel

The fields and columns that display on the Filter Maintenance panel include:

**Filter DSN**

The name of the filter data set for which the Filter Maintenance panel currently displays information.

**Name**

The name of the filter.

**Description**

The description of the filter.

The commands available on the Filter Maintenance panel include:

**Create (Primary command CREATE)**

Create a new filter.

**U - Update**

Update the description for a filter.

**V - View**

View the filter.

**D - Delete**

Delete the filter.

**C - Copy**

Copy the filter.

**R - Rename**

Rename the filter.
**N - New Filter**
Create a new filter.

**S - Select**
Select a filter for use with your Db2 Query Monitor ISPF session.

4. You can now work with defined filters as needed.

**Creating a defined filter**
Follow these steps to create a defined filter.

**Procedure**

1. Access the **Filter Maintenance** panel.
2. Type CREATE in the Option line and press Enter.
   The **Create Filter** panel is displayed:

   ![Create Filter panel](image)
   
   **Figure 35. Create Filter panel**

   These display and input fields are shown on the **Create Filter** panel:

   **Filter Name**
   The name of the filter being created.

   **Description**
   The description of the filter being created.

3. Specify a filter name and description and press Enter. The **Create Filter** panel displays:

   ![Create Filter panel](image)
   
   **Figure 36. Create Filter panel**

   The input fields that display on the **Create Filter** panel include:

   **AND/OR between columns**
   Indicates whether line items for a filter are joined by the AND or the OR operator. Valid values are AND (joins line items by the AND operator, thus CQM data must meet the criteria of all defined filter lines for it to be displayed) and OR (joins line items by the OR operator, thus CQM data must meet the criteria of at least one defined filter line for it to be displayed). This field defines the behavior of filter lines for different columns. For example, there might be two filter lines, one for Plan and another for Program, such as:

   ```plaintext
   PROGRAM EQ CQM@S*
   PLAN EQ DIST*
   ```
In such a case, if the AND/OR between columns field is set to AND for an active filter, then only CQM data with Programs that start with 'CQM@S' and Plans that start with 'DIST' will display. If the AND/OR between columns field is set to OR for an active filter, then CQM data with Programs that start with 'CQM@S' or Plans that start with 'DIST' will display.

**AND/OR within a column**

Indicates whether columns within a filter are joined by the AND or the OR operator. Valid values are AND (joins columns within a filter by the AND operator) and OR (joins columns within a filter by the OR operator). This field defines the behavior of filter lines that are defined for the same column. For example, there might be two filter lines for the Program column, such as:

```
PROGRAM EQ CQM@S*

PROGRAM EQ *7
```

In such a case, if the AND/OR within a column field is set to AND for an active filter, then only CQM data with Programs that start with 'CQM@S' and end with '7' will display. If the AND/OR within a column field is set to OR for an active filter, then CQM data with Programs that start with 'CQM@S' or end with '7' will display.

The line commands available on the Create Filters panel include:

**Create (Primary command CREATE)**
Create a new filter line.

**I - Insert**
Inserts a new filter line below the selected line.

**U - Update**
Update a filter line.

**V - View**
View a filter line.

**R - Repeat**
Repeat a filter line.

**D - Delete**
Delete a filter line.

**Copying a defined filter**

Follow these steps to copy a defined filter.

**Procedure**
1. Access the Filter Maintenance panel.
2. Type C in the CMD field next to the filter you want to copy and press Enter.

The Copy Filter window is displayed:

```
--------------------------- Copy Filter --------------------------
Option  ===> _________________________________________________
The following filter will be copied
Filter Name ............ FILTER01
Copy to Filter .......... ________________
Press Enter to copy filter or PF3/CANCEL to exit
```

*Figure 37. Copy Filter window*

These display and input fields are shown on the Copy Filter panel:

**Filter Name**
The name of the filter you intend to copy.
Copy to Filter
The name of the new filter to which the copied filter will be pasted.

3. Specify a name for the new filter to which the selected filter is to be copied.

Note: If you specify a name for the new filter that matches an existing filter, the Confirm Filter Replace panel displays:

```
------- Confirm Filter Replace -------
The filter FILTER01 already exists
Replace Filter (Y/N)  Y
```

Figure 38. Delete Filter window

4. Press Enter. The Copy Filter window closes and the Filter Maintenance panel displays an updated list of filters which includes the new filter copy.

Deleting a defined filter
Follow these steps to delete a defined filter.

Procedure
1. Access the Filter Maintenance panel.
2. Type D (Delete) in the CMD field next to the filter you want to delete and press Enter. The Delete Filter window displays:

```
-------------------------- Delete Filter -------------------------
Option ==> _________________________________________________
The following filter will be deleted
Filter Name ........... FILTER02
Press Enter to delete filter or PF3/CANCEL to exit
```

Figure 39. Delete Filter window

These display and input fields are shown on the Delete Filter panel:

**Filter Name**
The name of the filter you intend to delete.
3. Press Enter to confirm the deletion of the selected filter.

Updating a defined filter
Follow these steps to update a defined filter.

Procedure
1. Access the Filter Maintenance panel.
2. Type U (Update) in the CMD field next to the filter you want to update and press Enter.
   The Update Filter window displays:

```
-------------------------- Update Filter -------------------------
Option ==> _________________________________________________
Filter Name ............ FILTER01
Description ............ FILTER PLANS____________________
Press Enter to update filter or PF3/CANCEL to exit
```

Figure 40. Update Filter window
These display and input fields are shown on the **Update Filter** panel:

**Filter Name**
- Displays the name of the filter you intend to update.

**Note:** You cannot update the filter name on this panel. To change a filter name, you must rename the filter.

**Description**
- The current description of the filter.

3. Change the description of the filter, if necessary, and press Enter.

The **Update Filter** panel displays:

```
YYYY/MM/DD HH:MM:SS  ----------- Update Filter -----------  Row 1 of 1
Option ========= Scroll ===> PAGE

Type "CREATE" on command line to create filter line
AND/OR between columns AND (AND/OR)
AND/OR within a column OR_ (AND/OR)
C:I-Insert,U-Update,V-View,R-Repeat,D-Delete
------------------------------------------------------------------------     >
CMD  Column   OP Value
-   -------- -- --------------------------------------------------------------
   PLAN     EQ PLANA
***************************** Bottom of Data **********************************
```

Figure 41. Update Filter window

The input fields that display on the **Update Filter** panel include:

**AND/OR between columns**
- Indicates whether line items for a filter are joined by the **AND** or the **OR** operator. Valid values are **AND** (joins line items by the AND operator) and **OR** (joins line items by the OR operator).

**AND/OR within a column**
- Indicates whether columns within a filter are joined by the AND or the OR operator. Valid values are **AND** (joins columns within a filter by the AND operator) and **OR** (joins columns within a filter by the OR operator).

The line commands available on the **Create Filters** panel include:

**Create**
- When you enter CREATE in the option line and press Enter, the **Create Filter Line** panel displays where you can define the column name, operator, and column value for the filter line.

**I - Insert**
- Inserts a new filter line below the selected line. Displays the create filter line panel where you can define the column name, operator, and column value for the filter line.

**U - Update**
- Displays the **Update Filter Line** panel where you can modify the column name, operator, and column value for a filter line.

**V - View**
- Displays the **View Filter Line** panel where you can view the column name, operator, and column value for the selected filter line.

**R - Repeat**
- Repeats the selected line, placing a copy directly below the line on which you specified the **R** line command.

**D - Delete**
- Deletes the filter line.
Renaming a defined filter
Follow these steps to rename a defined filter.

Procedure
1. Access the Filter Maintenance panel.
2. Type R in the CMD field next to the filter you want to rename and press Enter.
   The Rename Filter window displays:

   ![Rename Filter window]

   These display and input fields are shown on the Rename Filter panel:

   - **Filter Name**: The name of the filter you intend to rename.
   - **New Filter Name**: The new name of the filter that is being renamed.

3. Specify the new name in the New Filter Name field and press Enter. The Rename Filter window
   closes and the Filter Maintenance panel displays an updated list of filters.

Enabling a defined filter
Follow these steps to enable a defined filter.

Procedure
1. Access the Filter Maintenance panel.
2. Type S in the CMD field next to the filter you want to select and press Enter. The filter is selected. The Active Filters panel displays and the filter lines for the selected filter are shown at the bottom of the panel.
3. To enable filtering using the selected filter, specify Y in the Enable Filtering field and press Enter.
4. Press PF3. Db2 Query Monitor returns to the panel from which you issued the FILTER command. A message indicates the number of records that are currently being filtered from view due to the enabling of the filter.

Viewing a defined filter
Follow these steps to view a defined filter.

Procedure
1. Access the Filter Maintenance panel.
2. Type 3 in the CMD field next to the filter you want to view and press Enter. The View Filter window displays:
Filtering record ranges

Follow these steps to filter record ranges.

About this task

In addition to filtering, ranges of records may be filtered from the selected intervals using the RANGE command. The RANGE command enables users to select a start and ending numerical record range.

Notes:

1. The RANGE command is only valid for View Current Activity (Option 3), View Exceptions (Option 5), View DB2 Command Activity (Option 4) and their subpanels
2. Ranges are not saved across Db2 Query Monitor sessions.

Procedure

1. Issue the RANGE command from the View Current Activity, View Exceptions, or View DB2 Command Activity panels. The Filter Record Ranges panel displays:

```
CQM$RANG ------------ Filter Record Ranges ------------
Option ==> _________________________________________
Record Starting Number... 1_________
Record Ending Number..... 99999999_____
Press Enter to set record ranges or PF3/CANCEL to exit
```

Figure 44. Filter Record Ranges panel

The input fields that display on the Filter Record Ranges panel include:

Record Starting Number

Indicates the number of the record before which records will not be displayed.

Record Ending Number

Indicates the number of the record after which records will not be displayed.

2. Specify the starting and ending number for the record range you want to view and press Enter. A message displays indicating the range you specified is now set.

Interval selection and navigation

Db2 Query Monitor’s interval selection and navigation functionality allows you to select and navigate between interval data sets to display activity of interest.

**Note:** If the current context is a data sharing group rather than a Query Monitor Subsystem, the list of intervals displayed will logically represent the data sharing group rather than a specific Query Monitor Subsystem. You will not see interval data sets from all Query Monitor Subsystems involved. But using the provided list of intervals, you will be able to determine the time range for the data that you want to view.

Interval navigation commands

Db2 Query Monitor’s interval navigation commands allow you to access information about query activity in past and present intervals.

Db2 Query Monitor’s interval navigation commands include:

**PREV**
Display information about the activity that occurred during the interval prior to the interval that is currently displayed.

**Note:** Db2 Query Monitor initially sets the PF4 key to the PREV command. You can modify the PF key settings Db2 Query Monitor uses by typing KEYS in the option line of any Db2 Query Monitor window, pressing Enter, and modifying the PF key settings as needed.

**NEXT**
Display information about the activity that occurred during the interval following the interval that is currently displayed.

**Note:** Db2 Query Monitor initially sets the PF6 key to the NEXT command. You can modify the PF key settings Db2 Query Monitor uses by typing KEYS in the option line of any Db2 Query Monitor window, pressing Enter, and modifying the PF key settings as needed.

**CUR**
Display information about the activity that occurred during the current interval.

Interval navigation commands are valid when using these Db2 Query Monitor Main Menu main menu options:

- View Activity Summaries (Option 1)
- View Exceptions (Option 5)
- View SQLCODES (Option 2)
- View DB2 Command Activity (Option 4)

To navigate among intervals using Db2 Query Monitor’s interval navigation commands, type the appropriate command (PREV, NEXT, or CUR) in the command line on the View Activity Summaries, View Exceptions, View SQLCODES, or View DB2 Commands panels or their sub-panels and press Enter. The appropriate interval displays.

**Note:** If the navigational command requested is not valid, for example, if you attempt to view the next interval when viewing the current (last interval), message CQM014E displays indicating that the navigational attempt is invalid.

Selecting one or more intervals for viewing

Follow these steps to select one or more intervals for viewing.

**Procedure**

1. Type INTV in the command line on the View Activity Summaries, View Exceptions, View SQLCODES, or View DB2 Commands panels or their sub-panels and press Enter.
### Interval Selection Panel

These commands are available on the **Interval Selection** panel:

**View Empty Intervals**
Indicates whether or not to show empty interval. Valid values are **Y** (empty intervals will be displayed) and **N** (intervals that contain zero SQL calls, zero CPU time, zero DB2 commands, and zero exceptions will not be displayed).

**S - Select Interval**
Select the interval for display.

**D - Datasets**
Show information about the selected interval data set(s) including data set name and volume.

**K - Keep Interval**
Keep the interval. Prevents the interval from rolling off.

**R - Release Interval**
Release the interval. This command enables you to make exceptions to the RETAIN parameter by releasing specific intervals.

These columns display information on the **Interval Selection** panel:

**Avail**
Indicates whether or not the interval is available for viewing.

**Start**
The date and time that an individual SQL statement started executing its first SQL call.

**End**
The date and time that an individual SQL statement finished executing its last SQL call.

---

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<th>CMD</th>
<th>AVAIL</th>
<th>START</th>
<th>END</th>
<th>INTERVAL NUMBER</th>
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<td>01/01/2015 - 13:46:18</td>
<td></td>
<td>86</td>
</tr>
<tr>
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<td>01/01/2015 - 13:41:49</td>
<td>01/01/2015 - 13:44:04</td>
<td>85</td>
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<td>01/01/2015 - 13:00:00</td>
<td>84</td>
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<td>83</td>
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<td>82</td>
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<td>01/01/2015 - 11:00:00</td>
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<td>01/01/2015 - 18:08:05</td>
<td>17</td>
</tr>
</tbody>
</table>

---

Figure 45. Interval Selection panel

These commands are available on the **Interval Selection** panel:

**View Empty Intervals**
Indicates whether or not to show empty interval. Valid values are **Y** (empty intervals will be displayed) and **N** (intervals that contain zero SQL calls, zero CPU time, zero DB2 commands, and zero exceptions will not be displayed).

**S - Select Interval**
Select the interval for display.

**D - Datasets**
Show information about the selected interval data set(s) including data set name and volume.

**K - Keep Interval**
Keep the interval. Prevents the interval from rolling off.

**R - Release Interval**
Release the interval. This command enables you to make exceptions to the RETAIN parameter by releasing specific intervals.

These columns display information on the **Interval Selection** panel:

**Avail**
Indicates whether or not the interval is available for viewing.

**Start**
The date and time that an individual SQL statement started executing its first SQL call.

**Offload table name**
CQM_INTERVALS

**Column name**
INTERVAL_START

**End**
The date and time that an individual SQL statement finished executing its last SQL call.

**Offload table name**
CQM_INTERVALS

**Column name**
INTERVAL_END

**Interval Number**
The interval number.
Offload table name
  CQM_INTERVALS

Column name
  INTERVAL_NUMBER

Total Elapsed Time
  The total accumulated elapsed time while executing within Db2.

Offload table name
  CQM_INTERVALS

Column name
  TOTAL_DB2_ELAPSED

Total CPU Time
  The total of all TCB and SRB CPU time spent while executing in Db2.

Offload table name
  CQM_INTERVALS

Column name
  TOTAL_DB2_CPU

Total Getpages
  The number of GETPAGE requests. This count includes conditional, unconditional, successful, and unsuccessful requests.

Total Delay Time
  The total time spent waiting due to specific delay events.

Offload table name
  CQM_INTERVALS

Column name
  TOTAL_DELAY_TIME

Total SQL Calls
  The total number of individual SQL calls executed by Db2.

Offload table name
  CQM_INTERVALS

Column name
  TOTAL_SQL_CALLS

Keep
  Indicates whether or not the interval is to be kept or released.

2. Type S in the CMD field next to the interval or intervals you want to select for display.

3. Press Enter to exit the Interval Selection panel and return to the panel from which you issued the INTV command. The display is updated to show activity for the interval(s) you selected.

Working with interval data sets
Db2 Query Monitor enables you to access information about interval data sets. Additionally, by customizing SCQMSAMP library member CQMCMDS and placing it in your installation's SYSPROC concatenation, you can define the commands available to users who access the Interval Data Sets panel. Once tailored, CQMCMDS can possibly contain an unlimited number of commands that your site defines.

Procedure
1. Type INTV in the command line on the View Activity Summaries, View Exceptions, View SQLCODES, or View DB2 Commands panels or their sub-panels and press Enter.

2. In the CMD field next to the interval or intervals for which you want to access data set information, type D and press Enter.
### Interval Datasets panel

These columns display on the **Interval Data Sets** panel:

**Dataset Name**
The names of the Db2 Query Monitor data sets that were created for the selected interval(s).

**Volume**
The volume on which the data set is located.

The commands on this panel can be customized by editing a copy of SCQMSAMP library member CQMCMDX. After customization, the CQMCMDX CLIST must be placed in the SYSPROC concatenation for your installation. The **Interval Data Sets** panel passes the command name and the data set name from the panel to the CQMCMDX CLIST as parameters.

### Modifying PF key settings

Db2 Query Monitor initially sets PF keys PF4, PF5, and PF6 keys to the PREV, IFIND, and NEXT commands, respectively.

**PREV (PF4)**
Display information about the activity that occurred during the interval prior to the interval that is currently displayed.

**IFIND (PF5)**
Find the specified text string.

**NEXT (PF6)**
Display information about the activity that occurred during the interval following the interval that is currently displayed.

### Modifying PF key settings

You can modify the PF key settings used by Db2 Query Monitor. To do so, type KEYS in the option line of any Db2 Query Monitor window and press Enter. The **PF Key Definitions and Labels** panel displays. Modify the PF key settings as needed and press Enter to save your changes or enter END to save your changes and exit. Your new PF key settings will be retained across Db2 Query Monitor sessions.
Exporting SQL text to a data set

Db2 Query Monitor enables you to export SQL text of interest to a data set of your choice.

About this task

Note: The EXPORT command is valid only when viewing the entire SQL. It is not valid on the SQL Activities panel.

Procedure

1. Access the Display SQL Statement Text panel from main menu option 1 (View Activity Summaries), 3 (View Current Activity), or 5 (View Exceptions).

For example, to export SQL text using 1 (View Activity Summaries):
   a) Select 1 (View Activity Summaries) from the IBM Db2 Query Monitor main menu.
   b) Select 1 (Plan).
   c) Locate the activity of interest and specify the $ line command.
   d) Locate the SQL text of interest and specify the V line command.
   e) Type EXPORT in the Option line and press Enter.

The Export SQL Text to DSN panel displays.

```
CQM$EXPT------------------ Export SQL Text to DSN ---------------------
Option ===> _________________________________________________
Export to data set ... _______________________________________
Member. ________ (Required if data set is a PDS)
Execute SQL/PA against exported data set Y/N  Y
Press Enter to process request or PF3/CANCEL to exit
```

Figure 47. Export SQL Text to DSN panel

2. Specify the data set to which you want to export SQL text in the Export to Data Set field. If the data set is a PDS, then also specify the appropriate member in the Member field.

3. Type Y in the Execute SQL/PA against exported data set field if you would like to use IBM Db2 SQL Performance Analyzer for z/OS to analyze the data set containing the exported SQL text.

4. Press Enter to process your request.

Exporting the ISPF log to a data set

You can export the ISPF log to the data set of your choice.

Procedure

1. Type EXPORTLOG in the option line of any Db2 Query Monitor panel and press Enter.

The Export CQM ISPF Log to DSN panel is displayed:

```
CQM$EXPL -------------- Export CQM ISPF Log to DSN --------------
Option ==> ____________________________
Data set ... __________________________
Member. ________ (Required if data set is a PDS)
Press Enter to process request or PF3/CANCEL to exit
```

Figure 48. Export CQM ISPF to DSN panel

2. Specify the data set and member (if exporting to a PDS) to which you want the Db2 Query Monitor ISPF log exported.
Batch Db2 Control File loader

Db2 Query Monitor supports multiple Db2 Control Files for separate Query Monitor Subsystems. A batch program enables you to add, delete, and update entries in the Db2 Control File, DB2PARMS. The JCL to run the program is included in SCQMSAMP(CQM#CTLF).

Two basic operations are supported, ADD and DELETE. The ADD parameter accepts several sub-parameters:

ADD(db2subsystem) subparm(value)

Adds or updates entries to DB2PARMS, where db2subsystem is the Db2 subsystem ID for which information is to be added to the control file and subparm(value) is one of the sub-parameters (and its associated value):

REPLACE(Y|N)

(Optional, defaults to N) Replaces (updates) existing entries in DB2PARMS. The default value of the REPLACE sub-parameter is N (existing entries in DB2PARMS are not replaced).

ZPARMS_MEMBER(zparm_member)

(Required) Adds a ZPARMS member to DB2PARMS, where zparm_member is the ZPARM member name. There is no default for this sub-parameter.

BSDS_DSNAME(bsds_dsname)

(Required) Adds bootstrap data sets to DB2PARMS for a Db2 subsystem, where bsds_dsname is the bootstrap data set name. There must be two BSDS_DSNAME parameters. These parameters are sensitive to the order in which they are specified. There is no default for this sub-parameter.

DB2_LOADLIB(db2_loadlib)

(Required) Adds up to five Db2 load libraries to DB2PARMS for a Db2 subsystem, where db2_loadlib is the Db2 loadlib to be added. There may be 1-5 DB2_LOADLIB sub-parameters defined. There is no default for this sub-parameter.

PLAN(DB2QMplan_name)

(Required) Adds a Db2 Query Monitor plan to DB2PARMS for a Db2 subsystem. There is no default for this sub-parameter.

DELETE(db2subsystem)

Deletes all information related to the specified Db2 subsystem from DB2PARMS.

Maintaining Performance History Files

These methods are available for maintaining Performance History Files.

Procedure

1. Method 1. Reduce the number of retained intervals. (Recommended) The recommended procedure for maintaining Performance History Files is to allow Db2 Query Monitor to manage the data sets using the RETAIN start-up parameter. If you reduce the number of intervals retained (via altering the RETAIN start-up parameter) the excess Performance History Files are deleted via the IDCAMS DELETE command. This process can require long time periods if there are many Performance History Files to be deleted.

   Note: During this process, Db2 Query Monitor should not be canceled.

   If Method 1 does not meet your site’s specific needs, then consider the alternate procedures:
   • Method 2: Manually delete Performance History Files, or
   • Method 3: Delete all Performance History Files and reset interval count to the desired limit.

2. Method 2: Manually delete Performance History Files. You can delete Performance History Files using ISPF option 3.4.
**Note:** If a data set is deleted and you attempt to access the deleted interval, message CQM149E is issued indicating a dynamic allocation error.

3. **Method 3: Delete all Performance History Files and reset interval count to the desired limit.** If you want to delete all interval backstore data sets, you can do so using the following procedure. This procedure resets the interval count to 1 and therefore should only be undertaken with a full understanding of the resulting impact on your Db2 Query Monitor data (for instance, resetting the interval count might result in the re-use of a previously assigned interval number).

To delete all Performance History Files:

a) Stop the Query Monitor Subsystem.
b) Delete the INTERVAL data set.
c) Use ISPF option 3.4 to delete the unwanted Performance History Files.
d) Redefine the INTERVAL data set using SCQMSAMP library member CQMINTER.
e) Set the RETAIN start-up parameter to the desired value (minimum of 3).
f) Restart the Query Monitor Subsystem.

---

**Configuring commands in CQMCMD$$**

The commands processed by the **Interval Data Sets** panel are installation-specific and can be defined in the CQMCMD$$ CLIST which installs in your SYSPROC concatenation.

**About this task**

A sample SCQMSAMP member CQMCMD$$ is a sample CLIST member for your reference. A copy of this CLIST can be tailored to contain an unlimited number of commands that your site defines and placed it in your installation’s SYSPROC concatenation.

---

**Setting MEMLIMIT**

The EXPORTLOG command requires the specification of the MEMLIMIT parameter with a value of 1M or greater.

**About this task**

MEMLIMIT specifies the maximum amount of 64–bit storage that can be allocated to a single address space. Db2 Query Monitor uses 64–bit storage for two purposes. First, in an ISPF session, Db2 Query Monitor allocates a 1 megabyte log area. Second, when CAE Browser Client users specify the TopN function, 64–bit storage is allocated in the CAE Agent address space for the sorting operation associated with TopN.

For the log function in Db2 Query Monitor’s ISPF user interface, a MEMLIMIT of 1 megabyte or greater is required.

For the CAE Browser Client and the TopN function, the amount of storage required to complete this processing is related to the number of UNIQUE SQL STATEMENTS that occur in the interval range that has been selected by the user. 64-bit storage is allocated in 1 megabyte chunks. Db2 Query Monitor will not allocate more than 4 gigabytes of 64-bit storage for the TopN function in the CAE Agent address space.

Approximately 700 unique SQL statements can be represented in 1 megabyte of 64–bit storage for the TopN function.

To estimate the MEMLIMIT setting for “Top N”, the customer can take the maximum number of UNIQUE SQL STATEMENTS that will be included within the interval range selected for “Top N” processing and divide by 700 to get a MEMLIMIT value. If the MEMLIMIT value is set too low, an ABEND 3193 will be
generated in the CAE Agent address space. If ABEND 3193 occurs, the following message will be issued in the CAE Browser Client:

```java
com.rocketsoft.nm.qm.ipc.AbendException:
Abend U3193 during query for data source 16 (SQL METRICS STANDALONE);
access type 64 (:REDUCE BY KEYS THEN RETURN);
```

MEMLIMIT is specified in the SMFPRMxx parameter file in the System Parmlib. The default value is NOLIMIT, but if a value of less than 1M is specified, CQM260E will be issued and Query Monitor will not initialize under ISPF. 10000M is therefore the minimum recommended MEMLIMIT setting.

**Procedure**

You should specify a MEMLIMIT value of 1M or greater on the EXEC card of the TSO log in PROC or specify a value of 1M or greater in the SMFPRMxx member in PARMLIB. Db2 Query Monitor will allocate an area of 64–bit storage for a log in ISPF. 1 megabyte is sufficient for this purpose. However, if other products in ISPF require 64–bit storage, their requirements might be greater than 1M. The MEMLIMIT can be specified on the EXEC card of your TSO log in proc:

```
//TSOPROC EXEC PGM=IKJEFT01,REGION=0M,DYNAMNBR=175,
PARM='LOGINIT',TIME=1440,MEMLIMIT=10000M
```

If not specified there, then the value in the SMFPRMxx member in their PARMLIB concatenation is used.

```plaintext
MEMLIMIT(10000M)
```

If no MEMLIMIT parameter is specified, the default is the value defined to SMF, except when REGION=0K/0M is specified, in which case the default is NOLIMIT. If MEMLIMIT is not specified in SMFPRMxx, the default value for this is the system default, 2G. If you want to use virtual storage above the bar, you must set the MEMLIMIT explicitly.

For more information see:


### Configuring Db2 system parameters

This topic describes how to complete the configuration of Db2 Query Monitor using the **Setup** option available on the main menu.

**Procedure**

1. On the IBM Db2 Query Monitor main menu, specify the appropriate Query Monitor Subsystem in the **DB2 QM Subsystem ID** field or type a ? in this field and press Enter to select a Query Monitor Subsystem from a list of those available.
2. Type 7 in the Option line and press Enter. The **Enter DB2 System Parameters** panel is displayed.
--------- Enter DB2 System Parameters ---------
Command ==> 

DB2 Control Dataset ==> CQM.DB2.CONTROL
(Pre-allocated)

Enter DB2 Subsystem Info:
DB2 Subsystem ID ==> QM01 (1-4 Character Subsystem ID)

Valid command selection values are:
1: ZPARM, BSDS, and Load Library Information
2: DB2 Query Monitor Parameters

Figure 49. Enter DB2 System Parameters panel

These fields are displayed on the Enter DB2 System Parameters panel:

**DB2 Control Dataset**
(Display only) Indicates the Db2 Control File (DB2PARMS) that is currently being used for the Query Monitor Subsystem.

**Note:** Setup allocates the Db2 Control File in use by the Query Monitor Subsystem the last time that Query Monitor Subsystem was started. You can specify your own Db2 Control File DSN by first blanking-out the **DB2 QM Subsystem ID** field (on the main menu) and then typing an S in the option line and pressing Enter to display the Specify DB2PARMS Dataset panel where you can specify the appropriate DB2PARMS data set for your setup.

**DB2 Subsystem ID**
Indicates the ID of the Db2 subsystem where Db2 Query Monitor will execute.

These options are available on the Enter DB2 System Parameters panel:

**ZPARM, BSDS, and Load Library Information (Option 1)**
Display the Update Parameters for Db2 Subsystem panel where you can specify the DB2 ZPARMs member, the Db2 bootstrap DSNs, and Db2 loadlibs.

**DB2 Query Monitor Parameters (Option 2)**
Display the Update Parameters for Db2 Subsystem panel where you can specify the plan name.

3. Specify the one- to four-character ID for the Db2 subsystem.
4. Select **Option 1, ZPARM, BSDS, and Load Library Information** and press Enter. The Update Parameters for DB2 Subsystem panel is displayed.

--------- Update Parameters for DB2 Subsystem SSID
Command ==> 

Enter or Update Specific DB2 Parameters:

**DB2 ZPARMs Member** ==> SSIDPARM
**DB2 Bootstrap DSN #01** ==> SSID.BSDS01
**DB2 Bootstrap DSN #02** ==> SSID.BSDS02
**DB2 Loadlib1** ==> SSID.SDSNEXIT
**DB2 Loadlib2** ==> DSN.VXXX.SDSNLOAD
**DB2 Loadlib3** ==>
**DB2 Loadlib4** ==>
**DB2 Loadlib5** ==>

Figure 50. Update Parameters for DB2 Subsystem panel

5. Type the appropriate ZPARM load module member name in the **DB2 ZPARMs Member** field.
6. Type the full data set names of the two bootstrap data sets used for your Db2 subsystem in the **DB2 Bootstrap DSN #01** and **DB2 Bootstrap DSN #02** fields.
7. Type the names of the data sets that comprise the current loadlib concatenation for Db2 in the **DB2 Loadlib 1** through **DB2 Loadlib 5** fields and press Enter.
Note: You must specify the current loadlib concatenation for Db2 (in the DB2 Loadlib 1 through DB2 Loadlib 5 fields). Db2 Query Monitor does not search the linklist for these values if the DB2 Loadlib 1 through DB2 Loadlib 5 fields are left blank.

8. Press PF3 to return to the Enter DB2 System Parameters panel.

9. Select Option 2, DB2 Query Monitor Parameters, to configure Db2 Query Monitor plan information. The Update Parameters for DB2 Subsystem panel is displayed.

   **Figure 51. Update Parameters for DB2 Subsystem panel**

   DB2 Query Monitor - Update Parameters for DB2 Subsystem SSID
   Command ==> 
   Enter or Update Specific DB2 Parameters :
   Plan #1 Name ==> CQMPLAN1

10. Type the plan name for Db2 Query Monitor in the **Plan #1 Name** field and press Enter.

11. Press PF3 to exit.

   **Note:** In some situations, where applicable, Db2 Query Monitor uses ISPF environment variables to reestablish the state in which the user was previously running Db2 Query Monitor. For such situations, Db2 Query Monitor uses the Db2 subsystem defined in a previous invocation and retrieves setup values for that Query Monitor Subsystem from the Db2 Control File.

**Specifying a DB2PARMS data set**

   Setup allocates the Db2 Control File in use by the Query Monitor Subsystem the last time that Query Monitor Subsystem was started.

**Procedure**

1. On the **IBM DB2 Query Monitor main menu**, delete all content from the **DB2 QM Subsystem ID** field.
2. Type 7 in the option line an press Enter. The **Specify DB2PARMS Dataset** panel is displayed.

   **Figure 52. Specify DB2PARMS Dataset panel**

   --------------- Specify DB2PARMS Dataset ---------------
   Option ==> _________________________________________________
   DB2PARMS DSN ...
   Press Enter to enter Setup or PF3/CANCEL to exit
3. Type the appropriate DB2PARMS data set in the **DB2PARMS DSN** field and press Enter.

**Monitoring multiple Db2 subsystems**

   You can monitor multiple Db2 subsystems using Db2 Query Monitor.

**About this task**

   Repeat this step to configure Db2 subsystem information (using Setup option 1) and additional Db2 Query Monitor information (using Setup option 2) for each Db2 subsystem that records Db2 Query Monitor interval data.
Chapter 11. Viewing activity summaries

You can use Db2 Query Monitor Main Menu option 1. View Activity Summaries to access summary information about monitored SQL query activity.

Topics:

- “Activity summary perspectives” on page 197
- “Activity summaries - fields (ISPF)” on page 198
- “Activity summaries - line commands (ISPF)” on page 199
- “Activity summaries - columns (ISPF)” on page 201
- “Unstacking to prior level in summaries” on page 212
- “Viewing your drill down path” on page 212
- “Selecting a summary level” on page 213
- “Operational summaries” on page 214
- “Structural summaries” on page 237

Activity summary perspectives

SQL activity in a Db2 subsystem can be summarized from an operational perspective or a structural perspective.

You can use operational summaries to view information and reports about SQL activity from the perspective of the Db2 application program. You can use structural summaries you to view information and reports about SQL activity from the perspective of the Db2 objects on which SQL statements act.

```
YYYY/MM/DD HH:MM:SS  ------- Operational Summaries -------  Row 1 of 5
Option ===>                                                  Scroll ===> PAGE
DB2 QM Subsystem: QM01         Interval Start Date: MM/DD/YYYY  Time: HH:MM:SS
Filters Enabled : N            Interval End   Date: MM/DD/YYYY  Time: HH:MM:SS
NAVI:
CMD - Enter "/" to select action
------------------------------------------------------------------------     >
CMD  Plan         Exec Count          Calls            Elapsed  %Elap
--  -------- -------------- -------------- ------------------ ------
__  PLAN0001             58            100           0.033173   0.02
__  PLAN0002             54             54           0.017447   0.01
__  PLAN0003            565           6006        1:25.697069  73.87
__  PLAN0004            482            802          29.985888  25.84
__  PLAN0005             51            115           0.273379   0.23
***************************** Bottom of Data **********************************
```

```
Figure 53. Operational Summaries panel
Summary navigation actions are cumulative. When you select a row of data for display, the selection criteria is added to the filter that obtains the next set of data. As you navigate your activity, the NAVI line shows a breadcrumb trail to the currently displayed information.
To access a list of valid line commands for a line item, type a / in the CMD field and press Enter.
```
<table>
<thead>
<tr>
<th>Summaries</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. P-Plan</td>
<td>19. D-Delay</td>
</tr>
<tr>
<td>2. 2-DB2(Op)</td>
<td>20. L-Lock</td>
</tr>
<tr>
<td>3. R-Pgm</td>
<td>21. Q-Misc</td>
</tr>
<tr>
<td>4. U-Auth</td>
<td>22. B-BStat</td>
</tr>
<tr>
<td>5. 5-DB2(St)</td>
<td>23. E-Excp</td>
</tr>
<tr>
<td>6. 3-DBase</td>
<td>24. CA-CAct</td>
</tr>
<tr>
<td>7. F-Buff</td>
<td>25. Z-Accel</td>
</tr>
<tr>
<td>8. G-PSet</td>
<td>26. CL-Collection</td>
</tr>
<tr>
<td>9. O-Objs</td>
<td>27. JN-JobName</td>
</tr>
<tr>
<td>10. I-Corr</td>
<td>28. PR-Parallel</td>
</tr>
<tr>
<td>11. T-Sect</td>
<td>29. K-ConnName</td>
</tr>
<tr>
<td>12. C-Call</td>
<td>30. Y-ConnType</td>
</tr>
<tr>
<td>13. W-WSUs</td>
<td>31. SC-Schema</td>
</tr>
<tr>
<td>14. M-WSNm</td>
<td>32. CN-CorrNum</td>
</tr>
<tr>
<td>15. N-WSTr</td>
<td>33. SP-StoredProc</td>
</tr>
<tr>
<td>16. S-SQL</td>
<td>34. CT-ConToken</td>
</tr>
<tr>
<td>17. V-View</td>
<td>35. CR-CorrName</td>
</tr>
<tr>
<td>18. A-Analyze</td>
<td>36. X-Usage</td>
</tr>
</tbody>
</table>

Select a choice and press ENTER to continue

**Figure 54. Line command popup**

**Navigating between operational and structural summaries**

There are no boundaries between operational and structural summaries. For example, you can navigate from plans to buffer pools or to databases.

**Activity summaries - fields (ISPF)**

The fields at the top of the activity summary panels show information about the selected interval and the navigational sequence you took to view the data.

**DB2 QM Subsystem / DB2 DS Group**

The active Query Monitor Subsystem ID or data sharing group.

**Interval Start Date / Time**

The date (MM/DD/YYYY) and time (HH:MM:SS) that the displayed interval started.

**Interval End Date / Time**

The date (MM/DD/YYYY) and time (HH:MM:SS) that the displayed interval ended. A value of CURRENT denotes the display interval has not yet ended.

**Filters Enabled**

Indicates whether or not filters are enabled for the display.

**NAVI**

The navigational path used to access the panel. The path might include the following:

- **Accel**
  
  The name of the accelerator where the SQL activity ran.

- **Authid**
  
  The DB2 authorization ID.

- **Bufpool**
  
  The bufferpool name.

- **Call**
  
  The SQL call.

- **Collection**
  
  The collection ID.

- **ConnName**
  
  The connection name.

- **ConnType**
  
  The connection type.
**ConToken**
The connection token.

**CorrID**
The correlation ID.

**CorrName**
The correlation ID adjusted by conventions used by IMS and CICS.

**CorrNum**
The correlation number.

**DB2**
The DB2 subsystem on which the displayed activity occurred.

**DBname**
The database name.

**Jobname**
The job name.

**Pageset**
The pageset name.

**Parallel**
Indicates whether or not the query was formulated using DB2 query parallelism.

**Plan**
The plan name.

**Pgm**
The name of the program.

**Schema**
The current schema.

**Section**
The section.

**SP_Creat**
The creator of the stored procedure.

**SP_Name**
The name of the stored procedure.

**Stmt_Type**
The SQL call type (such as PREPARE, OPEN, etc.).

**TBCreator**
The table creator.

**TName**
The table name.

**WSName**
The name of the workstation.

**WSTran**
The workstation transaction.

**WSUser**
The workstation user ID.

---

**Activity summaries - line commands (ISPF)**

The line commands that are available on the activity summary panels allow you to refine your view of query information. The line commands that are available vary based on your drill down path.

1. **P - Plan**
   Display the plans for the SQL activity.
2. **2 - DB2(Op)**
   Display the Db2 subsystems for the SQL activity (operational summaries).

3. **R - Pgm**
   Display the programs for the SQL activity.

4. **U - Auth**
   Display the Db2 authorization IDs for the SQL activity.

5. **5 - DB2(St)**
   Display the Db2 subsystems for the SQL activity (structural summaries).

6. **J - DBase**
   Display the databases for the SQL activity.

7. **F - Buff**
   Display the buffer pools for the SQL activity.

8. **G - PSet**
   Display the pagesets for the SQL activity.

9. **O - Objs**
   Display the objects for the SQL activity.

10. **I - Corr**
    Display the correlation IDs for the SQL activity.

11. **T - Sect**
    Display the sections for the SQL activity.

12. **C - Call**
    Display the SQL calls for the SQL activity.

13. **W - WSUs**
    Display the workstation user ID for the SQL activity.

14. **M - WSNm**
    Display the workstation name for the SQL activity.

15. **N - WSTr**
    Display the workstation transaction for the SQL activity.

16. **S - SQL**
    Display the individual SQL statements for the SQL activity.

17. **V - View**
    View the SQLCODE messages for the SQL activity.

18. **A - Analyze**
    Analyze the SQL statement.

19. **D - Delay**
    Display a list of delay events, delay counts, and delay times for the SQL activity.

20. **L - Lock**
    Display a list of lock events and lock counts for the SQL activity.

21. **Q - Misc**
    Display additional statistics for the SQL activity.

22. **B - BStat**
    Display buffer pool usage statistics for the SQL activity.

23. **E - Excp**
    Display exception information for the SQL activity.

24. **CA - CAct**
    Display current SQL activity information.

25. **Z - Accel**
    Display the name of the accelerator where the SQL activity ran. For more information, see “Displaying IBM Db2 Analytics Accelerator for z/OS information” on page 235.
26. CL - Collection
Display the collection ID for the SQL activity.

27. JN - Jobname
Display the job name for the SQL activity.

28. PR - Parallel
Display whether or not the SQL activity was formulated using Db2 query parallelism.

29. K - ConnName
Display the connection name for the SQL activity.

30. Y - ConnType
Display the connection type for the SQL activity.

31. SC - Schema
Display the current schema for the SQL activity.

32. CN - CorrNum
Display the correlation number for the SQL activity.

33. SP - StoredProc
Display the name of the stored procedures for the SQL activity.

34. CT - ConToken
Display the connection token for the SQL activity.

35. CR - CorrName
Display the correlation ID adjusted by conventions used by IMS and CICS for the SQL activity.

36. X - Usage
Display the usage for the SQL activity.

Activity summaries - columns (ISPF)

The columns that display on the various activity summary panels depend on your view (operational or structural summaries) and on the line commands that you have selected.

Accel Elig CPU
The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
CQM_SUMM_METRICS

Column name
ACCEL_ELIGIBLE_CPU

Accel Elig Elapsed
The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
CQM_SUMM_METRICS

Column name
ACCEL_ELIGIBLE_ELAPSED

Accel Elig ZIIP
The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
CQM_SUMM_METRICS

Column name
ACCEL_ELIGIBLE_ZIIP
**Accelerator**
The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the accelerator.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
ACCELERATOR

**Authid**
The primary authorization ID.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
AUTHID

**Avg CPU**
The average CPU time each SQL call spent in Db2. \( \text{Avg CPU} = \frac{\text{Total CPU for this object}}{\text{Total SQL instructions for this object}} \)

**Offload table name**
not applicable

**Column name**
not applicable

**Avg Delay**
The average delay time per SQL call.

**Offload table name**
not applicable

**Column name**
not applicable

**Avg Elapsed**
The average amount of elapsed time each SQL call spent in Db2. \( \text{Avg Elap} = \frac{\text{Total Elap for this object}}{\text{Total SQL instructions for this object}} \)

**Offload table name**
not applicable

**Column name**
not applicable

**Avg GetPages**
The average number of getpages issued.

**Offload table name**
not applicable

**Column name**
not applicable

**AvgX CPU**
The average amount of CPU time for each execution count in Db2.

**Offload table name**
not applicable

**Column name**
not applicable

**AvgX Delay**
The average amount of delay time for each execution count in Db2.
**Offload table name**
not applicable

**Column name**
not applicable

**AvgX Elapsed**
The average amount of elapsed time for each execution count in Db2.

**Offload table name**
not applicable

**Column name**
not applicable

**AvgX GetPages**
The average of the getpages divided by the execution count.

**Offload table name**
not applicable

**Column name**
not applicable

**BPool**
The normalized bufferpool number (BP0, BP16K0).

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
BUFFERPOOL_NORM

**Calls**
The total number of individual SQL calls executed by Db2.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SQL_CALLS

**Collection**
The collection ID.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
COLLECTION

**Connname**
The connection name.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
CONNECTION_NAME

**Conntype**
The Db2 connection type. Valid connection types include:

1 - **TSO**
   TSO Foreground and Background

2 - **DB2CALL**
   Db2 Call Attach

3 - **IMSDLI**
   DL/I Batch
4 - CICS  
   CICS Attach
5 - IMSBMP  
   IMS Attach BMP
6 - IMSMMP  
   IMS Attach MPP
7 - DB2PRIV  
   Db2 Private Protocol
8 - DRDA  
   DRDA Protocol
9 - IMSCTL  
   IMS Control Region
A - IMSTRAN  
   IMS Transaction BMP
B - UTILITY  
   Db2 Utilities
C - RRSAF  
   RRSAF Attach

Offload table name  
   CQM_SUMM_METRICS

Column name  
   CONNECTION_TYPE

**CONTOKEN**  
The hexadecimal value of the consistency token.

Offload table name  
   CQM_SUMM_METRICS

Column name  
   CONSISTENCY_TOKEN

**Corrid**  
The correlation ID.

Offload table name  
   CQM_SUMM_METRICS

Column name  
   CORRID

**Corrname**  
The correlation ID adjusted by the conventions used by IMS and CICS.

Offload table name  
   CQM_SUMM_METRICS

Column name  
   CORRNAME

**Corrnum**  
The correlation number which is set based on the default OMEGAMON parsing of the CORRID value.

Offload table name  
   CQM_SUMM_METRICS

Column name  
   CORRNUM

**CPU**  
The total amount of CPU time SQL calls spent in Db2.
**Offload table name**
CQM_SUMM_METRICS

**Column name**
DB2_CPU

**%CPU**
The percent CPU time SQL calls spent in Db2 relative to the total CPU time that all SQL calls spent in Db2.

**Offload table name**
not applicable

**Column name**
not applicable

**<%CPU>**
The percent CPU usage for the SQL calls relative to the total elapsed time for the SQL calls.

**Offload table name**
not applicable

**Column name**
not applicable

**Creator**
The object creator.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
OBJECT_CREATOR

**Database**
The database name.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
DATABASE_NAME

**DB2**
The Db2 subsystem on which the activity occurred.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
DB2_SUBSYSTEM

**Delay**
The total time SQL calls spent in delays due to lock or latch delays, synchronous I/O delays, read/write delays.

**Offload table name**
not applicable

**Column name**
not applicable

**%Delay**
The percent delay time for SQL calls relative to the total elapsed time for those SQL calls.

**Offload table name**
not applicable

**Column name**
not applicable
The percent of delay time for the SQL calls relative to the total elapsed time for those SQL calls.

**Offload table name**
not applicable

**Column name**
not applicable

**DynPftch**
The number of DYNAMIC PREFETCH requested for the object.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
DYNAMIC_PREFETCH

**Elapsed**
The accumulated elapsed time while executing within Db2.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
DB2_ELAPSED

**%Elap**
The percentage of elapsed time SQL calls spent in Db2 relative to the total elapsed time all SQL calls spent in Db2.

**Offload table name**
not applicable

**Column name**
not applicable

**Exec Count**
The number of times a the SQL statement has executed. Db2 Query Monitor does not update the execution count for SQL that does not have a CLOSE call (for example, if the SQL ends with a negative SQLCODE or the SQL is canceled). In this case, the execution count of the SQL is shown as zero.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
EXECUTION_COUNT

**Failed**
The number of times a parallel query failed to find a page in the buffer pool.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
GETPAGES_FAILED

**GetPages**
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGEs of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
GETPAGES
HitRatio
The hit ratio.

Offload table name not applicable
Column name not applicable

Jobname
The name of the job.

Offload table name CQM_SUMM_METRICS
Column name JOBNAME

Latch Delay
The accumulated wait time due to page latch contention.

Offload table name CQM_SUMM_METRICS
Column name PAGE_LATCH_DLY

LockEvnt
The number of lock events detected for the object.

Offload table name CQM_SUMM_OBJECTS
Column name LOCK_EVENTS

Lock Delay
The total amount of lock delay time for the object spent in DB2.

Offload table name CQM_SUMM_OBJECTS
Column name LOCK_DELAYS

Log Write IO Delay
The total amount of log write IO delay time for the object spent in DB2.

Offload table name CQM_SUMM_OBJECTS
Column name LOG_WRITE_DELAYS

LstPftch
The number of LIST PREFETCH requests for the object.

Offload table name CQM_SUMM_METRICS
Column name LIST_PREFETCH

LtchEvnt
The number of latch events detected for the object.

Offload table name CQM_SUMM_OBJECTS
Column name LATCH_EVENTS
**Name**
The object name.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
OBJECT_NAME

**Package Version**
The package version associated with the SQL statement.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
PROGRAM_VERSION

**Page Latch Delay**
The total amount of page latch delay time for the object spent in DB2.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
PAGE_LATCH_DELAYS

**PageSet**
The pageset name.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
PAGESET_NAME

**Parallel**
Indicates whether or not the SQL activity was formulated using Db2 query parallelism.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
PARALLEL

**PgLtEvnt**
The number of page latch events detected for the object.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
PAGE_LATCH_EVENTS

**Plan**
The Db2 plan name.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
PLAN

**Program**
The Db2 package or DBRM name.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
PROGRAM
Schema
The current schema that executed the SQL.

Sect #
The section number.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SECTION

SeqPftch
The number of SEQ PREFETCH requested for the object.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SEQ_PREFETCH

SP Creat
The creator of the stored procedure.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SP_CREATOR

SP Name
The name of the stored procedure.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SP_NAME

SQL Text
The abbreviated view of the SQL text.

**Offload table name**
CQM_SUMM_TEXT

**Column name**
SQLTEXT

StdDev CPU
The rolling standard deviation of the CPU time for a line item.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
CPU_STD_DEV

StdDev Elapsed
The rolling standard deviation of the elapsed time for a line item.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ELAP_ROLL_STDV

StdDev Getpages
The rolling standard deviation of the getpages for a line item.
<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_EXCEPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>GETPGS_ROLL_STDV</td>
</tr>
<tr>
<td>Stmt#</td>
<td>The SQL statement number assigned by the Db2 pre-compiler to an individual SQL call.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>STMT_ID</td>
</tr>
<tr>
<td>SyncIOEvt</td>
<td>The number of synchronous IO events detected for the object.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_OBJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>SYNC_IO_EVENTS</td>
</tr>
<tr>
<td>SyncIODelay</td>
<td>The total amount of Sync IO delay time for the object spent in DB2.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_OBJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>SYNC_IO_DELAYS</td>
</tr>
<tr>
<td>SyncRead</td>
<td>The number of synchronous read I/O for the object.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>SYNC_READS</td>
</tr>
<tr>
<td>SyncWrite</td>
<td>The number of synchronous write I/O for the object.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_OBJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>SYNC_WRITES</td>
</tr>
<tr>
<td>Table Cr</td>
<td>The table creator. For indexes, it is the table creator for the table associated with the index.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_OBJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>TBCREATOR</td>
</tr>
<tr>
<td>Table Name</td>
<td>The name of the table. For indexes, it is the table name of the table associated with the index.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_OBJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>TBNAME</td>
</tr>
<tr>
<td>Type</td>
<td>The type of object. Valid values are TABLE and INDEX.</td>
</tr>
<tr>
<td>Offload table name</td>
<td>CQM_SUMM_METRICS</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Column name</td>
<td>TYPE</td>
</tr>
</tbody>
</table>

**<%UAT>**
The percent unaccounted time (the amount of time not accounted for by SQL calls). This value represents the time for which Db2 does not track or report statistics.

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

**USER**
The TSO user ID.

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

**Workstation Name**
The workstation name.

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>WORKSTATION_NAME</td>
</tr>
</tbody>
</table>

**Workstation Tran**
The workstation transaction.

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>WORKSTATION_TRAN</td>
</tr>
</tbody>
</table>

**Workstation User**
The workstation user.

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>WORKSTATION_USER</td>
</tr>
</tbody>
</table>

**WriteEvnt**
The number of log write IO events detected.

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>LOG_WRITE_EVT</td>
</tr>
</tbody>
</table>

**zIIP CPU**
The amount of CPU time accumulated while executing in Db2 on a zIIP processor.

<table>
<thead>
<tr>
<th>Offload table name</th>
<th>CQM_SUMM_METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column name</td>
<td>ZIIP_CPU_TIME</td>
</tr>
</tbody>
</table>

**<%ZIP>**
The percent CPU time accumulated while executing in Db2 on a zIIP processor.
Unstacking to prior level in summaries

When you view data in activity summaries, you can re-select a particular option. How Db2 Query Monitor behaves when you do this is controlled by the **Unstack To Prior Level In Summaries** setting on the **Query Monitor Dialog Options** panel (Db2 Query Monitor Main Menu option **0. Settings**).

Procedure

1. On the **Db2 Query Monitor main menu**, type 0 in the **Option field** and press Enter.
2. Select **Unstack To Prior Level In Summaries** (to go back to the point when the option was last entered, similar to PF3) or deselect **Unstack To Prior Level In Summaries** (to added the option to the current drill down path).

Example

If you select **Unstack To Prior Level In Summaries** and:

- Start Db2 Query Monitor and collected two SPUFI plans DSNESPRR and DSNESPES.
- On the **Operational Summaries** panel, select **P-Plan** and specify **R-Pgm** for the DSPESPRR plan.
- Enter **P-Plan** again.

Then the two plans (DSNESPRR and DSNESPES) are shown as if you used PF3 to navigate back to the plan-level display.

If you do not select **Unstack To Prior Level In Summaries** and perform the same steps, then only the DSNESPRR plan appears in the list when you re-select the plan.

Viewing your drill down path

You can view your drill down path from any activity summary panel using the **KEYMAP** command.

Procedure

1. On the **Db2 Query Monitor main menu**, type 1 in the **Option field** and press Enter.
2. Select the summary level that you want to view.
3. Navigate to the SQL activity of interest.
4. In the option line, type **KEYMAP** and press Enter.
   
   The **Display Summary Keys** panel is displayed:
Selecting a summary level

You can select either an operational or structural summary perspective when viewing your SQL activity.

Procedure

1. On the Db2 Query Monitor main menu, type 1 in the Option field and press Enter.

If you have specified the Display full command list on summary level option using Db2 Query Monitor main menu option 0. Settings, the Select Summary Level panel shows the full command list:

![Figure 55. Display Summary Keys panel](image)

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For information about the available line commands, see “Activity summaries - line commands (ISPF)” on page 199.

2. Type the option number you want to use in the Option field and press Enter.

Operational summaries

You can use operational summaries to view and drill down through summaries of SQL activity from the perspective of the Db2 application program that produced the SQL requests.

For example, on the Select Summary Level panel, select 1 (Plan) to view activity from the plan perspective:

```
YYYY/MM/DD HH:MM:SS       Operational Summaries       Row 1 of 5
Option ====>              Scroll ====> PAGE
DB2 QM Subsystem: QM01   Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N       Interval End   Date: MM/DD/YYYY Time: HH:MM:SS
NAVI:
CMD - Enter "/" to select action
------------------------------------------------------------------------     >
CMD  Plan         Exec Count          Calls            Elapsed  %Elap
--  -------- -------------- -------------- ------------------ ------
__  PLAN0001             58            100           0.033173   0.02
__  PLAN0002             54             54           0.017447   0.01
__  PLAN0003            565           6006        1:25.697069  73.87
__  PLAN0004            482            802          29.985888  25.84
__  PLAN0005             51            115           0.273379   0.23
***************************** Bottom of Data **********************************
```

Figure 58. Operational Summaries panel

You can drill down to refine your view of specific query activity of interest and can access reports that show details about selected activity. When you select a row of data for display, the criteria is added to the filter for obtaining the next set of data. The navigation area (NAVI) of the display is populated as you drill down to the appropriate level. As you back out (drill up), the navigational area is refreshed to remove the levels you have navigated out of.

Note:

• Any column display functions (for example, CSIZE and CFIX) used on any level of the drill down affect all top-level reports.
• The INTV command can only be used at the top-most level of the operational summaries display.
• The elapsed time in operational summaries is the elapsed time of the duration of entire SQL calls and the elapsed time in structural summaries is the elapsed time of GETPAGE operations.
• When a dynamic SQL statement runs on more than one Db2 subsystem and you attempt to view information about that SQL statement in operational summaries, Db2 Query Monitor prompts you to specify the Db2 subsystem ID of interest prior to invoking IBM Db2 SQL Performance Analyzer for z/OS.
• Blank fields indicate you are viewing activity for multiple Db2s/Plans/Pgms/AuthIDs etc. Fields are automatically populated when you drill down to display activity associated with a particular Db2s/Plans/Pgms/AuthIDs etc.

Viewing activity by SQL text

You can view activity for SQL text of interest.

Procedure

1. On the Db2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Select the summary level that you want to view.
3. Locate the SQL activity for which you want to view SQL activity information.
4. Type S in the CMD field next to the SQL activity of interest and press Enter.

The Activity by SQL Text panel is displayed:
Viewing object details

You can view information about the objects that were accessed by monitored query activity.

Procedure
1. On the Db2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Select the summary level that you want to view.
3. Locate the SQL activity for which you want to view object detail information.
4. Type O in the CMD field next to the SQL activity of interest and press Enter.

The Object Detail panel is displayed:

Viewing a summary of delay statistics

Follow these steps to view a summary of delay statistics.

Procedure
1. On the Db2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Select the summary level that you want to view.
3. Locate the SQL activity for which you want to view delay information.
4. Type D in the CMD field next to the SQL activity of interest and press Enter.
Delay statistics - fields (ISPF)
This topic describes the statistics that are displayed on the Delay Statistics panel.

Lock or Latch Delays
The accumulated lock and latch elapsed wait time for lock and latch suspensions.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
LOCK_LATCH_DLY

Synchronous I/O Delays
The accumulated elapsed wait time for I/O. Synchronous I/O delays are further broken-down into Database I/O Delays and Log Write I/O Delays.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SYNC_IO_DLY

Database I/O Delays
The accumulated I/O elapsed wait time for database I/O. This value is calculated as follows: (Sync I/O Delay) / (Sync I/O Events).

**Offload table name**
not applicable

**Column name**
not applicable
Log Write I/O Delays
The accumulated elapsed wait time for log write I/O. This value is calculated as follows: (Log Write I/O Delay) / (Log Write I/O Events)

Offload table name
not applicable

Column name
not applicable

Other Read Delays
The accumulated wait time for read I/O.

Offload table name
CQM_SUMM_METRICS

Column name
OTHER_READ_DLY

Other Write Delays
The accumulated wait time for write I/O.

Offload table name
CQM_SUMM_METRICS

Column name
OTHER_WRITE_DLY

Service Task Switch Delays
The accumulated wait time due to synchronous execution unit switch to Db2 services.

Offload table name
CQM_SUMM_METRICS

Column name
SERVTASK_SW_DLY

Update Commit Delays
The DB2 service waits for UPDATE COMMITS.

Offload table name
not applicable

Column name
not applicable

Open/Close Delays
The Db2 service waits for OPEN/CLOSE DATASET.

Offload table name
CQM_SUMM_METRICS

Column name
OPEN_CLOSE_DLY

SYSLGRNG Rec Delays
The Db2 service waits for SYSLGRNG UPDATE.

Offload table name
CQM_SUMM_METRICS

Column name
SYSLOG_REC_DLY

EXT/DEL/DEF Delays
The Db2 service waits for EXTEND DATASET, DELETE DATASET, and DEFINE DATASET.

Offload table name
CQM_SUMM_METRICS

Column name
EXTDEL_DEF_DLY
Other Service Delays
The Db2 service waits for HSM RECALL DATASET and DATASPACE MANAGER SERVICES.

Offload table name
CQM_SUMM_METRICS

Column name
OTHER_SERVE_DLY

Archive Log Quiesce Delays
The accumulated wait time for archive log quiesces.

Offload table name
CQM_SUMM_METRICS

Column name
ARCHLOG_QS_DLY

Archive Log Read Delays
The accumulated wait time for archive log reads.

Offload table name
CQM_SUMM_METRICS

Column name
ARCHLOG_RD_DLY

Drain Lock Delays
The accumulated wait time for drain locks.

Offload table name
CQM_SUMM_METRICS

Column name
DRAIN_LOCK_DLY

Claim Release Delays
The accumulated wait time for claim releases.

Offload table name
CQM_SUMM_METRICS

Column name
CLAIM_REL_DLY

Page Latch Delays
The accumulated wait time due to page latch contention.

Offload table name
CQM_SUMM_METRICS

Column name
PAGE_LATCH_DLY

Stored Procedure Delays
The accumulated wait time due to stored procedure contention.

Offload table name
CQM_SUMM_METRICS

Column name
SP_DLY

UDF Schedule Delays
The accumulated wait time for scheduling user defined functions.

Offload table name
CQM_SUMM_METRICS

Column name
UDF_SCHED_DLY
Notify Message Delays
- The accumulated wait time due to notify messages.

Offload table name
- CQM_SUMM_METRICS

Column name
- NOTIFY_MSGS_DLY

Global Contention Delays
- The accumulated elapsed wait time due to global contention for parent L-LOCKS.

Offload table name
- CQM_SUMM_METRICS

Column name
- GLOBAL_CONT_DLY

Lock Requests - PLOCKS
- The accumulated wait time due to parent object locks (database, table space, table, partition).

Offload table name
- CQM_SUMM_METRICS

Column name
- LOCK_REQ_PLOCKS

L-Locks Child (PAGE,ROW)
- The accumulated wait time due to child object locks (pages, rows).

Offload table name
- CQM_SUMM_METRICS

Column name
- LLOCKS_CHILD_DLY

L-Locks Other
- The accumulated wait time not due to child or parent object locks.

Offload table name
- CQM_SUMM_METRICS

Column name
- LLOCKS_OTHER_DLY

P-Locks Pageset/Partition
- The accumulated wait time due to physical locks for pagesets or partitions.

Offload table name
- CQM_SUMM_METRICS

Column name
- PLOCKS_PAGESET_DLY

P-Locks Page
- The accumulated wait time due to page contention.

Offload table name
- CQM_SUMM_METRICS

Column name
- PLOCKS_PAGE_DLY

P-Locks Other
- The accumulated wait time for other physical contention.

Offload table name
- CQM_SUMM_METRICS

Column name
- PLOCKS_OTHER_DLY
Commit Phase 1 Write IO Delays
The accumulated wait time for commit phase 1 I/O.

Offload table name
CQM_SUMM_METRICS

Column name
COMM_PH1WRT_DLY

Asynch CF Requests Delays
The accumulated wait time for IXLCACHE and IXLFCOMP asynchronous requests.

Offload table name
CQM_SUMM_METRICS

Column name
ASYNCH_CFREQ_DLY

Total Delays
The total accumulated wait time due to all delays.

Offload table name
not applicable

Column name
not applicable

Viewing a summary of buffer pool statistics
Follow these steps to view a summary of buffer pool statistics.

Procedure
1. On the Db2 Query Monitor main menu, enter 1 in the Option field and press Enter.
2. Locate the SQL activity for which you want to view buffer pool information.
3. Type B in the CMD field next to the SQL activity of interest and press Enter.

The Buffer Pool Statistics panel is displayed:

Figure 62. Buffer Pool Statistics panel

Buffer pool statistics - fields (ISPF)
This topic describes the statistics that are displayed on the Buffer Pool Statistics panel.

Buffer Pool Hit Ratio (%)
The hit ratio for buffer pools.
**Get Page Requests**
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGEs of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

**Buffer Pages Updated**
The number of buffer pages updated.

**Synchronous Pages Read**
The number of synchronous read I/O for the object.

**Synchronous Pages Written**
The number of synchronous write I/O for the object.

**Sequential Prefetch Requests**
The number of SEQ PREFETCH requested for the object.

**List Prefetch Requests**
The number of LIST PREFETCH requests for the object.

**Dynamic Prefetch Requests**
The number of DYNAMIC PREFETCH requested for the object.
Column name
DYNAMIC_PREFETCH

Successful Hiper Pool Reads
The number of successful hiperpool reads.

Offload table name
CQM_SUMM_METRICS

Column name
HPOOL_READS

Hiper Pool Read Failures
The number of hiperpool reads that failed.

Offload table name
CQM_SUMM_METRICS

Column name
HPOOL_READS_FAIL

Successful Hiper Pool Writes
The number of successful hiperpool writes.

Offload table name
CQM_SUMM_METRICS

Column name
HPOOL_WRITES

Unsuccessful Hiper Pool Writes
The number of hiperpool writes that failed.

Offload table name
CQM_SUMM_METRICS

Column name
HPOOL_WRITES_FAIL

Asynch Pages Read
The number of asynchronous pages read by prefetch.

Offload table name
CQM_SUMM_METRICS

Column name
ASYNCH_PAGES_READ

Async Pages Read by Hiper Pool
The number of pages found and moved from a hiperpool to a virtual buffer by prefetch.

Offload table name
CQM_SUMM_METRICS

Column name
ASYNCH_HPOOL_PAGES

Viewing a summary of lock related statistics
Follow these steps to view a summary of lock related statistics.

Procedure
1. On the DB2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Locate the SQL activity for which you want to view lock-related statistics.
3. Type L in the CMD field next to the SQL activity of interest and press Enter.
   The Lock Related Statistics panel is displayed:
<table>
<thead>
<tr>
<th>Lock Event</th>
<th>Event Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock Deadlocks</td>
<td>0</td>
</tr>
<tr>
<td>Lock Suspensions</td>
<td>0</td>
</tr>
<tr>
<td>Lock Timeouts</td>
<td>0</td>
</tr>
<tr>
<td>Latch Suspensions</td>
<td>0</td>
</tr>
<tr>
<td>Other Suspensions</td>
<td>0</td>
</tr>
<tr>
<td>Lock Requests</td>
<td>175</td>
</tr>
<tr>
<td>Unlock Requests</td>
<td>36</td>
</tr>
<tr>
<td>Query Requests</td>
<td>0</td>
</tr>
<tr>
<td>Change Requests</td>
<td>0</td>
</tr>
<tr>
<td>Other Requests</td>
<td>0</td>
</tr>
<tr>
<td>Claim Requests</td>
<td>46</td>
</tr>
<tr>
<td>Claim Failures</td>
<td>0</td>
</tr>
<tr>
<td>Drain Requests</td>
<td>0</td>
</tr>
<tr>
<td>Drain Failures</td>
<td>0</td>
</tr>
<tr>
<td>XES Lock Requests</td>
<td>40</td>
</tr>
<tr>
<td>XES Change Requests</td>
<td>0</td>
</tr>
<tr>
<td>XES Unlock Requests</td>
<td>0</td>
</tr>
<tr>
<td>IRLM Global Resource Contention</td>
<td>0</td>
</tr>
<tr>
<td>XES Global Resource Contention</td>
<td>0</td>
</tr>
<tr>
<td>False Resource Contention</td>
<td>0</td>
</tr>
<tr>
<td>Incompatible Retain Lock</td>
<td>0</td>
</tr>
<tr>
<td>Shared Lock Escalations</td>
<td>0</td>
</tr>
<tr>
<td>Exclusive Lock Escalations</td>
<td>0</td>
</tr>
<tr>
<td>Lock Requests - PLOCKS</td>
<td>2</td>
</tr>
<tr>
<td>Change Requests - PLOCKS</td>
<td>0</td>
</tr>
<tr>
<td>Unlock Requests - PLOCKS</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 63. Lock Related Statistics panel

Lock related statistics - fields (ISPF)
These statistics are displayed on the Lock Related Statistics panel.

**Lock Deadlocks**
The number of lock deadlocks.

Offload table name  
CQM_SUMM_METRICS

Column name  
LOCK_DEADLOCKS

**Lock Suspensions**
The number of suspensions due to locking conflicts.

Offload table name  
CQM_SUMM_METRICS

Column name  
LOCK_SUSPENSIONS

**Lock Timeouts**
The number of lock timeouts.

Offload table name  
CQM_SUMM_METRICS

Column name  
LOCK_TIMEOUTS

**Latch Suspensions**
The number of suspensions due to latch conflicts.

Offload table name  
CQM_SUMM_METRICS

Column name  
LATCH_SUSPENSIONS
Other Suspensions
The number of suspensions (aside from lock and latch suspensions).

Offload table name
CQM_SUMM_METRICS

Column name
OTHER_SUSPENSIONS

Lock Requests
The number of lock requests.

Offload table name
CQM_SUMM_METRICS

Column name
LOCK_REQUESTS

Unlock Requests
The number of unlock requests.

Offload table name
CQM_SUMM_METRICS

Column name
UNLOCK_REQUESTS

Query Requests
The number of query requests.

Offload table name
CQM_SUMM_METRICS

Column name
QUERY_REQUESTS

Change Requests
The number of change requests.

Offload table name
CQM_SUMM_METRICS

Column name
CHANGE_REQUESTS

Other Requests
The number of all other requests.

Offload table name
CQM_SUMM_METRICS

Column name
OTHER_REQUESTS

Claim Requests
The number of claim requests.

Offload table name
CQM_SUMM_METRICS

Column name
CLAIM_REQUESTS

Claim Failures
The number of unsuccessful claim requests.

Offload table name
CQM_SUMM_METRICS

Column name
CLAIM_FAILED
Drain Requests
The number of drain requests.

Offload table name
CQM_SUMM_METRICS

Column name
DRAIN_REQUESTS

Drain Failures
The number of unsuccessful drain requests.

Offload table name
CQM_SUMM_METRICS

Column name
DRAIN_FAILED

XES Lock Requests
The number of XES lock requests.

Offload table name
CQM_SUMM_METRICS

Column name
XES_LOCK_REQUESTS

XES Change Requests
The number of XES change requests.

Offload table name
CQM_SUMM_METRICS

Column name
XES_CHG_REQUESTS

XES Unlock Requests
The number of XES unlock requests.

Offload table name
CQM_SUMM_METRICS

Column name
XES_UNLK_REQUESTS

IRLM Global Resource Contention
The accumulated wait time due to global contention for parent L-locks.

Offload table name
CQM_SUMM_METRICS

Column name
IRLM_GLOBAL_CONT

XES Global Resource Contention
The accumulated wait time due to XES global contention for parent L-locks.

Offload table name
CQM_SUMM_METRICS

Column name
XES_GLOBAL_CONT

False Resource Contention
The accumulated wait time due to false resource consumption.

Offload table name
CQM_SUMM_METRICS

Column name
FALSE_RES_CONT
Incompatible Retain Lock
The accumulated wait time due to incompatible retain locks.

Offload table name
CQM_SUMM_METRICS

Column name
INCOMPAT_RET_LOCK

Shared Lock Escalations
The number of lock escalations to shared mode.

Offload table name
CQM_SUMM_METRICS

Column name
SHARED_LOCK_ESC

Exclusive Lock Escalations
The number of lock escalations to exclusive mode.

Offload table name
CQM_SUMM_METRICS

Column name
EXCL_LOCK_ESC

Lock Requests - PLOCKS
The accumulated wait time due to parent object locks (database, table space, table, partition).

Offload table name
CQM_SUMM_METRICS

Column name
LOCK_REQ_PLOCKS

Change Requests - PLOCKS
The number of change requests for parent locks.

Offload table name
CQM_SUMM_METRICS

Column name
CHANGE_REQ_PLOCKS

Unlock Requests - PLOCKS
The number of unlock requests for parent locks.

Offload table name
CQM_SUMM_METRICS

Column name
UNLOCK_REQ_PLOCKS

Viewing miscellaneous statistics
Follow these steps to view miscellaneous statistics.

Procedure
1. On the DB2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Select the appropriate summary level.
3. Locate the SQL activity for which you want to view lock information.
4. Type Q in the CMD field next to the SQL activity of interest and press Enter.
   The Miscellaneous Statistics panel is displayed:
### TriggerElapsed Time
The total elapsed time consumed by the SQL activity while executing under the control of triggers. A trigger might invoke a stored procedure or a user-defined function. The time spent there is not included in this counter.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
TRG_DB2_ELAPSED

### Trigger DB2 CPU Time
The accumulated CPU time consumed in Db2 by the SQL activity while executing under the control of triggers.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
TRG_DB2_CPU
**UDF Application Elapsed Time**
The total elapsed time spent by the SQL activity in user-defined functions. A user-defined function might invoke a stored procedure or initiate a trigger. The time spent there is not included in this counter.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
UDF_APP_ELAPSED

**UDF Application CPU Time**
The accumulated CPU time used to satisfy user-defined function requests processed in WLM address space.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
UDF_APP_CPU

**UDF DB2 Elapsed Time**
The elapsed time consumed in Db2 by the user-defined function.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
UDF_DB2_ELAPSED

**UDF DB2 CPU Time**
The CPU time consumed in Db2 by the user-defined function.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
UDF_DB2_CPU

**SP Application Elapsed Time**
The total elapsed time spent by the SQL activity in stored procedures. A stored procedure might initiate a trigger or invoke a user-defined function. The time spent there is not included in this counter.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SP_APP_ELAPSED

**SP Application CPU Time**
The total CPU time spent by the SQL activity in stored procedures.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SP_APP_CPU

**SP DB2 Elapsed Time**
The TCB time accumulated in Db2 for processing SQL statements issued by stored procedures.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SP_DB2_ELAPSED

**SP DB2 CPU Time**
The CPU time accumulated in Db2 for processing SQL statements issued by stored procedures.
**RIDLIST Used**
The number of times RID list (also called RID pool) processing is used.

**RIDLIST Failed**
The number of times Db2 detected that no storage was available to hold a list of RIDs during a given RID list process involving one index (single index access with list prefetch) or multiple indexes (multiple index access).

**RIDLIST Failed - Limit Exceeded**
The number of times Db2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

**Groups Executed**
The number of parallel groups executed.

**Sequential Cursor**
The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.

**Sequential No ESA Sort**
The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort storage.

**Sequential No Buffer**
The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.
**Offload table name**  
CQM_SUMM_METRICS

**Column name**  
RID_SEQ_NO_BUFF

**Ran Reduced**  
The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool.

**Offload table name**  
CQM_SUMM_METRICS

**Column name**  
RID_RAN_REDUCED

**Ran as Planned**  
The total number of parallel groups that executed in the planned parallel degree. This field is raised by an increment of one for each parallel group that executed in the planned degree of parallelism (as determined by Db2).

**Offload table name**  
CQM_SUMM_METRICS

**Column name**  
RID_RAN_PLANNED

**Procedure Abends**  
The number of times a stored procedure terminated abnormally.

**Offload table name**  
CQM_SUMM_METRICS

**Column name**  
RID_PROC_ABENDS

**Call Timeout**  
The number of times a SQL call timed out waiting to be scheduled.

**Offload table name**  
CQM_SUMM_METRICS

**Column name**  
RID_CALL_TIMEOUT

**Call Reject**  
The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.

**Offload table name**  
CQM_SUMM_METRICS

**Column name**  
RID_CALL_REJECT

**Sequential Enclave Services**  
The total number of parallel groups that executed in sequential mode due to the unavailability of MVS ESA enclave services.

**Offload table name**  
CQM_SUMM_METRICS

**Column name**  
RID_SEQ_ENC_SERVE

**One DB2 Coordinator No**  
The total number of parallel groups executed on a single Db2 subsystem due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a Db2 subsystem with COORDINATOR=YES, but is run on a Db2 subsystem with COORDINATOR=NO.
**One DB2 Isolation Level**
The total number of parallel groups executed on a single Db2 subsystem due to repeatable-read or read-stability isolation.

**Reoptimization**
The number of times the access path for static and dynamic SQL Queries were re-optimized at run time.

**Prep Statement Matched**
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

**Implicit Prepares**
The number of implicit prepares (prepares that occur when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES).

**Prep From Cache**
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.
Cache Limit Exceeded
The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

Offload table name
CQM_SUMM_METRICS

Column name
RID_CACHE_LIM_EXC

Prep Statement Purged
The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

Offload table name
CQM_SUMM_METRICS

Column name
RID_PREP_PURGED

ROWID Direct Access
The number of times that direct access was successful.

Offload table name
CQM_SUMM_METRICS

Column name
RID_ROWID_DIRECT

ROWID Index Used
The number of times that direct row access failed and an index was used to find a record.

Offload table name
CQM_SUMM_METRICS

Column name
RID_ROWID_INDEX

ROWID TS Scan Used
The number of times that an attempt to use direct row access reverted to using a table space scan because Db2 was unable to use a matching index scan.

Offload table name
CQM_SUMM_METRICS

Column name
RID_TS_SCANNED

Statement Trigger
The number of times a statement trigger was activated.

Offload table name
CQM_SUMM_METRICS

Column name
RID_STMT_TRIGGER

Row Trigger
The number of times a row trigger was activated.

Offload table name
CQM_SUMM_METRICS

Column name
RID_ROW_TRIGGER
Trigger SQL Error
The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

Offload table name
CQM_SUMM_METRICS

Column name
RID_ERROR_TRIGGER

Log Records Written
The total number of log records written.

Offload table name
CQM_SUMM_METRICS

Column name
LOG_RECORDS_WRITTEN

Log Bytes Written
The number of log bytes written.

Offload table name
CQM_SUMM_METRICS

Column name
LOG_BYTES_WRITTEN

Accessing exceptions from summary displays
You can access exceptions from some drill down options in operational summaries.

Procedure
1. On the DB2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Select the appropriate operational summary level.
3. Navigate to the drill down option of interest that supports the E line command.
4. Type E in the CMD field next to the SQL activity of interest and press Enter.
   
   The Summary Exceptions panel is displayed with implicit filtering. For example, if you drill down through Operational Summaries by Db2 (R71C), Plan (DSNESPCS) and Program, and then enter the E line command for the line item DSNESM68, the Summary Exceptions panel shows the exceptions for Db2 SSID R71C, Plan DSNESPCS, and Program DSNESM68:

   FIGURE 65. Summary Exceptions panel

   If a filter is enabled when you enter the E line command, the filter is applied in addition to the implicit filtering (the filters will be ANDed).
Accessing current activity from summary displays

You can access current activity from some drill down paths in operational summaries.

Procedure

1. On the Db2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Select the appropriate operational summary level.
3. Navigate to the drill down path of interest that supports the A line command.
4. Type A in the CMD field next to the SQL activity of interest and press Enter.

The Summary SQL Activity panel is displayed with implicit filtering. For example, if you drill down through operational summaries by Db2 (R71C), Plan (DSNESPCS) and Program, then type A in the CMD field next to the line item DSNESM68, the Summary SQL Activity panel shows the current activity for Db2 SSID R71C, Plan DSNESPCS, and Program DSNESM68.

Specifying a single Db2 subsystem for SQL text

You can specify a single Db2 subsystem for use, when multiple Db2 subsystems exist for the selected SQL text.

About this task

If you attempt to view activity summary information for a dynamic SQL statement that runs on more than one Db2 subsystem, you must specify the Db2 subsystem ID that you want to use with IBM Db2 SQL Performance Analyzer for z/OS.

Procedure

1. On the Db2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Select the summary level you want to use to locate the dynamic SQL statement that ran on multiple Db2 subsystems (these include 1-Plan, 3-DBRM/Package, or 4-AuthID). If you select 2-DB2, you are not required to specify a Db2 subsystem using the Multiple Db2 Subsystems for SQL Text panel because you specified the DB2 subsystem of interest prior to IBM Db2 SQL Performance Analyzer for z/OS analysis.
3. Type the S and A line commands to select and request analysis for the dynamic SQL text of interest.

The Multiple Db2 Subsystems for SQL Text panel is displayed:

These options are available:
Db2 Subsystem ID
The Db2 subsystem for which you want IBM Db2 SQL Performance Analyzer for z/OS to process.

4. Specify the Db2 subsystem ID of interest in the **Db2 Subsystem ID** field and press Enter. The **Export SQL Text to DSN** panel displays.

5. Specify the data set to which exported SQL text is to be stored and whether or not to execute IBM Db2 SQL Performance Analyzer for z/OS against the exported data set.

6. Press Enter.

**Displaying IBM Db2 Analytics Accelerator for z/OS information**

You can use Db2 Query Monitor to display information about IBM Db2 Analytics Accelerator for z/OS, a device that integrates with Db2 to receive SQL queries, build result sets, and improves performance.

**Before you begin**

The query is first processed by Db2 to determine if it is a candidate for offload to the accelerator. This processing is in the PREPARE call of the query. If the query is offloaded, the bulk of the processing is performed on the accelerator appliance and is not reflected in native Db2 statistics, thus OPEN and FETCH processing is minimized. The results of the offloaded query are returned to native Db2 on the z/OS platform.

The information that is reported for accelerated queries is the accelerator name of the accelerator where the query was run, as well as the usage of native Db2 resources involved in sending the query to the accelerator and relaying the results.

For the IBM Db2 Analytics Accelerator for z/OS to be able to accelerate qualified queries, the table being queried must be defined to the IBM Db2 Analytics Accelerator for z/OS. The IBM Db2 Analytics Accelerator for z/OS provides a static view of data contained within the table. You cannot insert, update, or delete data in the table.

Db2 Query Monitor indicates whether a query ran in IBM Db2 Analytics Accelerator for z/OS from within the **View Summaries > Operational Summaries** panels.

Db2 Query Monitor does not provide IBM Db2 Analytics Accelerator for z/OS information from within **View Summaries > Structural Summaries** panels.

On the **Operational Summaries** panel, type Z in the **CMD** field next to the line item of interest and press Enter:

```
| YYYY/MM/DD HH:MM:SS ------- Operational Summaries ------- Row 1 of 5 |
| Option ====> | Scroll ===> PAGE |
| DB2 QM Subsystem: QM01 | Interval Start Date: MM/DD/YYYY Time: HH:MM:SS |
| Filters Enabled : N | Interval End Date: CURRENT Time: CURRENT |
| NAVI: | |
| CMD - Enter "/" to select action |
| ├───────────────────────────────────────────┬────────────────────────────────────┬───────────────────┐ |
| │ Plan │ Exec Count │ Calls │ Elapsed │ %Elap │ |
| __ | XYZPLAN1 | 72 | 72 | 0.003594 | 0.41 |
| __ | XYZPLAN2 | 2 | 3 | 0.014638 | 1.69 |
| __ | XYZPLAN3 | 8 | 52424 | 0.427252 | 49.44 |
| z_ | XYZPLAN4 | 492 | 1480 | 0.418683 | 48.44 |
| ******************************************** Bottom of Data ********************************************
```

*Figure 68. Operational Summaries - Accel - panel*

The **Operational Summaries** panel displays accelerator information:
**Figure 69. Operational Summaries - Z line command - panel**

**NAVI**
Shows the selected plan.

**Accelerator**
The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the Accelerator column is blank for a line item, it means that no queries for that line item were offloaded to the IBM Db2 Analytics Accelerator for z/OS.

**Exec Count**
The execution count.

**Calls**
The number of calls.

**Elapsed**
The elapsed time.

**%Elap**
The percent elapsed time.

Type S in the CMD field next to the line item of interest and press Enter to view information about the SQL text:

**Figure 70. Operational Summaries - S (SQL) line command - panel**

You can view whether SQL statements were accelerated for all of the Operational Summaries displays. Drill down to refine your view of SQL activity and then issue the Z line command to view IBM Db2 Analytics Accelerator for z/OS information about the SQL statements. Enter the CORDER command in the Option line to define column display order (and can position the accelerator columns so that they are displayed at the left of the data display table). You can also use the SORT command to sort the Accelerator column in ascending or descending order to again refine your view of IBM Db2 Analytics Accelerator for z/OS information for your SQL activity.

When you drill down to exceptions and current activity, the displayed results include all activity, regardless of whether it was in the accelerator or not. When you drill down by objects (O-Objs) on accelerated queries, no objects will be displayed because the Db2 Query Monitor object probe in DB2 does not see the query at object collection time.
Structural summaries

You can use structural summaries to view summaries of SQL activity from the perspective of the Db2 objects on which SQL statements act.

For example, on the Select Summary Level panel, select 5 (Db2) to view information from the Db2 subsystem perspective:

```
Option ===>                                                  Scroll ===> PAGE
DB2 QM Subsystem: QM01         Interval Start Date: MM/DD/YYYY  Time: HH:MM:SS
Filters Enabled : N            Interval End   Date: MM/DD/YYYY  Time: HH:MM:SS
NAVI:                          
CMD - Enter "/" to select action

Figure 71. Structural Summaries panel

You can drill down to refine your view of specific query activity of interest and can access reports that show details about selected activity. When you select a row of data for display, the criteria is added to the filter for obtaining the next set of data. The navigation area (NAVI) of the display is populated as you drill down to the appropriate level. As you back out (drill up), the navigational area is refreshed to remove the levels you have navigated out of.

Note:

- Any column display functions (for example, CSIZE and CFIX) used on any level of the drill down affect all top-level reports.
- The INTV command can only be used at the top-most level of the operational summaries display.
- The elapsed time in operational summaries is the elapsed time of the duration of entire SQL calls and the elapsed time in structural summaries is the elapsed time of GETPAGE operations.
- When a dynamic SQL statement runs on more than one Db2 subsystem and you attempt to view information about that SQL statement in operational summaries, Db2 Query Monitor prompts you to specify the Db2 subsystem ID of interest prior to invoking IBM Db2 SQL Performance Analyzer for z/OS.
- Blank fields indicate you are viewing activity for multiple Db2s/Plans/Pgms/AuthIDs etc. Fields are automatically populated when you drill down to display activity associated with a particular Db2s/Plans/Pgms/AuthIDs etc.

Viewing object details

You can view details about the objects that are accessed by monitored queries.

Procedure

1. On the Db2 Query Monitor main menu, type 1 in the Option field and press Enter.
2. Select the summary level that you want to view.
3. Locate the SQL activity for which you want to view object detail information.
4. Type O in the CMD field next to the SQL activity of interest and press Enter.

The Object Detail panel is displayed:
**Viewing object usage**

You can view object usage information for the query activity that is monitored by Db2 Query Monitor.

**Procedure**

1. On the **Db2 Query Monitor main menu**, type 1 in the **Option** field and press Enter.
2. Select the summary level that you want to view.
3. Locate the SQL activity for which you want to view object detail information.
4. Type **S** in the **CMD** field next to the SQL activity of interest and press Enter.
5. Type **O** in the **CMD** field next to the activity of interest and press Enter.
6. Type **X** in the **CMD** field next to the activity of interest and press Enter.

The **Object Usage** panel is displayed:
Chapter 12. Viewing SQLCODEs

You can use Db2 Query Monitor Main Menu option 2. View SQLCODEs to view SQLCODEs for all of the Db2 subsystems being monitored by the Query Monitor Subsystem.

Topics:
• “About SQLCODEs” on page 239
• “Grouping SQLCODE information” on page 243
• “Viewing SQLCODE information with no grouping” on page 244
• “Viewing details, SQLCA, and text for an SQLCODE” on page 245

About SQLCODEs

The SQL Communication Area (SQLCA) is a data structure that provides information about the success or failure of requested SQL statements. When Db2 processes an SQL statement in a program, it lists return codes in the SQLCODE and SQLSTATE host variables or corresponding fields of the SQLCA.

These return codes that indicate whether or not SQL statements executed successfully or not. You can use these SQLCODE return codes to diagnose potential problems with your SQL:

SQLCODE = 0
  SQL execution was successful.

SQLCODE > 0
  SQL execution was successful with a warning.

SQLCODE < 0
  SQL execution was not successful. SQLCODEs yield information about SQL execution errors. Use Db2 Query Monitor Main Menu option 2. View SQLCODEs to view information about SQLCODEs.

SQLCODE = 100
  For SPUFI executions, an SQLCODE of +100 indicates a successful execution of the SQL in the SPUFI statement. For non-SPUFI executions, an SQLCODE of +100 indicates no data rows were found to satisfy the SQL statement.

You can use Db2 Query Monitor to view the expanded text description for an SQLCODE that is supplied by the IBM utility program DSNTIAR. The amount of data that is captured and displayed for an SQL statement is controlled by the MAX_SQLCODES and MAX_SQLCODE_DETAIL parameters in the CQMPARMS data set. These parameters describe how many SQLCODEs are to be collected and how many occurrences of each unique code are to be retained for viewing.

Notes:
1. The collection of SQLCODES is not controlled by the use of monitoring profiles unless the DISABLE parameter is specified. If the DISABLE parameter is specified for a monitoring profile, then SQLCODE information is not collected for the specified workload.

2. The data provided under the menu options 1. View Activity Summaries and 3. View Current Activity are not directly related to the data provided through main menu option 2. View SQLCODES. Data provided under menu options 1. View Activity Summaries and 3. View Current Activity are influenced by the monitoring profile that is being used. In contrast, the data provided under main menu option 2. View SQLCODES are not controlled by the use of monitoring profiles. Therefore, the number of SQLCODES might differ between option 2. View SQLCODES and options 1. View Activity Summaries and 3. View Current Activity.

3. Db2 Query Monitor does not collect the values of host variable data for FETCH statements.

4. Db2 Query Monitor captures information of SQLCODEs with a few exceptions such as -802 and -820. In some cases, a -905 SQLCODE might not be captured for Call statements executed in a Stored Procedure. Db2 Query Monitor only reports the SQLCODEs that are returned at the completion of the
SQL call. If a stored procedure receives an ABEND X'33E' or similar ABEND code, Db2 might not return the -905 SQLCODE at the end of the SQL call, at the time of SQLCODE collection.

**SQLCODEs - fields (ISPF)**

This topic describes the fields that are available for use on the various SQLCODEs panels.

- **DB2 QM Subsystem**
  The active Query Monitor Subsystem ID.

- **Interval Start Date/Time**
  The date (MM/DD/YYYY) and time (HH:MM:SS) that the interval started.

- **Interval End Date/Time**
  The date (MM/DD/YYYY) and time (HH:MM:SS) that the interval ended. This value is always CURRENT when viewing activity via option A (View Current Activity).

- **Group By**
  The method by which information is grouped and displayed on the **DB2 QM SQL Code Summary** panel. Valid **Group By** options are:

  - **P - Plan**
    Group by plan.
  
  - **D - DBRM/Package**
    Group by DBRM package.
  
  - **A - AuthID**
    Group by authorization ID.
  
  - **S - SQLCODE**
    Show each SQLCODE and the number of times it occurred during the displayed interval.
  
  - **I - CORRID**
    Group by CORRID.
  
  - **N - CORRNAME**
    Group by CORRNAME.

- **No Grouping (Group by *)**
  If you select **No Grouping**, the **DB2 QM SQL Code Detail Display** panel is displayed and shows SQLCODE information without any grouping.

**SQLCODEs - line commands (ISPF)**

These line commands are available for use on the various SQLCODEs panels.

- **C - SQLCA**
  Show the expanded text description for an SQLCODE that is supplied by the IBM utility program DSNTIAR.

- **S - SQLCODEs**
  Show SQLCODE data.

- **S - Select detail**
  Show detail view.

- **S - SQL text**
  Show the text for the SQL statement.

- **P - Plans**
  Show the plan level data.

- **D - DBRMs/Packages**
  Show the program level SQLCODE summary.

- **A - AuthIDs**
  Show the AUTHID level SQLCODE summary.

- **I - CorrID**
  Show the CORRID level SQLCODE summary.
N - CorrName
Show the CORRNAME level SQLCODE summary.

SQLCODEs - columns (ISPF)
These columns are available for use on the various SQLCODEs panels.

Authid
The primary authorization ID.

Offload table name
CQM_SQLCODE_DET

Column name
AUTHID

Collection ID
The collection ID.

Offload table name
CQM_SQLCODE_DET

Column name
COLLECTION

CorrID
The correlation ID.

Offload table name
CQM_SQLCODE_DET

Column name
CORRID

Connname
The connection name.

Offload table name
CQM_SQLCODE_DET

Column name
CONNECTION

DBRM/Package
The DB2 package or DBRM name.

Offload table name
CQM_SQLCODE_DET

Column name
PROGRAM

Jobname
The name of the job.

Offload table name
CQM_SQLCODE_DET

Column name
JOBNAME

Occurrences
The number of instances of the SQL code. An asterisk (*) next to the number of instances of the SQL code denotes that the number of detail records collected for the SQL code has exceeded the maximum SQL code detail value that you have set in CQMPARMS. An asterisk is shown for the current interval only.

Plan
The DB2 plan name.
### SECT#
The section number.

### Sqlcode
The SQL return code issued by DB2.

### SSID
The Db2 subsystem on which the activity occurred.

### STMT#
The statement number assigned by PRECOMPILER.

### Statement Type
The type of SQL call executed by a package or DBRM within DB2 (for example, PREPARE, OPEN, FETCH, etc).

### Timestamp
The timestamp of the SQLCODE.

### SQLCODE
The return codes in the SQLCODE and SQLSTATE host variables or corresponding fields of the SQLCA.
Grouping SQLCODE information

Follow these steps to group SQLCODE information to locate problematic SQL activity of interest.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type **2** in the **Option** field and press Enter.

   
   Figure 74. DB2 QM SQL Code Summary panel

2. Type the appropriate command in the **Group By** field to refine the display of information to suit your needs. For example, to group by Db2 authorization ID, type **A** in the **Group By** field and press Enter.

   The **SQL Code Summary** panel groups SQLCODE information by authorization ID:

   
   Figure 75. DB2 QM SQL Code Summary panel

3. When you have refined the grouping of SQLCODE information to locate activity of interest, you can issue line commands to drill down into a line item. For example, you can issue the **P** line command and press Enter to view plans associated with a line item.

   
   Figure 76. DB2 QM SQL Code Summary panel

4. To view the SQLCODEs associated with a line item, type **S** in the **CMD** field and press Enter.
You can now view SQLCODE details by issuing the S line command.

**Viewing SQLCODE information with no grouping**

Follow these steps to view SQLCODE information with no grouping.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 2 in the **Option** field and press Enter.
   
   The **DB2 QM SQL Code Summary** panel is displayed:

   **Figure 78. DB2 QM SQL Code Summary panel**

   2. Type a * in the **Group By** field and press Enter.

   The **DB2 QM SQL Code Detail Display** panel is displayed:

   **Figure 79. DB2 QM SQL Code Detail Display panel**
Viewing details, SQLCA, and text for an SQLCODE

Follow these steps to view detail data captured for a specific SQLCODE. You can access both the SQL Communication Area (SQLCA) and the SQL text for activity of interest.

Procedure

1. On the **DB2 Query Monitor main menu**, type 2 in the **Option** field and press Enter.
2. Locate the SQLCODES for which you want to view details. If you group SQLCODE information and drill down to located activity of interest, the S line command (select) enables you to access the **SQL Code Detail Display** panel. If you specify no grouping, the **SQL Code Detail Display** panel is displayed immediately:

   YYYY/MM/DD HH:MM:SS  --- DB2 QM SQL Code Detail Display ---  Row 1 of 5
   Option  ===>                                                  Scroll ===> CSR
   DB2 QM Subsystem: QM01  Interval Start Date: MM/DD/YYYY  Time: HH:MM:SS
   Interval End   Date: CURRENT     Time: CURRENT
   Detail data captured for SQLCODE: -204
   Primary Authid:  AUTHID01
   DBRM/Package:    PACKAGE1
   C: S-SQL Text, C - SQLCA

   ----------------------------------------     >
   CMD  SSID Plan     DBRM/Package  JOBNAME  Stmt # Collection ID Sect# Authid
   _    ---- -------- ------------- -------- ------ ------------- ----- -----
   _  DB01 DSNTEP2  DSN@EP2L      JOB0001   1,494 DSNTEP2          1  USERA
   _  DB02 DSNTEP2  DSN@EP2L      JOB0002   1,559 DSNTEP2          1  USERA
   _  DB01 DSNTEP2  DSN@EP2L      JOB0001   1,494 DSNTEP2          1  USERA
   _  DB02 DSNTEP2  DSN@EP2L      JOB0002   1,559 DSNTEP2          1  USERA
   _  DB01 DSNTEP2  DSN@EP2L      JOB0001   1,494 DSNTEP2          1  USERA

   ***************************** Bottom of Data **********************************

3. To view the SQL Communication Area (SQLCA) for a line item, type C in the **CMD** field next to the appropriate line item and press Enter.

   The **SQLCA Display** panel is displayed:

   YYYY/MM/DD HH:MM:SS  ----------- SQLCA Display ----------  Row 1 of 32
   Option  ===> ________________________________________________ Scroll ===> CSR
   DB2 SSID: DBD01   Plan: DSNTEP2   DBRM: DSN@EP2L   Coll: DSNTEP2
   Cursor:                     Section:    1
   Stmt:   1,494    Type: PREPARE
   ----------------------------------------    +
   DSNT408I SQLCODE = -204, ERROR: USERA.U_TAB IS AN UNDEFINED NAME
   DSNT415I SQLERRP  = DSNXOTL SQL PROCEDURE DETECTING ERROR
   DSNT416I SQLERRD  = -500  0  0 -1 0 0 SQL DIAGNOSTIC INFORMATION
   X'FFFFFFF00' X'00000000' X'00000000' SQL DIAGNOSTIC INFORMATION
   SQLCAID          SQLCA
   SQLCABC          136
   SQLCODE          -204
   SQLERRML         13
   SQLERRMC         USERA.U_TAB
   SQLERRR          DSNXOTL

   Figure 80. DB2 QM SQL Code Detail Display panel

4. Press PF3 to return to the **SQL Code Detail Display** panel. To display SQL text, type S in the **CMD** field for the appropriate line item and press Enter.

   The **Display SQL Statement Text** panel is displayed:

   YYYY/MM/DD HH:MM:SS  --- SQL Code Detail Display ---  Row 1 of 5
   Option  ===>                                                  Scroll ===> CSR
   DB2 QM Subsystem: QM01  Interval Start Date: MM/DD/YYYY  Time: HH:MM:SS
   Interval End   Date: CURRENT     Time: CURRENT
   Detail data captured for SQLCODE: -204
   Primary Authid:  AUTHID01
   DBRM/Package:    PACKAGE1
   C: S-SQL Text, C - SQLCA

   ----------------------------------------     >
   CMD  SSID Plan     DBRM/Package  JOBNAME  Stmt # Collection ID Sect# Authid
   _    ---- -------- ------------- -------- ------ ------------- ----- -----
   _  DB01 DSNTEP2  DSN@EP2L      JOB0001   1,494 DSNTEP2          1  USERA
   _  DB02 DSNTEP2  DSN@EP2L      JOB0002   1,559 DSNTEP2          1  USERA
   _  DB01 DSNTEP2  DSN@EP2L      JOB0001   1,494 DSNTEP2          1  USERA
   _  DB02 DSNTEP2  DSN@EP2L      JOB0002   1,559 DSNTEP2          1  USERA
   _  DB01 DSNTEP2  DSN@EP2L      JOB0001   1,494 DSNTEP2          1  USERA

   ***************************** Bottom of Data **********************************

   Figure 81. SQLCA Display panel
Figure 82. Display SQL Statement Text panel
Chapter 13. Viewing current activity

You can use Db2 Query Monitor Main Menu option 3. View Current Activity to access information about current monitored SQL activity.

Topics:
- “Monitoring SQL statements in current activity” on page 247
- “Viewing current activity” on page 248
- “Viewing buffer pool statistics for current activity” on page 255
- “Viewing call level statistics for current activity” on page 255
- “Viewing delay statistics for current activity” on page 256
- “Canceling a thread” on page 257
- “Viewing lock related statistics for current activity” on page 257
- “Viewing object statistics for current activity” on page 258
- “Viewing SQL text for current activity” on page 261
- “Viewing host variables for current activity” on page 261
- “Viewing parallel activity for current activity” on page 262
- “Viewing miscellaneous statistics for current activity” on page 262

Monitoring SQL statements in current activity

Review these recommendations for monitoring current SQL activity.

For an SQL statement to appear in current activity:

- Db2 Query Monitor must be active before the application calls the call attach facility to process the SQL call. Db2 Query Monitor must see the start of a particular SQL call in order for it to be tracked. For example, if Db2 Query Monitor is started in the middle of a long running static SELECT statement, Db2 Query Monitor did not record the starting metric values of the SQL statement and cannot report on its execution.

- The SQL statement must be identified by the current monitoring profile. If a statement is not identified by the current monitoring profile, or if it is excluded by the current monitoring profile, information about the activity will not appear in current activity.

- Either one or more SQL calls in the statement must have completed or one of the calls that comprise the SQL statement must have been executing within DB2 for a minimum of five seconds (wall clock time). For a static cursor comprised of an OPEN, FETCH, CLOSE sequence, the statement appears in current activity after the OPEN finishes execution or after the OPEN call has been in DB2 for over a period of five seconds.

  Note: For Db2 Query Monitor to be able to see SQL calls that have been executing within DB2 for a period of five seconds, the Query Monitor Subsystem must be receiving adequate CPU service in order for this tracking work to execute.

While an SQL statement executes, Db2 Query Monitor evaluates the statement for alerts and determines whether or not to queue the statement for processing by the CAE Agent. After the CLOSE has executed, Db2 Query Monitor considers the SQL statement to have completed and evaluates the statement for exceptions using current monitoring profile. When Db2 Query Monitor determines that the statement has completed, Db2 Query Monitor removes the statement from current activity.

Db2 Query Monitor records information about current activity and exceptions on a statement basis. For example, if a particular thread opens two cursors, each individual cursor (statement) will be traced as a separate line item in the current activity and exception displays even though they have been assigned the
same thread token. This allows Db2 Query Monitor to keep track of and report on the individual components used in diagnosing long-running or problematic statements (for example, host variables SQL text, SQLCA).

Other considerations:

- Db2 Query Monitor's current activity feature is not a thread display. If a thread is not currently involved in the execution of an SQL statement, no metrics for that thread appear in current activity.
- Db2 Query Monitor only gathers dynamic SQL text for PREPARE and EXECUTE IMMEDIATE SQL calls. If a dynamic SQL statement comprised of a PREPARE, OPEN, FETCH, CLOSE call sequence, Db2 Query Monitor will gather the SQL text only for the PREPARE call. If Db2 Query Monitor is inactive and only records activity for the OPEN, FETCH, and CLOSE calls, the SQL text will not be gathered and when the user attempts to view the SQL text, message CQM196I will be generated.
- Db2 Query Monitor has the capability of reporting SQL call execution prior to the termination of the call. Exceptions and alerts are noted in the current activity displays if the thresholds defined in the monitoring profile are exceeded, however the statement execution will not be externalized to the Performance History Files until the statement execution has ended and if the exception limit defined in the monitoring profile has not been exceeded.

### Viewing current activity

Follow these steps to view SQL statements as they execute.

**Procedure**

1. On the [Db2 Query Monitor main menu](https://ibm.com), type 3 in the **Option** field and press Enter. The **Current SQL Activity** panel is displayed:

```
YYYY/MM/DD HH:MM:SS ------- Current SQL Activity ------- No rows to display
Option ===>                                                  Scroll ===> PAGE
DB2 QM Subsystem: QM01  Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N  Interval End Date: CURRENT Time: CURRENT
CMD - Enter "/" to select action
------------------------------------------------------------------------     >
CMD SSID Plan     Program    DB2 CPU Time    DB2 Elapsed       GETPAGES
-  ---- -------- -------- -------------- -------------- --------------
_  SS01 PLAN0001 DSN@EP2L       5.912578      53.484071         47,321
_  SS02 PLAN0001 DSN@EP2L       2.874263      53.484182         22,982
_  SS03 PLAN0001 DSN@EP2L       0.008957      53.568156             60
****************************************************************************** Bottom of Data ******************************************************************************
```

*Figure 83. Current SQL Activity panel*

The interval navigation and selection commands (INTV, PREV, NEXT, CUR) are not valid for the **Current SQL Activity** panel because only activity pertaining to the current interval is presented on this display.

2. Type / in the **CMD** field and press Enter to view line commands.

```
Current Activity Actions
1.  O-Objects      7.  Q-Misc Stats
2.  C-Calls        8.  B-Buffer Pool Stats
4.  A-Analyze      10. P-Parallel Activity
5.  D-Delays       11. E-Cancel
6.  L-Locks
```

*Select a choice and press ENTER to continue*

*Figure 84. Current Activity line commands panel*
Current activity - fields (ISPF)
These fields display on the Current SQL Activity panel.

DB2 QM Subsystem / DB2 DS Group
The active Query Monitor Subsystem ID or data sharing group.

Interval Start Date/Time
The date (MM/DD/YYYY) and time (HH:MM:SS) that the displayed interval started.

Interval End Date/Time
The date (MM/DD/YYYY) and time (HH:MM:SS) that the displayed interval ended. A value of CURRENT denotes the display interval has not yet ended.

Filters Enabled
Indicates whether or not filters are active for the current display.

Current activity - line commands (ISPF)
These line commands are available for use on the various current activity panels.

Current SQL activity - line commands
These line commands are valid for the Current SQL activity panel:

1. O - Objects
   Show object information.

2. C - Calls
   Show statistics for SQL calls.

3. S - SQL
   Show individual SQL statements.

4. A - Analyze
   Export SQL text to a data set member that can then be analyzed by IBM Db2 SQL Performance Analyzer for z/OS. When creating the export data set to hold the exported SQL text, Db2 Query Monitor uses your TSO PREFIX as the high-level qualifier for the data set. You can use your USERID as the high-level qualifier by setting your TSO PREFIX to null by issuing the command TSO PREFIX NOPREFIX from ISPF.

5. D - Delays
   Show delay events, counts, and delay times.

6. L - Locks
   Show lock events and counts.

7. Q - Misc Stats
   Show additional statistics.

8. B - Buffer Pool Stats
   Show buffer pool usage statistics.

9. H - Host Variables
   Show host variable information.

10. P - Parallel Activity
    Show parallel activity information.

11. E - Cancel
    Cancels the thread executing an SQL statement.

Call level statistics - line commands
These line commands are valid for the Call Level Statistics panel:

1. S - Call Text
   Show the call text.
2. D - Delays
   Show delay events, counts, and delay times.

3. L - Locks
   Show lock events and counts.

4. C - SQLCA
   Show the SQL communication area for the selected line item. If an SQL statement has not yet completed, the SQLCA displays initial values because Db2 has not yet updated the SQLCA for that statement.

5. Q - Misc Stats
   Show additional statistics.

6. B - Buffer Pool Stats
   Show buffer pool usage statistics.

7. H - Host Variables
   Show host variable information.

Parallel task statistics - line commands
These line commands are valid for the Parallel Task Statistics panel:

1. O - Objects
   Show objects information.

2. C - Calls
   Show statistics for SQL calls.

3. D - Delays
   Show delay events, counts, and delay times.

4. L - Locks
   Show lock events and counts.

5. Q - Misc Statistics
   Show additional statistics.

6. B - Buffers Pool Stats
   Show buffer pool usage statistics.

7. E - Cancel
   Cancel the thread that is executing the SQL statement.

Current activity - columns (ISPF)
These columns are displayed on the Current SQL Activity panel.

Accel Elig CPU
   The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Accel Elig Elapsed
   The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Accel Elig ZIIP
   The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Accelerator
   The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the accelerator.
**Acctg Token**
The accounting token.

**Alerts**
If an alert event exceeds an alert threshold, this field displays a string of codes indicating the type of alerts encountered during the execution of an SQL statement within Db2. Data entered within a monitoring profile defines the alerts. The codes for alert classes include:

- **C**: Db2 CPU Time threshold exceeded
- **E**: Db2 Elapsed Time threshold exceeded
- **G**: GETPAGE threshold exceeded
- **Q**: SQLCODE exception raised
- **S**: SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display `CEGQ`.

**Note:** The same codes are used in both the EXCEPTIONS and ALERTS columns. However, due to differences in monitoring profile specification, the two columns might not contain the same information (for example, the elapsed time threshold for an ALERT might be set significantly higher than the threshold for an EXCEPTION).

**ASQLCode**
The SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

**Authid**
The primary authorization ID.

**Avg GetPages**
The average number of getpages issued.

**Call Type**
The type of call (PREPARE, OPEN, etc.).

**Cancel thread**
Indicates whether or not the thread is to be canceled. Valid values are:

- **Y**: Cancels the thread.
- **N**: Does not cancel the thread.

**Child**
Indicates whether the exception is related to another (parent) exception.

**Collection**
The collection ID.

**Coordinator**
The Db2 subsystem name acting as the parallelism coordinator for a parallel task associated with the inflight activity.

**Connname**
The connection name.

**Conntype**
The Db2 connection type. Valid connection types include:
1 - TSO
   TSO Foreground and Background

2 - DB2CALL
   Db2 Call Attach

3 - IMSDLI
   DL/I Batch

4 - CICS
   CICS Attach

5 - IMSBMP
   IMS Attach BMP

6 - IMSMMP
   IMS Attach MPP

7 - DB2PRIV
   Db2 Private Protocol

8 - DRDA
   DRDA Protocol

9 - IMSCTL
   IMS Control Region

A - IMSTRAN
   IMS Transaction BMP

B - UTILITY
   Db2 Utilities

C - RRSAF
   RRSAF Attach

**CONTOKEN**
   The hexadecimal value of the consistency token.

**Corrid**
   The correlation ID.

**Corrname**
   The correlation ID adjusted by the conventions used by IMS and CICS.

**Corrnnum**
   The correlation number which is set based on the default OMEGAMON parsing of the CORRID value.

**Cursor Name**
   The cursor name.

**Data**
   The data retrieved for the host variable.

**DB2 CPU Time**
   The accumulated total of all TCB and SRB CPU time spent while executing within Db2.

**DB2 Elapsed**
   The accumulated elapsed time while executing within Db2.

**Delay Time**
   The total time spent waiting due to specific delay events.

**Delay Count**
   The total number of delay events encountered.

**EndTime**
   The date and time that an individual SQL statement finished executing its last SQL call.

**ESQLCode**
   The SQL code that raised an exception condition. Exception criteria are defined within a monitoring profile.
Exceptions
If an exceptional event exceeds an exception threshold, this field displays a string of codes indicating the type of exceptions encountered during the execution of an SQL statement within Db2. Data entered within a monitoring profile defines the exceptions. The codes for event classes include:

C  Db2 CPU Time threshold exceeded
E  Db2 Elapsed Time threshold exceeded
G  GETPAGE threshold exceeded
Q  SQLCODE exception raised
S  SQL Calls threshold exceeded
L  Db2 Elapsed Time anomaly detected
P  Db2 CPU Time anomaly detected
T  GETPAGE anomaly detected

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display CEGQ.

Note: The same codes are used in both the EXCEPTIONS and ALERTS columns. However, due to differences in monitoring profile specification, the two columns might not contain the same information (for example, the elapsed time threshold for an ALERT might be set significantly higher than the threshold for an EXCEPTION).

GetPages
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGES of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

HV?
Indicates whether or not host variables have been collected.

Jobname
The name of the job.

Length
The length of the data retrieved for the host variable.

Log Records
The number of log records associated with the SQL statement.

Log Bytes
The number of log bytes associated with the SQL statement.

LUName
The logical unit name.

Netid
The network identifier.

NOBACKOUT
Causes Db2 not to attempt to backout the data during transaction rollback processing. If you cancel the thread with the NOBACKOUT option set to Y, this leaves objects in an inconsistent state. You
should not set this option to Y unless you plan to resolve the data inconsistency it creates. For more information, refer to the Db2 Command Reference.

Null
Indicates whether or not the host variable data is null. Valid values are Y (null) and N (not null).

Number
A line number used to identify a host variable in the list of host variables.

Orig Token
The thread token assigned to the thread that generated the parallel task(s) on the parallelism coordinator Db2 subsystem.

Package Version
The package version associated with the SQL statement.

Parallel
Indicates whether or not the SQL activity was formulated using Db2 query parallelism.

Plan
The Db2 plan name.

Program
The Db2 package or DBRM name.

Req Site
The requesting site name.

Section
The section number.

SP Creat
The creator of the stored procedure.

SP Name
The name of the stored procedure.

SQL Calls
The total number of individual SQL calls executed by Db2.

Sqlcode
The SQL return code issued by Db2.

SSID
The Db2 subsystem on which the activity occurred.

Start Time
The date and time that an individual SQL statement started executing its first SQL call.

Stmt#
The SQL statement number assigned by the Db2 pre-compiler to an individual SQL call.

Token
The thread token. A thread token uniquely identifies an individual connection to a Db2 subsystem.

Type
The type of object. Valid values are TABLE and INDEX.

With dump
Indicates whether or not to produce a dump when the thread is canceled. Valid values are:

   Y  Produces a dump when the thread is canceled.

   N  Does not produce a dump when the thread is canceled.

Workload
The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current activity, exceptions, and alerts. It is recommended that you name your workload to facilitate the
identification of the monitoring profile line and the workload with which captured activity is associated.

**WS Name**
The workstation name.

**WS Tran**
The workstation transaction.

**WS User**
The workstation user.

**zIIP CPU**
The amount of CPU time accumulated while executing in Db2 on a zIIP processor.

### Viewing buffer pool statistics for current activity

Follow these steps to view buffer pool statistics for current activity.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 3 in the *Option* field and press Enter.
2. Locate the SQL activity for which you want to view object detail information.
3. Type B in the *CMD* field next to the SQL activity of interest and press Enter.

The **Buffer Pool Statistics** panel is displayed:

```
YYYY/MM/DD HH:MM:SS  ------ Buffer Pool Statistics ------  Row 1 of 16
Option ====> ________________________________________________ Scroll ====> PAGE
DB2 SSID: DB01   Plan: PLAN01    DBRM: DBRM01    Coll: COLL01
Cursor: C1                  Section:       2
Accel:  
------------------------------------------------------------------------
Buffer Pool: ALL                                 Total          Average
Buffer Pool Hit Ratio (%)                   N/A            97.44
Hiper Pool Hit Ratio (%)                    N/A           100.00
Get Page Requests                        56,965            13.46
Buffer Pages Updated                     13,917             3.29
Synchronous Pages Read                      919             0.21
Synchronous Pages Written                    48             0.01
Sequential Prefetch Requests                263             0.06
List Prefetch Requests                      0             0.00
Dynamic Prefetch Requests                   145             0.03
Successful Hiper Pool Reads                   0             0.00
Hiper Pool Read Failures                      0             0.00
Successful Hiper Pool Writes                  0             0.00
Unsuccessful Hiper Pool Writes                 0             0.00
Async Pages Read                            540             0.12
Async Pages Read by Hiper Pool                0             0.00

**************************************** Bottom of Data ****************************************
```

*Figure 85. Buffer Pool Statistics panel*

### Viewing call level statistics for current activity

Follow these steps to view call level statistics for current activity.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 3 in the *Option* field and press Enter.
2. Locate the SQL activity for which you want to view call level statistics.
3. Type C in the *CMD* field next to the SQL activity of interest and press Enter.

The **Call Level Statistics** panel is displayed:
Viewing delay statistics for current activity

Follow these steps to view delay statistics for current activity.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 3 in the **Option** field and press Enter.
2. Locate the SQL activity for which you want to view delay statistics.
3. Type D in the **CMD** field next to the SQL activity of interest and press Enter.

The **Delay Statistics** panel is displayed:

```
<table>
<thead>
<tr>
<th>Event</th>
<th>Event Count</th>
<th>Delay Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock or Latch Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Synchronous I/O Delays</td>
<td>11,260</td>
<td>20.285012</td>
</tr>
<tr>
<td>Database I/O Delays</td>
<td>10,635</td>
<td>20.033022</td>
</tr>
<tr>
<td>Log Write I/O Delays</td>
<td>625</td>
<td>0.251989</td>
</tr>
<tr>
<td>Other Read Delays</td>
<td>11</td>
<td>0.047683</td>
</tr>
<tr>
<td>Other Write Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Service Task Switch Delays</td>
<td>5,231</td>
<td>23.957937</td>
</tr>
<tr>
<td>Update Commit Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Open/Close Delays</td>
<td>2,475</td>
<td>19.004652</td>
</tr>
<tr>
<td>SYSLOGREC Rec Delays</td>
<td>160</td>
<td>0.039277</td>
</tr>
<tr>
<td>EXT/DEL/DEF Delays</td>
<td>2,507</td>
<td>4.793309</td>
</tr>
<tr>
<td>Other Service Delays</td>
<td>89</td>
<td>0.120698</td>
</tr>
<tr>
<td>Archive Log Quiesce Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Archive Log Read Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Drain Lock Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Claim Release Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Page Latch Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Stored Procedure Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>UDF Schedule Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Notify Message Delays</td>
<td>1,385</td>
<td>31.080899</td>
</tr>
<tr>
<td>Global Contention Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>L-Locks Parent (DB,TS,TAB,PART)</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>L-Locks Child (PAGE,ROW)</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>L-Locks Other</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>P-Locks Pageset/Partition</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>P-Locks Page</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>P-Locks Other</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Commit Phase 1 Write I0 Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Async CF Requests Delays</td>
<td>0</td>
<td>0.000000</td>
</tr>
<tr>
<td>Total Delays</td>
<td>17,887</td>
<td>44.601523</td>
</tr>
</tbody>
</table>
```

**Figure 87. Delay Statistics panel**

---

256 IBM Db2 Query Monitor for z/OS
Canceling a thread

Follow these steps to cancel a thread.

Procedure

1. On the **DB2 Query Monitor main menu**, type 3 in the **Option** field and press Enter.
2. Locate the SQL thread you want to cancel.
3. Type E in the **CMD** field next to the SQL activity of interest and press Enter.

   The **Cancel DB2 Thread** panel is displayed:

   ![Figure 88. Cancel DB2 Thread panel]

   4. Verify that the jobname, plan, and token that are shown on the **Cancel DB2 Thread** window correspond to the thread you want to cancel.
5. Type **Y** in the **Cancel Thread** field.
6. Specify whether or not you want to produce a dump when the thread is canceled.
   - Type **Y** in the **With Dump** field if you want to produce a dump when the thread is canceled.
   - Type **N** in the **With Dump** field if you do want to produce a dump when the thread is canceled.
7. Specify whether or not you want to DB2 to attempt to backout the data during transaction rollback processing.
   - Type **N** in the **NOBACKOUT** field if you want DB2 not to attempt to backout the data during transaction rollback processing.
   - Type **Y** in the **NOBACKOUT** field if you want to leave objects in an inconsistent state. You should not set this option to **Y** unless you plan to resolve the data inconsistency it creates. For more information, refer to the **DB2 Command Reference**.
8. Press Enter.

Viewing lock related statistics for current activity

Follow these steps to view lock related statistics for current activity.

Procedure

1. On the **DB2 Query Monitor main menu**, type 3 in the **Option** field and press Enter.
2. Locate the SQL activity for which you want to view lock related statistics.
3. Type **L** in the **CMD** field next to the SQL activity of interest and press Enter.

   The **Lock Related Statistics** panel is displayed:
Viewing object statistics for current activity

Follow these steps to view object statistics for current activity.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 3 in the **Option** field and press Enter.
2. Locate the SQL activity for which you want to view object statistics.
3. Type O in the **CMD** field next to the SQL activity of interest and press Enter.

The **Object Statistics** panel is displayed:
1. B - Buffer Pool Statistics
Show buffer pool statistics for the selected line item.

Object statistics - fields (ISPF)
These statistics are displayed on the Object Statistics panel.

**Creator**
The object creator.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
OBJECT_CREATOR

**Name**
The object name.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
OBJECT_NAME

**Type**
The type of object. Valid values are TABLE and INDEX.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
TYPE

**Database**
The database name.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
DATABASE_NAME

**BPool**
The normalized bufferpool number (BP0, BP16K0).

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
BUFFERPOOL_NORM

**PageSet**
The pageset name.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
PAGESET_NAME

**GetPages**
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGEs of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

**Offload table name**
CQM_SUMM_METRICS
**Column name**
GETPAGES

**HitRatio**
The hit ratio.

**Offload table name**
not applicable

**Column name**
not applicable

**Elapsed Time**
The total amount of elapsed time that the object was accessed.

**SyncRead**
The number of synchronous read I/O for the object.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SYNC_READS

**SyncWrite**
The number of synchronous write I/O for the object.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SYNC_WRITES

**SeqPrefetch**
The number of SEQ PREFETCH requested for the object.

**Offload table name**
CQM_SUMM_METRICS

**Column name**
SEQ_PREFETCH

**List Prefetch**
The number of LIST PREFETCH requested for the object.

**Dyn Prefetch**
The number of DYNAMIC PREFETCH requested for the object.

**GETPAGE Fail**
The number of times a parallel query failed to find a page in the buffer pool.

**Table Cr**
The table creator. For indexes, it is the table creator for the table associated with the index.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
TBCREATOR

**Table Name**
The name of the table. For indexes, it is the table name of the table associated with the index.

**Offload table name**
CQM_SUMM_OBJECTS

**Column name**
TBNAME
Viewing SQL text for current activity

Follow these steps to view SQL text for current activity.

Procedure

1. On the DB2 Query Monitor main menu, type 3 in the Option field and press Enter.
2. Locate the SQL activity for which you want to view SQL text information.
3. Type S in the CMD field next to the SQL activity of interest and press Enter.

The Display SQL Statement Text panel is displayed:

```
DECLARE C1 SENSITIVE DYNAMIC SCROLL CURSOR FOR SELECT ROWID , COL2
FROM QMTSTB01 . BILLION_FETCH
```

**Figure 91. Display SQL Statement Text panel**

Viewing host variables for current activity

Follow these steps to view host variables for current activity.

About this task

Db2 Query Monitor does not collect host variables in native stored procedures nor does it collect information about the running of native stored procedures (such as elapse time, etc).

Procedure

1. On the DB2 Query Monitor main menu, type 3 in the Option field and press Enter.
2. Locate the SQL activity for which you want to view host variable information.
3. Type H in the CMD field next to the SQL activity of interest and press Enter.

The Input Host Variables panel is displayed:

```
Number Type Null Length Data
1 CHARACTER N 18 SYSTABLE

                        EEECCDCC6666666666
                        28231235CCCCCCCCCC
```

**Figure 92. Input Host Variables panel**
Viewing parallel activity for current activity

Follow these steps to view parallel activity for current activity.

Procedure

1. On the **DB2 Query Monitor main menu**, type 3 in the **Option** field and press Enter.
2. Locate the SQL activity for which you want to view parallel activity.
3. Type P in the **CMD** field next to the SQL activity of interest and press Enter.

The **Parallel Task Statistics** panel is displayed:

```
YYYY/MM/DD HH:MM:SS  ---- Parallel Task Statistics -------  Row 1 of 2
Option ===> ________________________________________________ Scroll ===> PAGE

DB2 SSID: DB01   Plan: PLAN001   DBRM: DBRM001  Coll: DSNTEP2
Cursor: C1                  Section:       1

------------------------------------------------------------------------     >

CMD  SSID Plan     Program    DB2 CPU Time    DB2 Elapsed       GETPAGES SQLCODE
-  ---- -------- -------- -------------- -------------- -------------- -------
_  QM01 PLAN001  DBRM001        2.741308      30.556241         19,346       0
_  QM01 PLAN001  DBRM001        3.636054      30.602641         25,475       0

***************************** Bottom of Data **********************************
```

*Figure 93. Parallel Task Statistics panel*

Viewing miscellaneous statistics for current activity

Follow these steps to view miscellaneous statistics for current activity.

Procedure

1. On the **DB2 Query Monitor main menu**, type 3 in the **Option** field and press Enter.
2. Locate the SQL activity for which you want to view miscellaneous statistics.
3. Type Q in the **CMD** field next to the SQL activity of interest and press Enter.

The **Miscellaneous Statistics** panel is displayed:

```
--- Miscellaneous Statistics ---

DB2 SSID: DB01   Plan: PLAN001   DBRM: DBRM001  Coll: DSNTEP2
Cursor: C1                  Section:       1

------------------------------------------------------------------------     >

CMD  SSID Plan     Program    DB2 CPU Time    DB2 Elapsed       GETPAGES SQLCODE
-  ---- -------- -------- -------------- -------------- -------------- -------
_  QM01 PLAN001  DBRM001        2.741308      30.556241         19,346       0
_  QM01 PLAN001  DBRM001        3.636054      30.602641         25,475       0

***************************** Bottom of Data **********************************
```
<table>
<thead>
<tr>
<th>Event</th>
<th>Time/Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigger Elapsed Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>Trigger DB2 CPU Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>UDF Application Elapsed Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>UDF Application CPU Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>UDF DB2 Elapsed Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>UDF DB2 CPU Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>SP Application Elapsed Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>SP Application CPU Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>SP DB2 Elapsed Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>SP DB2 CPU Time</td>
<td>0.000000</td>
</tr>
<tr>
<td>RIDLIST Used</td>
<td>21</td>
</tr>
<tr>
<td>RIDLIST Failed - No Storage</td>
<td>0</td>
</tr>
<tr>
<td>RIDLIST Failed - Limit Exceeded</td>
<td>0</td>
</tr>
<tr>
<td>Groups Executed</td>
<td>0</td>
</tr>
<tr>
<td>Sequential Cursor</td>
<td>0</td>
</tr>
<tr>
<td>Sequential No ESA Sort</td>
<td>0</td>
</tr>
<tr>
<td>Sequential No Buffer</td>
<td>0</td>
</tr>
<tr>
<td>Ran Reduced</td>
<td>0</td>
</tr>
<tr>
<td>Ran as planned</td>
<td>0</td>
</tr>
<tr>
<td>Procedure Abends</td>
<td>0</td>
</tr>
<tr>
<td>Call Timeout</td>
<td>0</td>
</tr>
<tr>
<td>Call Reject</td>
<td>0</td>
</tr>
<tr>
<td>Sequential Enclave Services</td>
<td>0</td>
</tr>
<tr>
<td>One DB2 Coordinator No</td>
<td>0</td>
</tr>
<tr>
<td>One DB2 Isolation Level</td>
<td>0</td>
</tr>
<tr>
<td>Reoptimization</td>
<td>0</td>
</tr>
<tr>
<td>Prep Statement Matched</td>
<td>0</td>
</tr>
<tr>
<td>Prep Statement No Match</td>
<td>0</td>
</tr>
<tr>
<td>Implicit Prepares</td>
<td>0</td>
</tr>
<tr>
<td>Prep From Cache</td>
<td>0</td>
</tr>
<tr>
<td>Cache Limit Exceeded</td>
<td>0</td>
</tr>
<tr>
<td>Prep Statement Purged</td>
<td>0</td>
</tr>
<tr>
<td>ROWID Direct Access</td>
<td>0</td>
</tr>
<tr>
<td>ROWID Index Used</td>
<td>0</td>
</tr>
<tr>
<td>ROWID TS Scan Used</td>
<td>0</td>
</tr>
<tr>
<td>Statement Trigger</td>
<td>0</td>
</tr>
<tr>
<td>Row Trigger</td>
<td>0</td>
</tr>
<tr>
<td>Trigger SQL Error</td>
<td>0</td>
</tr>
<tr>
<td>Log Records Written</td>
<td>0</td>
</tr>
<tr>
<td>Log Bytes Written</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 94. Miscellaneous Statistics panel
Chapter 14. Viewing Db2 command activity

The topics in this section describe how you can view information about Db2 command activity.

Viewing Db2 command activity

Follow these steps to view Db2 command activity.

About this task

Db2 Query Monitor does not track Db2 commands that have not been executed (for example, syntax errors, bad return codes).

Procedure

1. On the **DB2 Query Monitor main menu**, type 4 in the **Option** field and press Enter.

   The DB2 Command Activity panel is displayed:

   ![DB2 Command Activity Panel](image)

   **Figure 95. DB2 Command Activity panel**

   These options are available:

   **SSID**
   The DB2 subsystem on which the activity occurred.

   **Offload table name**
   CQM_DB2_COMMANDS

   **Column name**
   DB2_SUBSYSTEM

   **Jobname**
   The name of the job.

   **Offload table name**
   CQM_DB2_COMMANDS

   **Column name**
   JOBNAME

   **Authid**
   The primary authorization ID.

   **Offload table name**
   CQM_DB2_COMMANDS

   **Column name**
   AUTHID
**Command Timestamp**
The date and time that Query Monitor recorded the execution of a given DB2 command.

**Offload table name**
CQM_DB2_COMMANDS

**Column name**
COMMAND_TIMESTAMP

**Command Text**
The text of the DB2 command.

**Offload table name**
CQM_DB2_COMMANDS

**Column name**
COMMAND_TEXT

2. When finished viewing DB2 command activity, press PF3 to return to the Db2 Query Monitor Main Menu.
Chapter 15. Viewing exceptions

Exceptions are completed SQL statements that have exceeded thresholds defined in monitoring profiles.

Topics:
- “Viewing exceptions” on page 267
- “About color coding” on page 279
- “Viewing buffer pool statistics for an exception” on page 280
- “Viewing call level statistics for an exception” on page 280
- “Viewing delay statistics for an exception” on page 281
- “Viewing lock related statistics for an exception” on page 281
- “Viewing object statistics for an exception” on page 282
- “Viewing SQL text for an exception” on page 283
- “Viewing host variables for an exception” on page 283
- “Viewing parallel activity for an exception” on page 284
- “Viewing miscellaneous statistics for an exception” on page 284

Viewing exceptions

Follow these steps to view exceptions.

Procedure

1. On the DB2 Query Monitor main menu, type 5 in the Option field and press Enter.

   The Display Exceptions panel is displayed:

<table>
<thead>
<tr>
<th>YYYY/MM/DD HH:MM:SS</th>
<th>Display Exceptions</th>
<th>Row 1 of 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option =/&gt;</td>
<td>Scroll =/&gt; PAGE</td>
<td></td>
</tr>
<tr>
<td>DB2 QM Subsystem: QM01</td>
<td>Interval Start Date: MM/DD/YYYY</td>
<td>Time: HH:MM:SS</td>
</tr>
<tr>
<td>Filters Enabled : N</td>
<td>Interval End Date: CURRENT</td>
<td>Time: CURRENT</td>
</tr>
<tr>
<td>CMD - Enter &quot;/&quot; to select action</td>
<td>+&gt;</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-----------</td>
<td>----</td>
</tr>
<tr>
<td>CMD</td>
<td>SSID</td>
<td>Plan</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>_</td>
<td>SS01</td>
<td>DSNESPCS</td>
</tr>
<tr>
<td>_</td>
<td>SS01</td>
<td>DSNESPRR</td>
</tr>
<tr>
<td>_</td>
<td>SS01</td>
<td>DSNESPRR</td>
</tr>
<tr>
<td>_</td>
<td>SS01</td>
<td>DSNESPRR</td>
</tr>
<tr>
<td>+------------------</td>
<td>---------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Figure 96. Display Exceptions panel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Type / in the CMD field and press Enter to view line commands.

   Exception Actions

   | 9. 0-Objects | 20. L-Locks |
   | 18. A-Analyze | 28. P-Parallel Activity |
   | 19. D-Delays | 37. H-Host Variables |

Select a choice and press ENTER to continue

   Figure 97. Current Activity line commands panel
Exceptions - fields (ISPF)
This topic describes the fields that display on the exceptions panel.

**DB2 QM Subsystem / DB2 DS Group**
The active Query Monitor Subsystem ID or data sharing group.

**Interval Start Date/Time**
The date (MM/DD/YYYY) and time (HH:MM:SS) that the interval started.

**Interval End Date/Time**
The date (MM/DD/YYYY) and time (HH:MM:SS) that the interval ended. A value of CURRENT denotes the interval has not yet ended.

**Filters Enabled**
Indicates whether or not filter(s) are active for the current display.

Exceptions - line commands (ISPF)
These line commands are available on the exceptions panel.

**Display exceptions - line commands**

1. **O - Objects**
   Display object information.

2. **C - Calls**
   Display statistics for SQL calls.

3. **S - SQL**
   Display individual SQL statements.

4. **A - Analyze**
   Export SQL text to a data set member that can then be analyzed by IBM Db2 SQL Performance Analyzer for z/OS. When creating the export data set to hold the exported SQL text, Db2 Query Monitor uses your TSO PREFIX as the high-level qualifier for the data set. You can use your USERID as the high-level qualifier by setting your TSO PREFIX to null by issuing the command TSO PREFIX NOPREFIX from ISPF.

5. **D - Delays**
   Display delay events, counts, and delay times.

6. **L - Locks**
   Display lock events and counts.

7. **Q - Misc Stats**
   Display additional statistics.

8. **B - Buffer Pool Stats**
   Display buffer pool usage statistics.

9. **H - Host Variables**
   Display host variable information.

10. **P - Parallel Activity**
    Display parallel activity information.

**Call level statistics - line commands**

1. **S - Call Text**
   Display the call text.

2. **D - Delays**
   Display delay events, counts, and delay times.

3. **L - Locks**
   Display lock events and counts.

4. **C - SQLCA**
   Display the SQL communication area.
5. Q - Misc Stat
   Display additional statistics.

6. B - Buffer Pool Stats
   Display buffer pool usage statistics.

7. H - Host Variables
   Display host variable information. If no input host variables are present for the call or the monitoring profile stated not to collect them, one of the following messages is displayed:
   - CQM104I No host variables. Db2 Query Monitor found no input host variables present for this call or the monitoring profile stated not to collect them.
   - CQM103I Host variables not gathered. Db2 Query Monitor does not collect host variables for this call type.

Exceptions - columns (ISPF)
These columns are available on the exceptions panel.

Accel Elig CPU
The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
   CQM_EXCEPTIONS

Column name
   ACCEL_ELIGIBLE_CPU

Accel Elig Elapsed
The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
   CQM_EXCEPTIONS

Column name
   ACCEL_ELIGIBLE_ELAPSED

Accel Elig ZIIP
The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
   CQM_EXCEPTIONS

Column name
   ACCEL_ELIGIBLE_ZIIP

Accelerator
The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the Accelerator column is blank for a line item, it means that no queries for that line item were offloaded to the IBM Db2 Analytics Accelerator for z/OS.

Offload table name
   CQM_EXCEPTIONS

Column name
   ACCELERATOR

Acctg Token
The accounting token.

Offload table name
   CQM_EXCEPTIONS
**Column name**
ACCOUNTING_TOKEN

**ACPU RollLn**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly alert for CPU.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ACPU_ROLLLM

**AElap RollLn**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly alert for elapsed time.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
AELAP_ROLLLM

**AGetpgs RollLn**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly alert for getpages.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
AGETPGS_ROLLLM

**Alerts**
If an alert event exceeds an alert threshold, this field displays a string of codes indicating the type of alerts encountered during the execution of an SQL statement within Db2. Data entered within a monitoring profile defines the alerts. The codes for alert classes include:

- **C**: Db2 CPU Time threshold exceeded
- **E**: Db2 Elapsed Time threshold exceeded
- **G**: GETPAGE threshold exceeded
- **Q**: SQLCODE exception raised
- **S**: SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display CEGQ.

**Note:** The same codes are used in both the EXCEPTIONS and ALERTS columns. However, due to differences in monitoring profile specification, the two columns might not contain the same information (for example, the elapsed time threshold for an ALERT might be set significantly higher than the threshold for an EXCEPTION).

**Offload table name**
not applicable

**Column name**
not applicable
ASQLCode
The SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

Offload table name
CQM_EXCEPTIONS

Column name
ALERT_SQLCODE

Authid
The primary authorization ID.

Offload table name
CQM_EXCEPTIONS

Column name
AUTHID

Avg Getpages
The average number of getpages issued.

Call Type
The type of SQL call executed by a package or DBRM within Db2 (for example, PREPARE, OPEN, FETCH, etc).

Offload table name
CQM_EXCP_CALLS

Column name
TYPE

Child
Indicates whether the exception is related to another (parent) exception.

CPU Dsc
Indicates whether or not the value of the CPU for a given SQL statement was not factored in to the rolling mean and standard deviation.

Offload table name
CQM_EXCEPTIONS

Column name
CPU_DSC

CPU DscT
The discard level that would have to be crossed in order for a SQL statement’s CPU time not to update the rolling mean and standard deviation.

Offload table name
CQM_EXCEPTIONS

Column name
CPU_DSCT

CPU Factor
The amount of standard deviations from the mean the CPU was at the time the exception was generated.

Offload table name
CQM_EXCEPTIONS

Column name
CPU_FACTOR

Collection
The collection ID.

Offload table name
CQM_EXCEPTIONS
<table>
<thead>
<tr>
<th>Column name</th>
<th>COLLECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connname</td>
<td>The connection name.</td>
</tr>
<tr>
<td>Offload table name</td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td>Column name</td>
<td>CONNECTION</td>
</tr>
<tr>
<td>CONTOKEN</td>
<td>The hexadecimal consistency token.</td>
</tr>
<tr>
<td>Offload table name</td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td>Column name</td>
<td>CONSISTENCY_TOKEN</td>
</tr>
<tr>
<td>Conntype</td>
<td>The Db2 connection type. Valid connection types include: 1 - TSO (TSO Foreground and Background), 2 - DB2CALL (Db2 Call Attach), 3 - IMSDLI (DL/I Batch), 4 - CICS (CICS Attach), 5 - IMSBMP (IMS Attach BMP), 6 - IMSMMP (IMS Attach MPP), 7 - DB2PRIV (Db2 Private Protocol), 8 - DRDA (DRDA Protocol), 9 - IMSCTL (IMS Control Region), A - IMSTRAN (IMS Transaction BMP), B - UTILITY (Db2 Utilities), and C - RRSAF (RRSAF Attach).</td>
</tr>
<tr>
<td>Offload table name</td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td>Column name</td>
<td>CONNECTION_TYPE</td>
</tr>
<tr>
<td>Coordinator</td>
<td>The DB2 subsystem name acting as the parallelism coordinator for a parallel task associated with the Db2 metrics data gathered by Db2 Query Monitor.</td>
</tr>
<tr>
<td>Corrid</td>
<td>The correlation ID.</td>
</tr>
<tr>
<td>Offload table name</td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td>Column name</td>
<td>CORRID</td>
</tr>
<tr>
<td>Corrname</td>
<td>The correlation ID adjusted by the conventions used by IMS and CICS.</td>
</tr>
<tr>
<td>Offload table name</td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td>Column name</td>
<td>CORRNAME</td>
</tr>
<tr>
<td>Corrnnum</td>
<td>The correlation number which is set based on the default OMEGAMON parsing of the CORRID value.</td>
</tr>
<tr>
<td>Offload table name</td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td>Column name</td>
<td>CORRNNUM</td>
</tr>
<tr>
<td>Cursor Name</td>
<td>The cursor name.</td>
</tr>
<tr>
<td>Offload table name</td>
<td>CQM_EXCEPTIONS</td>
</tr>
</tbody>
</table>
**Column name**
CURSOR_NAME

**DB2 CPU Time**
The accumulated total of all TCB and SRB CPU time spent executing in Db2.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
DB2_CPU

**DB2 Elapsed**
The accumulated elapsed time while executing within Db2.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
DB2_ELAPSED

**Delay Time**
The total time spent waiting due to specific delay events.

**Delay Count**
The total number of delay events encountered.

**ECPU RollLm**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for CPU.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ECPU_ROLLLM

**EElap RollLm**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for elapsed time.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
EELAP_ROLLLM

**EGetpgs RollLm**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for getpages.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
EGETPGS_ROLLLM

**Elap Dsc**
Indicates whether or not the value of the elapsed time for a given SQL statement was not factored in to the rolling mean and standard deviation.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ELAP_DSC

**Elap DscT**
The discard level that would have to be crossed in order for a SQL statement’s elapsed time not to update the rolling mean and standard deviation.
**Offload table name**
CQM_EXCEPTIONS

**Column name**
ELAP_DSCT

**Elapsed Factor**
The amount of standard deviations from the mean the elapsed time was at the time the exception was generated.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ELAP_FACTOR

**End Time**
The date and time that an individual SQL statement finished executing its last SQL call.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
END_TIME

**ESQLCode**
The SQL code that raised an exception condition. Exception criteria are defined within a monitoring profile.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
EXCEPTION_SQLCODE

**Exceptions**
If an exceptional event exceeds an exception threshold, this field displays a string of codes indicating the type of exceptions encountered during the execution of an SQL statement within Db2. Data entered within a monitoring profile defines the exceptions. The codes for event classes include:

- **C**: Db2 CPU Time threshold exceeded
- **E**: Db2 Elapsed Time threshold exceeded
- **G**: GETPAGE threshold exceeded
- **Q**: SQLCODE exception raised
- **S**: SQL Calls threshold exceeded
- **L**: Db2 Elapsed Time anomaly detected
- **P**: Db2 CPU Time anomaly detected
- **T**: GETPAGE anomaly detected

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display **CEGQ**.

**Note:** The same codes are used in both the EXCEPTIONS and ALERTS columns. However, due to differences in monitoring profile specification, the two columns might not contain the same
information (for example, the elapsed time threshold for an ALERT might be set significantly higher than the threshold for an EXCEPTION).

**Offload table name**  
not applicable

**Column name**  
not applicable

**GetPages**  
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGEs of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

**Offload table name**  
CQM_EXCEPTIONS  

**Column name**  
GETPAGES

**Getpages Dsc**  
Indicates whether or not the value of the getpages for a given SQL statement was not factored in to the rolling mean and standard deviation.

**Offload table name**  
CQM_EXCEPTIONS  

**Column name**  
GETPGS_DSC

**Getpages DscT**  
The discard level that would have to be crossed in order for a SQL statement's getpages not to update the rolling mean and standard deviation.

**Offload table name**  
CQM_EXCEPTIONS  

**Column name**  
GETPGS_DSCT

**Getpages Factor**  
The amount of standard deviations from the mean the getpages were at the time the exception was generated.

**Offload table name**  
CQM_EXCEPTIONS  

**Column name**  
GETPGS_FACTOR

**HV?**  
Indicates whether or not host variables have been collected.

**Jobname**  
The name of the job.

**Offload table name**  
CQM_EXCEPTIONS  

**Column name**  
JOBNAME

**Log Bytes Written**  
The number of log bytes written.

**Offload table name**  
CQM_EXCEPTIONS
Log Records Written
The total number of log records written.

LUName
The logical unit name.

Netid
The network identifier.

Orig Token
The thread token assigned to the thread that generated the parallel task(s) on the parallelism coordinator Db2 subsystem.

Package Version
The package version associated with the SQL statement.

Parallel
Indicates whether or not the SQL activity was formulated using Db2 query parallelism.

Plan
The plan name.

Program
The Db2 package or DBRM name.
<table>
<thead>
<tr>
<th>Column name</th>
<th>PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Req Site</strong></td>
<td>The requesting site name.</td>
</tr>
<tr>
<td><strong>Offload table name</strong></td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td><strong>Column name</strong></td>
<td>REQ_SITE_NAME</td>
</tr>
<tr>
<td><strong>RollAv CPU</strong></td>
<td>The value of the CPU rolling average at the time the exception was generated.</td>
</tr>
<tr>
<td><strong>Offload table name</strong></td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td><strong>Column name</strong></td>
<td>CPU_ROLL_AVG</td>
</tr>
<tr>
<td><strong>RollAv Elapsed</strong></td>
<td>The value of the elapsed time rolling average at the time the exception was generated.</td>
</tr>
<tr>
<td><strong>Offload table name</strong></td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td><strong>Column name</strong></td>
<td>ELAP_ROLL_AVG</td>
</tr>
<tr>
<td><strong>RollAv Getpages</strong></td>
<td>The value of the getpage rolling average at the time the exception was generated.</td>
</tr>
<tr>
<td><strong>Offload table name</strong></td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td><strong>Column name</strong></td>
<td>GETPGS_ROLL_AVG</td>
</tr>
<tr>
<td><strong>Section</strong></td>
<td>The section number.</td>
</tr>
<tr>
<td><strong>Offload table name</strong></td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td><strong>Column name</strong></td>
<td>SECTION</td>
</tr>
<tr>
<td><strong>SP Creat</strong></td>
<td>The creator of the stored procedure.</td>
</tr>
<tr>
<td><strong>Offload table name</strong></td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td><strong>Column name</strong></td>
<td>SP_CREATOR</td>
</tr>
<tr>
<td><strong>SP Name</strong></td>
<td>The name of the stored procedure.</td>
</tr>
<tr>
<td><strong>Offload table name</strong></td>
<td>CQM_EXCEPTIONS</td>
</tr>
<tr>
<td><strong>Column name</strong></td>
<td>SP_NAME</td>
</tr>
<tr>
<td><strong>SQL Calls</strong></td>
<td>The total number of individual SQL calls executed by Db2.</td>
</tr>
<tr>
<td><strong>Offload table name</strong></td>
<td>CQM_EXCEPTIONS</td>
</tr>
</tbody>
</table>
**Column name**
SQL_CALLS

**Sqlcode**
The SQL return code issued by Db2.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
SQLCODE

**SSID**
The Db2 subsystem on which the activity occurred.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
DB2_SUBSYSTEM

**Start Time**
The date and time that an individual SQL statement started executing its first SQL call.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
START_TIME

**StdDev CPU**
The value of the CPU rolling standard deviation at the time the exception was generated.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
CPU_ROLL_STDV

**StdDev Elapsed**
The value of the elapsed time rolling standard deviation at the time the exception was generated.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ELAP_ROLL_STDV

**StdDev Getpages**
The value of the getpages rolling standard deviation at the time the exception was generated.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
GETPGS_ROLL_STDV

**Stmt#**
The SQL statement number assigned by the Db2 pre-compiler to an individual SQL call.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
STMT_ID

**Token**
The thread token. A thread token uniquely identifies an individual connection to a Db2 subsystem.

**Offload table name**
CQM_EXCEPTIONS
**Column name**
THREAD_TOKEN

**Workload**
The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current activity, exceptions, and alerts. It is recommended that you name your workload to facilitate the identification of the monitoring profile line and the workload with which captured activity is associated.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
WORKLOAD_NAME

**WS Name**
The workstation name.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
WORKSTATION_NAME

**WS Tran**
The workstation transaction.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
WORKSTATION_TRAN

**WS User**
The workstation user.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
WORKSTATION_USER

**zIIP CPU**
The amount of CPU time accumulated while executing in Db2 on a zIIP processor.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ZIIP_CPU_TIME

---

**About color coding**

Individual fields that qualify a row of data as an exception or an alert are color-coded.

The following color codes are used in Db2 Query Monitor:

**Yellow**
Exception condition.

**Red**
Alert condition. If the triggering field is both an exception and an alert, the field will be displayed in red.
Viewing buffer pool statistics for an exception

Follow these steps to view buffer pool statistics for an exception.

Procedure

1. On the **DB2 Query Monitor main menu**, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view buffer pool statistics.
3. Type B in the **CMD** field next to the SQL activity of interest and press Enter.

![Figure 98. Buffer Pool Statistics panel](image)

<table>
<thead>
<tr>
<th>YYYY/MM/DD HH:MM:SS</th>
<th>------ Buffer Pool Statistics ------</th>
<th>Row 1 of 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option</td>
<td>****************************************</td>
<td>Scroll Page</td>
</tr>
<tr>
<td>DB2 SSID: QM01</td>
<td>Plan: DISTSERV DBRM: SYSLHXXX Coll: NULLID</td>
<td></td>
</tr>
<tr>
<td>Cursor: SQL_CURSOR1</td>
<td>Section: 1</td>
<td></td>
</tr>
<tr>
<td>Acct:</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Buffer Pool: ALL</td>
<td>Total Average</td>
<td></td>
</tr>
<tr>
<td>Buffer Pool Hit Ratio (%)</td>
<td>N/A 69.77</td>
<td></td>
</tr>
<tr>
<td>Hiper Pool Hit Ratio (%)</td>
<td>N/A 100.00</td>
<td></td>
</tr>
<tr>
<td>Get Page Requests</td>
<td>2,388 12.24</td>
<td></td>
</tr>
<tr>
<td>Buffer Pages Updated</td>
<td>180 0.92</td>
<td></td>
</tr>
<tr>
<td>Synchronous Pages Read</td>
<td>7 0.03</td>
<td></td>
</tr>
<tr>
<td>Synchronous Pages Written</td>
<td>0 0.00</td>
<td></td>
</tr>
<tr>
<td>Sequential Prefetch Requests</td>
<td>86 0.44</td>
<td></td>
</tr>
<tr>
<td>List Prefetch Requests</td>
<td>0 0.00</td>
<td></td>
</tr>
<tr>
<td>Dynamic Prefetch Requests</td>
<td>40 0.20</td>
<td></td>
</tr>
<tr>
<td>Successful Hiper Pool Reads</td>
<td>0 0.00</td>
<td></td>
</tr>
<tr>
<td>Hiper Pool Read Failures</td>
<td>0 0.00</td>
<td></td>
</tr>
<tr>
<td>Successful Hiper Pool Writes</td>
<td>0 0.00</td>
<td></td>
</tr>
<tr>
<td>Unsuccessful Hiper Pool Writes</td>
<td>0 0.00</td>
<td></td>
</tr>
<tr>
<td>Async Pages Read</td>
<td>0 0.00</td>
<td></td>
</tr>
<tr>
<td>Async Pages Read by Hiper Pool</td>
<td>0 0.00</td>
<td></td>
</tr>
</tbody>
</table>

![Figure 99. Call Level Statistics panel](image)

Viewing call level statistics for an exception

Follow these steps to view call level statistics for an exception.

Procedure

1. On the **DB2 Query Monitor main menu**, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view call information.
3. Type C in the **CMD** field next to the SQL activity of interest and press Enter.

The **Call Level Statistics** panel is displayed:

![Figure 99. Call Level Statistics panel](image)
Viewing delay statistics for an exception

Follow these steps to view delay statistics for an exception.

Procedure
1. On the DB2 Query Monitor main menu, type 5 in the Option field and press Enter.
2. Locate the exception for which you want to view delay information.
3. Type D in the CMD field next to the SQL activity of interest and press Enter.

The Delay Statistics panel is displayed:

Viewing lock related statistics for an exception

Follow these steps to view lock related statistics for an exception.

Procedure
1. On the DB2 Query Monitor main menu, type 5 in the Option field and press Enter.
2. Locate the exception for which you want to view lock related statistics.
3. Type L in the CMD field next to the SQL activity of interest and press Enter.

The Lock Related Statistics panel is displayed:
### Viewing object statistics for an exception

Follow these steps to view object statistics for an exception.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view object information.
3. Type O in the **CMD** field next to the SQL activity of interest and press Enter.

The **Object Statistics** panel is displayed:
Viewing SQL text for an exception

Follow these steps to view SQL text for an exception.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view SQL text information.
3. Type S in the **CMD** field next to the SQL activity of interest and press Enter.

   The **Display SQL Statement Text** panel is displayed:

   ![Figure 103. Display SQL Statement Text panel](image)

**Viewing host variables for an exception**

Follow these steps to view host variables for an exception.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view host variable information.
3. Type H in the **CMD** field next to the SQL activity of interest and press Enter.

   The **Input Host Variables** panel is displayed:

   ![Figure 104. Input Host Variables panel](image)

**Note:** Db2 Query Monitor does not collect host variables in native stored procedures. Db2 Query Monitor does collect information about the running of native stored procedures such as elapse time, etc.

These columns display on the **Input Host Variables** panel:

**Number**

- A line number used to identify a host variable in the list of host variables.

**Type**

- The data type of the host variable (CHARACTER, INTEGER, NUMBER, etc.).
Null
Indicates whether or not the host variable data is null. Valid values are:

Y
Null.
N
Not null.

Length
The length of the data retrieved for the host variable.

Data
The data retrieved for the host variable.

**Viewing parallel activity for an exception**

Follow these steps to view parallel activity for an exception.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view parallel activity.
3. Type P in the **CMD** field next to the SQL activity of interest and press Enter.

The **Parallel Task Statistics** panel is displayed:

```
YYYY/MM/DD HH:MM:SS  ---- Parallel Task Statistics -------  Row 1 of 2
Option ====> __________________________ Scroll ====> PAGE
DB2 SSID: DB01   Plan: PLAN001   DBRM: DBRM001  Coll: DSNTEP2
Cursor: C1                  Section:       1
------------------------------------------------------------------------     >
CMD SSID Plan     Program    DB2 CPU Time    DB2 Elapsed       GETPAGES SQLCODE
-  ---- -------- -------- -------------- -------------- -------------- -------
_  QM01 PLAN001  DBRM001        2.741308      30.556241         19,346       0
_  QM01 PLAN001  DBRM001        3.636054      30.602641         25,475       0
*******************************************************************************
```

*Figure 105. Parallel Task Statistics panel*

**Viewing miscellaneous statistics for an exception**

Follow these steps to view miscellaneous statistics for an exception.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view miscellaneous statistics.
3. Type Q in the **CMD** field next to the SQL activity of interest and press Enter.

The **Miscellaneous Statistics** panel is displayed:
### Miscellaneous Statistics Panel

**Event** | **Time/Count**
--- | ---
Trigger Elapsed Time | 0.000000
Trigger DB2 CPU Time | 0.000000
UDF Application Elapsed Time | 0.000000
UDF Application CPU Time | 0.000000
UDF DB2 Elapsed Time | 0.000000
UDF DB2 CPU Time | 0.000000
UDF Application Elapsed Time | 0.000000
UDF Application CPU Time | 0.000000
UDF DB2 Elapsed Time | 0.000000
UDF DB2 CPU Time | 0.000000
RIDLIST Used | 21
RIDLIST Failed - No Storage | 0
RIDLIST Failed - Limit Exceeded | 0
Groups Executed | 0
Sequential Cursor | 0
Sequential No ESA Sort | 0
Sequential No Buffer | 0
Ran Reduced | 0
Ran as Planned | 0
Procedure Abends | 0
Call Timeout | 0
Call Reject | 0
Sequential Enclave Services | 0
One DB2 Coordinator No | 0
One DB2 Isolation Level | 0
Reoptimization | 0
Prep Statement Matched | 0
Prep Statement No Match | 0
Implicit Prepares | 0
Prep from Cache | 0
Cache Limit Exceeded | 0
Prep Statement Purged | 0
ROWID Direct Access | 0
ROWID Index Used | 0
ROWID TS Scan Used | 0
Statement Trigger | 0
Row Trigger | 0
Trigger SQL Error | 0
Log Records Written | 0
Log Bytes Written | 0

---

*Figure 106. Miscellaneous Statistics panel*
Chapter 16. Working with monitoring agents

A monitoring agent is the interface that Db2 Query Monitor installs within a Db2 subsystem to capture SQL performance data. When a Query Monitor Subsystem collects data about a Db2 subsystem, a monitoring agent is at work collecting data about that Db2 subsystem.

If one Query Monitor Subsystem task is performing data collections on three different Db2 subsystems, then there are three monitoring agents active for that Query Monitor Subsystem. Additionally, each monitoring agent can optionally be assigned a monitoring profile.

Before you can activate a monitoring agent for a Db2 subsystem, the Db2 subsystem must be defined to the Db2 Query Monitor Db2 control file by using main menu option 7. Setup or by using Tools Customizer to generate CQM#CTLF. If you are using other products to monitor the same Db2 subsystem, you should review the considerations in “Compatible releases and maintenance levels” on page 41.

Topics:
• “Activating a monitoring agent” on page 287
• “Deactivating a monitoring agent” on page 288
• “Changing a monitoring profile” on page 288
• “Refreshing a monitoring profile” on page 289
• “Viewing a monitoring profile” on page 289
• “Using the MODIFY command” on page 290

Activating a monitoring agent

You can activate a monitoring agent to collect data about a Db2 subsystem.

Procedure

1. On the Db2 Query Monitor main menu, type 6 in the Option field and press Enter.
2. Type A in the CMD field next to the monitoring agent you want to activate and press Enter.

Figure 107. Activate Monitoring Agent panel

3. Confirm that the Db2 subsystem ID shown in the DB2 Subsystem field is the Db2 subsystem you want to monitor.
4. (Optional) Specify a monitoring profile for use with the monitoring agent.
   a) Type the monitoring agent name in the Profile Name field.
      The Monitoring Profiles panel is displayed.
   b) Type S in the CMD field next to the monitoring profile you want to select and press Enter.
5. Press Enter.
Deactivating a monitoring agent

You can deactivate a monitoring agent and stop capturing data about query activity for Db2 subsystem.

About this task

When you deactivate a monitoring agent, the monitoring agent is not removed from Db2.

If you want to change the Query Monitor Subsystem that is monitoring a DB2 subsystem, shut down the current Query Monitor Subsystem before starting the new Query Monitor Subsystem.

Procedure

1. On the **DB2 Query Monitor main menu**, type 6 in the **Option** field and press Enter.
2. Type D in the **CMD** field next to the line item for which you want to deactivate monitoring and press Enter.

   ![Figure 108. Deactivate Monitoring Agent panel](image1)

   3. Press Enter.

Changing a monitoring profile

You can change the monitoring profile that is used with a monitoring agent.

Procedure

1. On the **Db2 Query Monitor main menu**, type 6 in the **Option** field and press Enter.
2. Type C in the **CMD** field next to the line item for which you want to change the monitoring profile and press Enter.

   ![Figure 109. Change Monitoring Agent panel](image2)

   3. In the **New Profile Name** field, type the new monitoring profile name.
   4. Press Enter.
**Refreshing a monitoring profile**

You can refresh a monitoring profile.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 6 in the **Option** field and press Enter.
2. Type **R** in the **CMD** field next to the line item for which you want to refresh the monitoring profile and press Enter.

   ![Figure 110. Refresh Monitoring Profile panel](image)

   3. Verify that the correct Db2 subsystem is shown in the message.
   4. Press Enter.

**Viewing a monitoring profile**

You can view the monitoring profile associated with a monitoring agent.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 6 in the **Option** field and press Enter.
2. Type **V** in the **CMD** field next to the line item for which you want to view the monitoring profile and press Enter.

   ![Figure 111. View Monitoring Profile panel](image)

   3. Press Enter.

   The **View Monitoring Profile** panel is displayed:

   ![Figure 112. View Monitoring Profile panel](image)
Using the MODIFY command

You can issue these MODIFY commands from SDSF to activate or deactivate a monitoring agent and to change or refresh a monitoring profile.

**MODIFY/F cqmtaskname,ACTIVATE(ssss,profname)**

Activates the monitoring agent (cqmtaskname) using the specified monitoring profile (profname) to monitor the specified Db2 subsystem ssss. If the monitoring agent is already actively monitoring the Db2 subsystem, the ACTIVATE command changes the monitoring profile to the one you specify.

**MODIFY/F cqmtaskname,DEACTIVATE(ssss)**

Deactivates a monitoring agent (cqmtaskname) for the specified Db2 subsystem (ssss).

**MODIFY/F cqmtaskname,CHANGE_PROF(ssss,profname)**

Changes the monitoring profile to the value you specify (profname) for the Db2 subsystem (ssss).

**MODIFY/F cqmtaskname,REFRESH_PROF(ssss)**

Refreshes the monitoring profile for the specified monitoring agent (cqmtaskname) and Db2 subsystem (ssss).
Chapter 17. Working with monitoring profiles

You can use monitoring profiles to tailor how Db2 Query Monitor monitors specific workloads. Monitoring profiles control various aspects of monitoring such as summary reporting, SQLCODE reporting, exception limits, alert notifications thresholds, collection of host variable information, and OPTKEYS override settings. Monitoring profiles do not affect Db2 command reporting.

Monitoring profiles are optional and can be changed for a monitoring agent while the monitoring agent is still collecting information.

Monitoring profiles enable you to fine-tune the inclusion and exclusion of specific workloads from query monitoring and thereby determine the type of activity that is to be collected by Db2 Query Monitor. A monitoring profile consists of a set of include/exclude monitoring profile lines that Db2 Query Monitor reads sequentially as it looks for a match. The order in which monitoring profile lines are placed is important as it determines the order in which Db2 Query Monitor looks for a match and, if found, includes or excludes activity information.

Db2 Query Monitor reads the list of profile lines from top to bottom. When a match is found, the activity is processed according to the parameters specified in the matching monitoring profile line and no additional monitoring profile lines in the monitoring profile are considered for that activity.

You can configure monitoring profile to:

- Disable summary reporting for specific workloads
- Include or exclude SQLCODE reporting for specific workloads
- Set exception limits and thresholds
- Define exception and alert thresholds for particular SQL workloads
- Define whether or not to gather host variable information
- Activate the current activity display for particular SQL workloads
- Exclude particular SQL workloads from summary data collection
- Override the OPTKEYS settings for the summary data collection for a specific SQL workload

**Note:** Monitoring profiles do not have any effect on DB2 command reporting.

**Topics:**

- “Monitoring profiles - columns and fields (ISPF)” on page 291
- “Creating a monitoring profile” on page 302
- “Working with monitoring profile lines” on page 304
- “Updating a monitoring profile” on page 310
- “Renaming a monitoring profile” on page 311
- “Deleting a monitoring profile” on page 311
- “Viewing a monitoring profile” on page 311
- “Monitoring profile workflows” on page 312
- “Applying a monitoring profile to a monitoring agent” on page 315

**Monitoring profiles - columns and fields (ISPF)**

The following list shows the fields and corresponding columns that appear throughout the monitoring profile configuration panels.

**AUTHID**

The primary authorization ID.
Collect Dynamic SQL
Indicates whether or not data is collected for dynamic SQL for the workload.

Collect Object Data
Indicates whether or not object data is collected for the workload.

Note: If you specify N for this parameter and you attempt to issue the ENABLE_OBJECTS dynamic configuration change commands to enable object statistics collection, it will be ignored.

Collect Static SQL
Indicates whether or not data is collected for static SQL for the workload.

Collect Summary Positive SQLCODEs
Indicates whether or not positive SQLCODEs are processed in addition to negative SQLCODEs for the SQL code summaries. This column is only checked for profile include lines.

Connection ID
The connection ID.

CORRID
The correlation ID.

CORRNAME
The correlation ID adjusted by the conventions used by IMS and CICS.

Creator
The user ID that created the monitoring profile.

Created
The date and time the monitoring profile was created.

DB2 Subsystem
The Db2 subsystem.

Disable Summary Reporting
Indicates whether or not summary information is to be reported for the unit of SQL activity.

Note:
- A **Disable Summary Reporting** value of Y is only valid for EXCLUDE profile lines. A **Disable Summary Reporting** value of N must be specified for all INCLUDE profile lines.
- **Disable Summary Reporting** does not impact Db2 command reporting. Monitoring profiles do not have any effect on Db2 commands.

**Column name on View Profile panel**

**DISABLE**

---

**Exclude Summary SQLCODES**

Indicates whether or not SQLCODES are included in View SQLCODEs displays. Valid values are Y (SQLCODES are excluded in summary displays) and N (No SQLCODES is excluded in summary displays). If Y is specified for Exclude Summary SQLCODES, the Exception SQLCODE Exclusion List displays, enabling you to list the SQLCODES you want to exclude from summary display.

**Column name on View Profile panel**

**SSQLCODES**

---

**Ignore SQLCODE 100 for Read Activity**

Indicates whether or not to ignore positive SQLCODE 100.

**Offload table name**

**CQM_EXCEPTIONS**

---

**Column name**

**ISQL100**

---

**INCLUDE/EXCLUDE**

Specifies whether detected SQL activity is to be included or excluded from further processing. Valid values are I (includes matching SQL activity in processing as defined by the monitoring profile) and E (excludes matching SQL activity from processing as defined by the monitoring profile).

---

**Include Summary SQLCODEs**

Indicates whether or not to specify a list of SQLCODES to include in summaries. Valid values are Y (shows the inclusion SQLCODE list panel where the user can specify a list of SQLCODES to include in summaries) and N (DEFAULT – do not specify SQLCODES to include in summaries).

**Column name on View Profile panel**

**SSQLCODEI**

---

**HOSTVARS**

Indicates whether or not host variables are to be collected for the workload.

**Column name on View Profile panel**

**HOSTVARS**

---

**INCLUDE/EXCLUDE**

Indicates whether matching SQL activity is to be included in or excluded from processing. If excluded activity is also to be removed from summaries, Disable Summary Reporting must be set to Y on the exclude line.

**Column name on View Profile panel**

**INCL/EXCL**

---

**JOBNAME**

The name of the job.

**Column name on View Profile panel**

**Jobname**

---

**Name**

The name of the monitoring profile.

---

**OPTKEYS(AUTHIDS)**

The AUTHIDS parameter reduces collected information down to the level of individual Db2 authorization IDs.

**Column name on View Profile panel**

**OPTAUTHID**
OPTKEYS(CALLS)
The CALLS parameter reduces collected information down to the level of the individual SQL calls. If the CALLS option is not specified in the OPTKEYS parameter, the statement number and description can contain N/A in the operational summaries.

Column name on View Profile panel
OPTCALLS

OPTKEYS(CONNNAME)
The CONNNAME parameter reduces collected information down to the level of the individual Db2 connection name.

Column name on View Profile panel
OPTCNAME

OPTKEYS(CONNTYPE)
The CONNTYPE parameter reduces collected information down to the level of the individual Db2 connection type.

Column name on View Profile panel
OPTCTYPE

OPTKEYS(CORRID)
The CORRID parameter reduces collected information down to the level of the individual correlation ID. When OPTKEYS CORRID is specified both the CORRNAME and CORRNUMBER translations are performed.

Note: OPTKEYS(CORRNAME) and OPTKEYS(CORRID) are mutually exclusive. If OPTKEYS(CORRID) is used, the regular CORRID is collected, if OPTKEYS(CORRNAME) is used, the field is filled in according to the TSO/CAF/RRSAF/CICS/IMS descriptions above.

Column name on View Profile panel
OPTCORRID

OPTKEYS(CORRNAME)
The CORRNAME parameter directs Db2 Query Monitor to move only certain subsets of bytes from the originating correlation ID to the target summary record during the collection process. When OPTKEYS CORRNAME is specified only the CORRNAME translation is performed.

These subsets of bytes vary depending on the type of connection to Db2 (for example, TSO, BATCH, RRSAF, CICS, IMS, etc.). The bytes that will be moved for the various connection types are shown below (the remaining right-most bytes will be space padded with EBCDIC blanks):

• TSO, CAF, RRSAF - Bytes 1-8 of the originating correlation ID.
• CICS - Bytes 5-8 of the correlation ID (Transaction ID).
• IMS - Bytes 5-8 of the correlation ID (IMS PST#).

Note: OPTKEYS(CORRNAME) and OPTKEYS(CORRID) are mutually exclusive. If OPTKEYS(CORRID) is used, the regular CORRID is collected, if OPTKEYS(CORRNAME) is used, the field is filled in according to the TSO/CAF/RRSAF/CICS/IMS descriptions above.

Column name on View Profile panel
OPTCORRNM

OPTKEYS(CORRNUM)
The CORRNUM parameter reduces collected information down to the level of the individual correlation number.

Column name on View Profile panel
OPTCRNUM

OPTKEYS(JOBNAME)
The JOBNAME parameter reduces collected information down to the level of the individual z/OS batch jobname.
OPTKEYS(PARALLEL)

The PARALLEL parameter reduces collected information down to the level of individual queries that are formulated using Db2 query parallelism.

OPTKEYS(PTEXT)

The PTEXT parameter strips literals and multiple blanks from summary text. Literals are replaced by the indicator "&". Multiple whitespace characters, including blank (X'20'), tab (X'09'), line feed (X'0A'), form feed (X'0C'), and carriage return (X'0D') are reduced to a single blank. Literals included after an SQL "IS IN" clause will be stripped and replaced by the & indicator. This allows SQL text that differs by only literal values to be summarized together. OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

OPTKEYS(SCHEMA)

The SCHEMA parameter reduces collected information down to the level of the individual Db2 Special Register Current SCHEMA value.

OPTKEYS(SP)

The SP parameter reduces collected information down to the level of the individual stored procedure value.

OPTKEYS(TEXT)

The TEXT parameter reduces collected information down to the level of the unique piece of SQL text. OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

OPTKEYS(WSNAME)

The WSNAME parameter reduces collected information down to the level of the individual workstation name.

OPTKEYS(WSTRAN)

The WSTRAN parameter reduces collected information down to the level of the individual workstation transaction.

OPTKEYS(WSUSER)

The WSUSER parameter reduces collected information down to the level of the individual workstation user ID.

Override OPTKEYS

The OPTKEYS parameter specifies the level of granularity for summary buckets. You can set up monitoring profile lines to override OPTKEYS settings in CQMPARMS for individual OPTKEYS.
Override SQL Collection
Indicates whether or not Db2 Query Monitor overrides the COLLECT_STATIC_SQL and COLLECT_DYNAMIC_SQL parameters in CQMPARMS for the workload according to the values specified in the Collect Static SQL and Collect Dynamic SQL fields.

Plan Name
The Db2 plan name.

Program Name
The Db2 package or DBRM name.

QM Plans
Indicates whether or not a monitoring agent is to exclude SQL activity generated by plans associated with Db2 Query Monitor. This specification removes the Db2 Query Monitor activity from exception processing and current activity. It does not impact summary data collection. This column works in conjunction with the QM Plan1, QM Plan2, and QM Plan3 columns that indicate the names of the plans associated with Db2 Query Monitor.

QM Plan1, QM Plan2, QM Plan3
Patterns that will be used by a monitoring agent to determine if a plan is associated with Db2 Query Monitor. This pattern is only used if the QM Plans column is set to Y.

Updated
The most recent date and time the monitoring profile was updated.

Workload Name
The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current activity, exceptions, and alerts. It is recommended that you name your workload to facilitate the identification of the monitoring profile line and the workload with which captured activity is associated.

Workstation Name
The workstation name.

Workstation Trans
The workstation transaction.

Workstation User
The workstation user.
Alerts

Threshold Alerts
Indicates whether or not threshold based alerts are generated for Alert CPU, Alert Elapsed, Alert Getpages, Alert SQL Calls.

**Column name on View Profile panel**
ATHRSHLD

**Alert CPU**
The CPU time that when exceeded produces an alert for the workload.

*Note:* You must specify Y in the Threshold Alerts field to enable Alert CPU.

**Column name on View Profile panel**
ACPU

**Alert Elapsed**
The elapsed time that when exceeded produces an alert for the workload.

*Note:* You must specify Y in the Threshold Alerts field to enable Alert Elapsed.

**Column name on View Profile panel**
AELAPSED

**Alert Getpages**
The number of getpages that when exceeded produces an alert for the workload.

*Note:* You must specify Y in the Threshold Alerts field to enable Alert Getpages.

**Column name on View Profile panel**
AGETPAGES

**Alert SQL Calls**
The number of SQL calls that when exceeded produces an alert for the workload.

**Column name on View Profile panel**
ASQLCALLS

Anomaly-based Alerts

**Anomaly-based Alerts - CPU Anomalies**
Indicates whether or not to generate alerts for CPU anomalies.

**Column name on View Profile panel**
ACPUANM

**Anomaly-based Alerts - CPU Anomalies - Toleration Level**
Indicates the CPU toleration that when exceeded produces an anomaly alert for CPU time for an SQL statement.

**Column name on View Profile panel**
ACPUTOL

*Offload table name*
CQM_EXCEPTIONS

*Offload column name*
DB2_CPU_TIME_PROF_ALRT_TOLER

**Anomaly-based Alerts - Elapsed Anomalies**
Indicates whether or not to generate alert for elapsed time anomalies.

**Column name on View Profile panel**
AELAPANM

**Anomaly-based Alerts - Elapsed Anomalies - Toleration Level**
Indicates the elapsed time toleration that when exceeded produces an anomaly alert for elapsed time for an SQL statement.
Column name on View Profile panel
AELAPTO

Offload table name
CQM_EXCEPTIONS

Offload column name
DB2_ELAP_TIME_PROF_ALRT_TOLER

Anomaly-based Alerts - Getpage Anomalies
Indicates whether or not to generate alerts for getpage anomalies.

Column name on View Profile panel
AGETPANM

Anomaly-based Alerts - Getpage Anomalies - Toleration Level
Indicates the getpage toleration that when exceeded produces an anomaly alert for getpage for an SQL statement.

Column name on View Profile panel
AGETPTOL

Offload table name
CQM_EXCEPTIONS

Offload column name
TOTAL_GETP_PROF_ALRT_TOLER

Generate SQLCODE Alerts
Indicates whether or not SQLCODES generate alerts. Valid values are \textit{Y} (SQLCODES generate alerts) and \textit{N} (SQLCODES do not generate alerts).

\textbf{Note:}

- The \textit{Generate SQLCODE Exceptions} and \textit{Generate SQLCODE Alerts} parameters behave independently of one another.

- The \textit{Generate SQLCODE Exceptions} and \textit{Generate SQLCODE Alerts} parameters work together with the \textit{Exclude Exception SQLCODEs} and \textit{Exclude Alert SQLCODEs} parameters. The \textit{Exclude Exception SQLCODEs} and \textit{Exclude Alert SQLCODEs} parameters define whether or not specific SQLCODEs (defined by the SQLCODE exclusion list) are excluded from exception/alert processing. The \textit{Generate SQLCODE Exceptions} and \textit{Generate SQLCODE Alerts} parameters act as high level flags to turn on or off the generation of exceptions/alerts for SQLCODES (in general). So, for example:

  - If you specify \textit{Exclude Exception SQLCODEs} = \textit{Y}, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify \textit{Generate SQLCODE Exceptions} = \textit{Y}, then exceptions will be produced for all SQLCODEs except -901.
  
  - If you specify \textit{Exclude Exception SQLCODEs} = \textit{Y}, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify \textit{Generate SQLCODE Exceptions} = \textit{N}, then exceptions will not be produced for any SQLCODEs (in this case, the specification of -901 SQLCODE on the SQLCODE exclusion list is not really necessary since it will be enforced by the higher-level \textit{Generate SQLCODE Exceptions} = \textit{N} setting).

  - If you specify \textit{Exclude Exception SQLCODEs} = \textit{N}, and specify \textit{Generate SQLCODE Exceptions} = \textit{Y}, then exceptions will be produced for all SQLCODEs.

  - If you specify \textit{Exclude Exception SQLCODEs} = \textit{N}, and specify \textit{Generate SQLCODE Exceptions} = \textit{N}, then exceptions will not be produced for any SQLCODEs.

Column name on View Profile panel
SQLCALRTS

Include Alert SQLCODEs
Indicates whether or not to specify a list of SQLCODES to include in alert processing. Valid values are \textit{Y} (shows the inclusion SQLCODE list panel where the user can specify a list of SQLCODES to include in alert processing) and \textit{N} (DEFAULT – do not specify SQLCODES to include in alert processing).
Exceptions

Exception Limit
The maximum number of exceptions that will be generated for workload line in the monitoring profile. If you specify a value of zero, collected activity that matches other criteria in the profile line will not be treated as an exception for display (because the exception limit threshold of zero would have been exceeded).

Threshold Exceptions
Indicates whether or not threshold based exceptions are generated for Exception CPU, Exception Elapsed, Exception Getpages, and Exception SQL Calls.

Exception CPU
The Db2 CPU time that, when exceeded, produces an exception for that unit of SQL activity.

Note: You must specify Y in the Threshold Exceptions field to enable Exception CPU.

Exception Elapsed
The Db2 elapsed time that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Note: You must specify Y in the Threshold Exceptions field to enable Exception Elapsed.

Exception Getpages
The number of getpages that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Note: You must specify Y in the Threshold Exceptions field to enable Exception Getpages.

Exception SQL Calls
The number of SQL calls that, when exceeded, produces an exception for that unit of SQL activity. An Exception SQL Calls value of zero causes this criterion not to be used in determining if the profile line should be included or excluded as an alert or exception.

Anomaly-based Exceptions

Anomaly-based Exceptions - CPU Anomalies
Indicates whether or not to generate exceptions for CPU anomalies.

Anomaly-based Exceptions - CPU Anomalies - Toleration Level
Indicates the CPU toleration that when exceeded produces an anomaly exception for CPU time for an SQL statement.
Column name on View Profile panel
ECPUTOL

Offload table name
CQM_EXCEPTIONS

Offload column name
DB2_CPU_TIME_PROF_EXCP_TOLER

Anomaly-based Exceptions - Elapsed Anomalies
Indicates whether or not to generate exception for elapsed time anomalies.

Column name on View Profile panel
EELAPANM

Anomaly-based Exceptions - Elapsed Anomalies - Toleration Level
Indicates the elapsed time toleration that when exceeded produces an anomaly exception for elapsed time for an SQL statement.

Column name on View Profile panel
EELAPTOL

Offload table name
CQM_EXCEPTIONS

Offload column name
DB2_ELAP_TIME_PROF_EXCP_TOLER

Anomaly-based Exceptions - Getpage Anomalies
Indicates whether or not to generate exceptions for getpage anomalies.

Column name on View Profile panel
EGETPANM

Anomaly-based Exceptions - Getpage Anomalies - Toleration Level
Indicates the getpage toleration that when exceeded produces an anomaly exception for getpage for an SQL statement.

Column name on View Profile panel
EGETPTOL

Offload table name
CQM_EXCEPTIONS

Offload column name
TOTAL_GETP_PROF_EXCP_TOLER

Generate SQLCODE Exceptions
Indicates whether or not SQLCODES generate exceptions. A non-zero value indicates exception processing is active and is checked on include lines. Valid values are Y (SQLCODES generate exceptions) and N (SQLCODES do not generate exceptions).

Note:

• The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters behave independently of one another.

• The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters work together with the Exclude Exception SQLCODEs and Exclude Alert SQLCODEs parameters. The Exclude Exception SQLCODEs and Exclude Alert SQLCODEs parameters define whether or not specific SQLCODES (defined by the SQLCODE exclusion list) are excluded from exception/alert processing. The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters act as high level flags to turn on or off the generation of exceptions/alerts for SQLCODES (in general). So, for example:
  – If you specify “Exclude Exception SQLCODEs = Y”, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify “Generate SQLCODE Exceptions = Y”, then exceptions will be produced for all SQLCODES except -901.
If you specify “Exclude Exception SQLCODEs = Y”, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify “Generate SQLCODE Exceptions = N”, then exceptions will not be produced for any SQLCODEs (in this case, the specification of -901 SQLCODE on the SQLCODE exclusion list is not really necessary since it will be enforced by the higher-level “Generate SQLCODE Exceptions = N” setting).

If you specify “Exclude Exception SQLCODEs = N”, and specify “Generate SQLCODE Exceptions = Y”, then exceptions will be produced for all SQLCODEs.

If you specify “Exclude Exception SQLCODEs = N”, and specify “Generate SQLCODE Exceptions = N”, then exceptions will not be produced for any SQLCODEs.

Column name on View Profile panel
SQLCEXCPS

Include Exception SQLCODEs
Indicates whether or not to specify a list of SQLCODES to include in exception processing. Valid values are Y (shows the inclusion SQLCODE list panel where the user can specify a list of SQLCODES to include in exception processing) and N (DEFAULT – do not specify SQLCODES to include in exception processing).

Column name on View Profile panel
ESQLCODEI

Exclude Exception SQLCODEs
Indicates whether or not to exclude SQLCODEs from exception processing. To exclude an SQLCODE from exception processing:
1. Specify an INCLUDE/EXCLUDE value of I.
2. Specify an Exclude Exception SQLCODES value of Y.
3. List the SQLCODE on the Exception SQLCODE Exclusion List.

Note:
• Every negative SQLCODE is treated as an exception unless explicitly excluded from processing.
• The Exception SQLCODE Exclusion List appears whenever you specify an Exclude Exception SQLCODES value of Y.
• The exclusion of SQLCODES does not prevent exceptions from being generated due to other criteria (such as GETPAGES, number of calls). SQLCODES are recorded as exceptions if a workload exceeds a threshold defined in the active monitoring profile. The ESQLCODE and ASQLCODE columns show SQLCODES if an SQL exception occurs. If a workload exceeds a threshold for an alert or for an exception, then Db2 Query Monitor posts the record that includes an SQLCODE, if one was generated, as long as the workload matches criteria in the active monitoring profile.

Column name on View Profile panel
ESQLCODES

Collect Exception Positive SQLCODEs
Indicates whether or not positive SQLCODES are treated as exceptions in addition to negative SQLCODES for the SQL activity identified by the selection criteria on the line.

Offload table name
CQM_EXCEPTIONS

Column name
EPOSSQLC

Exclude Alert SQLCODEs
Indicates whether or not to exclude SQLCODEs from alert processing. To exclude an SQLCODE from alert processing, specify an INCLUDE/EXCLUDE value of I, an Exclude Alert SQLCODES value of Y, and list the SQLCODE on the Alert SQLCODE Exclusion List.

Note: The Alert SQLCODE Exclusion List appears whenever you specify an Exclude Alert SQLCODES value of Y.
**Column name on View Profile panel**

**ASQLCODES**

**Collect Alert Positive SQLCODEs**
Indicates whether or not positive SQLCODEs are treated as alerts in addition to negative SQLCODEs for the SQL activity identified by the selection criteria on the line.

**Offload table name**

CQM_EXCEPTIONS

**Column name**

APOSSQLC

**Discarded above (sigmas)**

**CPU Discard Level**
Indicates the discard level that has to be crossed in order for an SQL statement's CPU time not to update the rolling mean and standard deviation.

**Column name on View Profile panel**

CPUDISC

**Elapsed Discard Level**
Indicates the discard level that has to be crossed in order for an SQL statement's elapsed time not to update the rolling mean and standard deviation.

**Column name on View Profile panel**

ELAPDISC

**Getpage Discard Level**
Indicates the discard level that has to be crossed in order for an SQL statement's number of getpages not to update the rolling mean and standard deviation.

**Column name on View Profile panel**

GETPDISC

---

**Creating a monitoring profile**

Follow these steps to create a monitoring profile.

**Procedure**

1. On the DB2 Query Monitor main menu, type 8 in the Option field and press Enter.
2. Type `CREATE` in the command line on the Monitoring Profiles panel and press Enter.

![Create Monitoring Profile panel](image)

These options are available:

**Profile Name**
The name of the monitoring profile.

**Exclude QM Plans from Exceptions, Alerts, and Current Activity**
Indicates whether or not the profile excludes QM plans from exceptions, alerts, and current activity. Valid values are Yes (or checked in the CAE Browser Client) to exclude the plans listed in
the QM Plan 1, QM Plan 2, QM Plan 3 fields, and No (or unchecked in the CAE Browser Client) to not exclude any QM plans.

QM Plan#1
The QM plan to be excluded from exceptions, alerts, and current activity. Wildcards can be used when specifying QM plans.

QM Plan#2
The QM plan to be excluded from exceptions, alerts, and current activity. Wildcards can be used when specifying QM plans.

QM Plan#3
The QM plan to be excluded from exceptions, alerts, and current activity. Wildcards can be used when specifying QM plans.

3. Specify a profile name.

4. (Optional) Specify up to three plan patterns to identify the plans that are part of Db2 Query Monitor.

5. (Optional) Specify Y in the Exclude QM Plans field if you want to exclude the plans listed in the QM Plan#1, QM Plan#2, and QM Plan#3 fields from data collection.

6. Press Enter. The Create Monitoring Profile panel displays:

Figure 114. Create Monitoring Profile panel

The Create Monitoring Profile panel enables you to configure and sequence a set of monitoring profile lines. Each profile line can define the inclusion or exclusion of specific workloads from summary reporting, exception processing, and alert processing.

The sequence of the monitoring profile lines displayed on the Create Monitoring Profile panel is important since it determines the order in which Db2 Query Monitor looks for a match and, if found, includes or excludes activity information.

When a monitoring profile is assigned to a monitoring agent, the criteria specified in its monitoring profile lines are used to determine which activity is included in or excluded from Db2 Query Monitor processing.

When a monitoring agent detects SQL activity for a monitored DB2 subsystem, it refers to the monitoring profile (if one has been assigned to the monitoring agent) and in turn to include/exclude monitoring profile lines, in the order in which they are listed on the Create Monitoring Profiles panel. Once a match is identified, Db2 Query Monitor proceeds as set forth in the matched monitoring profile line (to include or exclude the activity in question) and no further monitoring profile line are considered for that unit of activity after the match occurs.

Thus, for monitoring agents that are assigned monitoring profiles, the proper configuration of the monitoring profile is a critical step in the successful monitoring of a system's queries.

These fields display on the Create Monitoring Profile panel:

Profile Name
The name of the monitoring profile.

These commands are valid for the Create Monitoring Profile panel:

I - Insert
Insert a new monitoring profile line.
U - Update
  Update the monitoring profile line.

R - Repeat
  Repeat (duplicate) the monitoring profile line to produce a duplicate monitoring profile line directly below the original.

D - Delete
  Delete the monitoring profile line.

C - Copy
  Copy the monitoring profile line. When used in combination with the A (after) and B (before) line commands, you can define the placement of the monitoring profile line after it has been copied.

M - Move
  Move a monitoring profile line. When used in combination with the A (after) and B (before) line commands, you can define the placement of the monitoring profile line after it has been moved.

B - Before
  When used in combination with the M (move) line command, the B line command enables you to place a moved monitoring profile line before the selected monitoring profile line. When used in combination with the C (copy) line command, enables you to place a copy of the monitoring profile line before the selected monitoring profile line.

A - After
  When used in combination with the M (move) line command, the A line command enables you to place a moved monitoring profile line after the selected monitoring profile line. When used in combination with the C (copy) line command, enables you to place the copy of the monitoring profile line after the selected monitoring profile line.

Working with monitoring profile lines

Monitoring profiles consist of monitoring profile lines that can be created, inserted, updated, moved and deleted as needed to tailor a monitoring profile to fit your needs.

Adding a monitoring profile line

Follow these steps to add a monitoring profile line.

Procedure

1. On the DB2 Query Monitor main menu, type 8 in the Option field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel, type I in the CMD field and press Enter. The Insert Profile Line panel is displayed:
Figure 115. Insert Profile Line panel

Note:

- Every negative SQLCODE is treated as an exception unless explicitly excluded from Db2 Query Monitor processing using SQLCODE exclusion parameters.
- You can use wildcard specifications in these fields to identify the workload.
3. Specify I or E in the **INCLUDE/EXCLUDE** field depending on whether the profile line you are creating is intended to include matching SQL activity in or exclude matching SQL activity from Db2 Query Monitor processing.

**Note:** INCLUDE/EXCLUDE does not affect summaries unless the **Disable Summary Reporting** parameter is set to Y, thus if you do not include a Db2 subsystem for monitoring, you might still see activity for that subsystem from Db2 Query Monitor main menu option 1 (View Activity Summaries).

4. Identify the SQL activity for which the profile line applies by specifying values in the following fields: **DB2 Subsystem**, **Plan Name**, **Program Name**, **AUTHID**, **JOBNAME**, **Connection ID**, **CORRID**, **Workstation User**, **Workstation Trans**, **Workstation Name**, and **Workload Name**.

5. Identify what you want Db2 Query Monitor to do with SQL activity that matches the workload criteria you specified by specifying values in the following fields: **Disable Summary Reporting**, **Gather Host Variables**, **Exception CPU**, **Exception Elapsed**, **Exception Getpages**, **Exception SQL Calls**, **Exception Limit**, **Generate SQLCODE Exceptions**, **Include Exception SQLCODEs**, **Exclude Exception SQLCODEs**, **Alert CPU**, **Alert Elapsed**, **Alert Getpages**, **Alert SQLCALLS**, **Generate SQLCODE Alerts**, **Include Alert SQLCODEs**, and **Exclude Alert SQLCODEs**.

6. Indicate whether or not you want to override OPTKEYS and specify which OPTKEYS you want to override for the workload by specifying Y or N in the **OPTKEYS override** fields.

7. Identify what you want Db2 Query Monitor to do with positive SQL codes in addition to negative SQL codes by specifying values in the following fields: **Collect Exception Positive SQLCODEs**, **Collect Alert Positive SQLCODEs**, **Ignore SQLCODE 100 for Read Activity**.

8. Indicate whether or not to exclude SQLCODES from alert processing, exception processing, or summary reporting by specifying a Y or N in the **Exclude Alert SQLCODES**, **Exclude Exception SQLCODEs**, and **Exclude Summary SQLCODES** fields.

9. Indicate whether or not to explicitly include some SQLCODES in alert processing, exception processing, or summary reporting by specifying a Y or N in the **Include Alert SQLCODES**, **Include Exception SQLCODEs**, and **Include Summary SQLCODES** fields. In such cases, only the explicitly specified codes are collected, and only if they are not in the exclusion list.

10. Press Enter. If you specified N in the **Exclude Exception SQLCODEs**, **Exclude Alert SQLCODEs**, and **Exclude Summary SQLCODES** fields, then the **Update Monitoring Profiles** panel displays.

   If you specified Y in the **Exclude Exception SQLCODEs** field, then the **Exclude SQLCODE Exception List** panel displays, where you can specify the SQLCODES you would like excluded from exception processing:

   ![Exception SQLCODE Exclusion List panel](image)

   **Figure 116. Exception SQLCODE Exclusion List panel**

   Use the line commands These commands are available on the **Exception SQLCODE Exclusion List** panel:

   **I - Insert**
   Insert a new row of input fields for SQLCODES.

   **R - Repeat**
   Repeat (duplicates) the line item to produce a new, identical line directly below the original.

   **D - Delete**
   Delete the line of SQLCODES from the list.
C - Copy
Copy the row. When used in combination with the A (after) and B (before) line commands you can define the destination of the copied line.

M - Move
Move a line of SQLCODES. When used in combination with the A (after) and B (before) line commands, you can define the placement of the line after it has been moved.

B - Before
When used in combination with the M (move) line command, enables you to place a moved line of SQLCODES before the selected line. When used in combination with the C (copy) line command, enables you to place the copy of the line before the selected line.

A- After
When used in combination with the M (move) line command, enables you to place a moved line of SQLCODES after the selected line. When used in combination with the C (copy) line command, enables you to place the copy of the line after the selected line.

a) Type the SQLCODES that you want to exclude from Db2 Query Monitor exception processing in the blank fields.

Note: When typing a negative SQLCODE, you must use "-" prior to the SQLCODE to indicate that it is negative. When typing a positive SQLCODE, you must use "+" prior to the SQLCODE to indicate that it is positive.

b) If you need to specify more than nine SQLCODES for exclusion, use the I line command to insert a new line of fields or use the C, A, B, M, or R commands as necessary to copy or move existing lines.

c) When finished listing all the SQLCODES you want to exclude from exception processing, press PF3. If you specified N in the Exclude Alert SQLCODES and Exclude Summary SQLCODES fields, then the Update Monitoring Profiles panel displays. If you specified Y in the Exclude Alert SQLCODES or Exclude Summary SQLCODES fields, repeat the process of specifying SQLCODES on the exclusion lists displayed for those parameters.

d) When finished listing all the SQLCODES you want to exclude from exception processing, alert processing and summary reporting, press PF3. The Insert Profile Line panel displays.

11. A separate Include or Exclude panel is displayed for each Exclude Exception SQLCODES, Exclude Alert SQLCODES, Exclude Summary SQLCODES, Include Exception SQLCODES, Include Alert SQLCODES, Include Summary SQLCODES field that was set to Y.

12. Press PF3 and exit and save changes as necessary.

Copying a profile line
Follow these steps to copy a monitoring profile line.

About this task
You can copy monitoring profile lines and place them before or after other monitoring profile lines using the C (copy), A (after), and B (before) line commands. This enables you to quickly reproduce a profile line and then makes it available to you for updating as necessary.

Note: If there is only one profile line in your profile and you want to duplicate it, do not use the copy command. Instead, use the R (repeat) line command.

Procedure
1. On the DB2 Query Monitor main menu, type 8 in the Option field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel, type C in the CMD field next to the profile line you want to copy.
3. Type A (or B) in the CMD field next to the profile line after which (or before which) you want to insert the copied profile line.
4. Press Enter. The profile line is copied into the appropriate location and can now be updated as needed.
Moving a monitoring profile line
Follow these steps to move a monitoring profile line.

About this task
Moving a monitoring profile line enables you to alter the order in which the monitoring profile line in a monitoring profile are processed and in turn the way the profile influences the reporting of captured activity.

Procedure
1. On the DB2 Query Monitor main menu, type 8 in the Option field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel, type M in the CMD field next to the monitoring profile line you want to move.
3. Type A (or B) in the CMD field next to the monitoring profile line after which (or before which) you want to move the monitoring profile line.
4. Press Enter. The monitoring profile line is moved into the appropriate location.

Repeating a monitoring profile line
Follow these steps to repeat a monitoring profile line.

About this task
If you have to create several monitoring profile lines that are similar, the R command enable you to create those monitoring profile lines more efficiently.

Procedure
1. On the DB2 Query Monitor main menu, type 8 in the Option field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel, type R in the CMD field next to the monitoring profile line you want to repeat.
3. Press Enter. The monitoring profile line is copied below the original monitoring profile line and is now available for updating as necessary.

Updating a monitoring profile line
Follow these steps to update a monitoring profile line.

Procedure
1. On the DB2 Query Monitor main menu, type 8 in the Option field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel, type U in the CMD field next to the profile line you want to update.
3. Press Enter. The Update Profile Line panel displays:
Figure 117. Update Profile Line panel

4. Edit the fields for the profile line as needed.
5. Press PF3 to exit and save changes.
Deleting a monitoring profile line

Follow these steps to delete a monitoring profile line from a monitoring profile.

**Procedure**

1. On the **DB2 Query Monitor main menu**, type 8 in the **Option** field and press Enter.
2. Access the **Create Monitoring Profile** panel or the **Update Monitoring Profile** panel and type **D** in the **CMD** field next to the monitoring profile line you want to delete.
3. Press Enter. The monitoring profile line is deleted.

Updating a monitoring profile

Follow these steps to update a monitoring profile.

**About this task**

**Note:** If you update a monitoring profile while it is in use, you must refresh the monitoring profile after it has been updated, in order for your changes to be implemented.

**Procedure**

1. Select option **8. Work with Profiles** from the **DB2 Query Monitor main menu** and press Enter. The **Monitoring Profiles** panel displays.
2. Type **U** in the **CMD** field for the monitoring profile you want to update. The **Update Monitoring Profile** panel displays:

   ![Update Monitoring Profile panel](image)

   **Figure 118. Update Monitoring Profile panel**

3. Edit the **Exclude QM Plans**, **QM Plan#1**, **QM Plan#2**, and **QM Plan#3** fields as necessary.
4. Press Enter to exit and save changes. The **Update Monitoring Profile** panel displays:

   ![Update Monitoring Profile panel](image)

   **Figure 119. Update Monitoring Profile panel**

5. Update the monitoring profile as necessary. If the monitoring profile is in use, refresh it to implement your changes.
Renaming a monitoring profile

Follow these steps to rename a monitoring profile.

Procedure

2. Type R in the CMD field for the monitoring profile you want to rename. The Rename Monitoring Profile panel displays:

```
-------------------- Rename Monitoring Profile -------------------
Option ===> _________________________________________________
The following profile will be renamed
Profile Name .......... MPROF1
New Profile Name ....... _______
Press Enter to rename profile or PF3/CANCEL to exit
```

*Figure 120. Rename Monitoring Profile panel*

These field displays on the Rename Monitoring Profile panel:

- **Profile Name**
  - The current name of the monitoring profile that you want to rename.

- **New Profile Name**
  - The new name for the monitoring profile.

3. Type a new name (up to eight characters) in the New Profile Name field.
4. Press Enter to confirm the renaming of the monitoring profile.

Deleting a monitoring profile

Follow these steps to delete a monitoring profile.

Procedure

2. Type D in the CMD field for the monitoring profile you want to delete.
3. Press Enter to confirm the deletion of the monitoring profile and return to the Monitoring Profiles panel.

Viewing a monitoring profile

Follow these steps to view a monitoring profile.

Procedure

2. Type V in the CMD field for the monitoring profile you want to view. The View Monitoring Profile panel displays:
Monitoring profile workflows

The workflow for creating monitoring profiles expands on the basic tasks you use when working with monitoring profiles.

About this task

The following steps outline a basic workflow you can use to tailor a monitoring profile to achieve a specific objective.

Procedure

1. **Identify your monitoring objectives.** Monitoring profiles enable you to fine-tune the inclusion and exclusion of specific workloads from monitoring and thereby determine the type of activity that is to be collected by Db2 Query Monitor. Such fine-tuning requires a clear understanding of your objectives. For instance, your objectives might be to:
   - Include a workload in exception reporting
   - Include a workload in alert reporting
   - Exclude Db2 Query Monitor workloads from exception processing
   - Exclude a workload from both exception processing and summary reporting
   - Define OPTKEY override settings

2. **Define monitoring profile name and the Db2 Query Monitor plans (if any) to exclude from exception processing.** After identifying your objectives, you can start setting up a new monitoring profile. The first steps in doing so are to define a monitoring profile name and identify any Db2 Query Monitor plans you would like to exclude from exception processing. The exclusion of Db2 Query Monitor plans from exception processing is optional.

3. **Create the necessary monitoring profile lines.** You can now create the monitoring profile lines you need to address your objectives.

4. **Place monitoring profile lines in the proper sequence.** The order in which monitoring profile lines are placed within a monitoring profile is important as it determines the order in which Db2 Query Monitor looks for a match and, if found, includes or excludes activity information. Db2 Query Monitor reads the
list of profile lines from top to bottom. When a match is found, the activity is processed according to the parameters specified in the matching monitoring profile line and no additional monitoring profile lines in the monitoring profile are considered for that activity. Move the monitoring profile lines in your monitoring profile so they are in the appropriate sequence based on your objectives.

5. **Associate the monitoring profile with the monitoring agent.** In order for the monitoring profile to take effect, you must associate it with a monitoring agent. You can do so from Db2 Query Monitor main menu option 6. **Work with Monitoring Agents.**

**Including a workload in alert/exception reporting**
Follow these steps to include a workload in alert/exception reporting.

**Procedure**
Set up an INCLUDE profile line that:

- Properly specifies the workload (plan, program, etc.)
- Excludes any SQLCODEs from alert/exception reporting for the workload
- Defines an exception limit greater than 0
- Specify Y in the **Threshold Exceptions** field and specify the appropriate exception thresholds.
- Specify N in all **Anomaly-based Exceptions** fields (CPU Anomalies, Elapsed Anomalies, Getpage Anomalies).
- Specify Y in the **Threshold Alerts** field and specify the appropriate alerts thresholds.
- Specify N in all **Anomaly-based Alerts** fields (CPU Anomalies, Elapsed Anomalies, Getpage Anomalies).

**Note:**
- a. All work is excluded from exception reporting until a filter is set up to specifically include it.
- b. It is recommended that you name your workload by filling in the optional **Workload Name** field on the **Insert (or Update) Profile Line** panel to facilitate the identification of the monitoring profile line and workload with which captured activity is associated.

**Excluding Db2 Query Monitor workloads from exception processing**
Follow these steps to exclude Db2 Query Monitor workloads from exception processing.

**About this task**
Specify the Db2 Query Monitor plans you want to exclude and an **Exclude QM Plans** value of Y on the **Create/Update Monitoring Profile** panel.

**Excluding a workload from both exceptions and summary reporting**
Follow these steps to exclude a workload from exceptions and summary reporting.

**Procedure**
To exclude a workload from both exceptions and summary reporting, set up a monitoring profile line within the monitoring profile with these settings:

- Set **INCLUDE/EXCLUDE** to E
- Set **Disable Summary Reporting** to Y

**Note:**
- If the workload specification is for the Db2 Query Monitor Plans on this type of filter, the setting for **Exclude QM Plans** on the monitoring profile is not used. The work is automatically excluded from both summary and exception reporting.
• You can use wildcard specifications to identify the workload (ie. in fields such as AUTHID, JOBNAME, Connection ID, CORRID, and Workstation User/Trans/Name).

**Defining OPTKEY override settings**

Follow these steps to define OPTKEY override settings.

**Procedure**

1. Set OPTKEYS to Y. A value of Y causes Db2 Query Monitor to override the setting of the OPTKEYS in CQMPARMS for the workload specified in the monitoring profile line according to the override the individual OPTKEYS settings.
2. Set the appropriate values for the the individual OPTKEYS settings.

**Configuring anomaly-based alerts/exceptions**

Follow these steps to include a workload in the reporting of anomaly-based alerts/exceptions.

**About this task**

Anomaly detection is specified at the monitoring profile level, with each profile monitoring a specific workload type. When anomaly-based exceptions are enabled, the following occurs when a query workload matches the profile:

• Db2 Query Monitor calculates the mean and variance for the specified attributes (CPU, Elapsed, Get Pages)
• The mean will be maintained through intervals and per interval
• More recent executions will be weighted more heavily
• Users will specify a sensitivity value to control how far from normal before triggering the alert or exception

**Procedure**

Set up an INCLUDE monitoring profile line that:

• Properly specifies the workload (plan, program, etc.)
• Excludes any SQLCODEs from exception reporting for the workload
• Defines an exception limit greater than 0
• Specifies:
  – N in the **Threshold Exceptions** field.
  – N in the **Threshold Alerts** field.
  – Y in the appropriate **Anomaly-based Exceptions** fields (**CPU Anomalies**, **Elapsed Anomalies**, **Getpage Anomalies**) along with an appropriate value in the **Toleration Level** field for each of the selected fields.
  – Y in the appropriate **Anomaly-based Alerts** fields (**CPU Anomalies**, **Elapsed Anomalies**, **Getpage Anomalies**) along with an appropriate value in the **Toleration Level** field for each of the selected fields.
  – Discard above (sigmas) values for the selected fields (**CPU Discard Level**, **Elapsed Discard Level**, **Getpage Discard Level**)

**Note:**

a. All work is excluded from exception reporting until a filter is set up to specifically include it.

b. It is recommended that you name your workload by filling in the optional **Workload Name** field on the **Insert (or Update) Profile Line** panel to facilitate the identification of the monitoring profile line and workload with which captured activity is associated.
**Tips for setting tolerance levels**

Review the following tips when setting tolerance levels for anomaly-based alerts and exceptions.

**Procedure**

1. Start with default values of Tolerance Level (6.0) and Discard Tolerance (12.0).
2. Start with **No Anomalies** configured for alerts.
3. Set an **Exception Count Limit** in the exception profile.
4. Run with these values for a time period.
5. Analyze the anomaly exceptions produced.
6. For each KPI, sort Exceptions based on Standard Deviation Factor for Exception Values.
7. Standard Deviation Factor: How many Stand Deviations away from the Mean is the Exception Value.
8. Determine what values are anomalous and determine an acceptable value for Standard Deviation Factor.
9. When the exception list is sorted based on Standard Deviation Factor, it is easier to see how many exceptions would be generated at different Tolerance Levels.
10. Set Tolerance Level appropriately based on the Standard Deviation Factor.
11. If insufficient exceptions are generated in the given time-frame, lower the Tolerance Level, and repeat.

---

**Applying a monitoring profile to a monitoring agent**

To put a monitoring profile into effect, you must activate a monitoring agent and associate the monitoring profile with that monitoring agent.
Chapter 18. CAE Browser Client overview

The CAE Browser Client provides you with access to Db2 Query Monitor's web-based functionality, which enables you to browse query activity, view alerts, and configure actions and responses.

Topics:
- “About the CAE Browser Client” on page 317
- “Home” on page 320
- “CAE logs” on page 320

About the CAE Browser Client

Use the CAE Browser Client to browse query activity, view alerts, and configure actions and responses.

Flex and Ajax interfaces

There are two types of interfaces in the CAE Browser Client, an Ajax interface and a Flex interface. The Ajax and Flex interfaces share a common header but the body of the page differs between the interfaces.

The differences affect how you log in to and use the CAE Server:

- For Ajax pages, the body of the web page is regular HTML with JavaScript. For Ajax pages to work, JavaScript must be enabled in your web browser. Log in is handled by redirecting to the log in page, then to the originally requested page. The Ajax components of the CAE Browser Client include the Alerts Browser, Configuration Browser, Home Page, and Online Help.
- For Flex pages, the body of the page consists of a single Adobe Flash plug-in that you interact with. Log in is handled by the Adobe Flash plug-in. The Flex components of the CAE Browser Client include the Activity Browser and the QM Subsystem Management. If you visits the Activity Browser in your browser (by clicking on the Activity Browser option on the homepage), that page will either show the Activity Browser, or instructions about how to download the Adobe Flash plug-in. The Flex interface is limited to a small number of configuration pages.

Common header elements

The common header elements that are displayed throughout all pages of the CAE Browser Client provide information about the product and access to basic tools such as online help and log in and log out options.

The header area displays the following:

Product name and version
The product name and version.

Welcome username
The current user name.

About
The product copyright, license, and information about the current build.

Help
A link that shows the online help.

Logged in as/logout
If you have established a web session, the Logged in as field contains the text "Logged in as username" and the link is labeled Logout. If you have not established a web session when initially displaying the page, "Not Logged in" will display and the link will be labeled Login. Clicking the Login link displays the Login Dialog. Clicking the Logout link ends your web session and returns you to the Home page.

IBM Support
A link to the IBM Support Portal.
Component navigation bar
A horizontal menu that provides access to each of the CAE Browser Client components.

Launching CAE components
The CAE Server launches automatically. You are not required to manually start or stop the CAE Server.

Procedure
After the CAE Server is installed and is running, you can launch the CAE Browser Client by pointing your web browser at the host running the CAE Server.
The link is of the following format:
https://your_server_name:port

Sessions, timeouts, and roles
To access the Activity Browser, Alerts, or Configuration components, you must log in to the CAE Server.

Web session versus system session
When you log in to the CAE Browser Client, both a web session and a system session are created unless the log in was against the CAE Server, in which case only a web session is created.

Web Session
A web session provides access to the Alerts Browser and the Configuration Browser.

System Session
A mainframe system session provides the CAE Browser Client with access to Db2 Query Monitor data you can see using the ISPF Client.

Session time out
If you have not accessed a particular system for more than 15 minutes, your system session will time out.
If you have not used the CAE Browser Client for more than 15 minutes, your web session will time out. Accessing the Home Page or the Online Help are not interpreted as use of the CAE Browser Client and do not prevent a time out. After a timeout, any attempt to use the CAE Browser Client will be treated as if you had not logged in to that web session or system session, depending on which had timed-out.

Roles
When you log in, you are assigned a role that controls your access to the Configuration Browser.
• If you authenticate against a mainframe system, the role you are assigned will be determined by the kind of access you have to particular facility classes (see below for additional information).
• If you authenticate against the CAE Server, your role is determined by how you were defined to the CAE.

Access to features
All web sessions will have full access to Alerts Browser and, depending on your role, to the Configuration Browser.

Analysis
The CAE Agent and CAE Server continually perform recursive analysis of alerts and inferred alerts, pro-actively generate new alerts, and correlate alerts.
The following four alerts are triggered by threshold values controlled by profiles:
• GetPageCountExceededProblem
• SqlCallCountExceededProblem
• SqlCpuProblem
Alerts and events

Two SQL executions are considered to be the same SQL if these conditions hold:

- **For static SQL:** If, on a given DB2 Subsystem, the two executions are from the same plan and package (and package version), and have the same section and statement numbers, then the two executions are considered to be of the same SQL unless you use Optional Alert Keys to specify User, Corrname, WsTran, WsName, or WsUser as additional uniqueness criteria.

- **For dynamic SQL:** If, on a given DB2 subsystem, the two executions have the same SQL text, then the two executions are considered to be of the same SQL, regardless of plan, package, section, or statement unless you use Optional Alert Keys to specify Plan, Program, Section, User, Corrname, WsTran, WsName, or WsUser as additional uniqueness criteria.

Actions

Actions can be executed in response to events. Db2 Query Monitor provides a number of built-in actions and users can define new actions. All actions can embed contextual data from the triggering event. For example, the plan of an SQL statement and the IO delay value can be included in the e-mail message text generated as a result of a SynchronousIODelayProblem. These types of actions can be created:

**Command**
- Launch shell scripts and batch files.

**Email**
- An Email message consisting of pre-defined text.

**WTO**
- A write-to-operator command.

**Cancel thread**
- Terminate the thread running the cursor associated with the DBSQL statement that triggered the alert.

Command actions can be defined using these scripting languages:

- DOS batch script
- BASH
- CSH
- SH
- TCSH
- z/OS JCL

**Note:** BASH, CSH, SH, and TCSH are all UNIX command shells and only apply when running the CAE Server under USS and will only run on the LPAR of the CAE Server.

Each action, whether it is built-in or user-defined, is associated with an action group and a subject element type. An action group specifies where, exactly, an action is executed. Db2 Query Monitor provides three built-in action groups:

- CAE Browser Client-based actions
- CAE Server-based actions
- CAE Agent-based actions
CAE Browser Client and CAE Server-based actions are executed on the corresponding host; agent-based actions are run by the ActionExecutionAgent on the MVS image on which the applicable DB2 subsystem is running.

Db2 Query Monitor provides these built-in actions:

- Cancel thread
- Sample WTO
- SampleEmailAction

**Alert evaluation considerations**

If a thread crosses an alert threshold it can generate the alert in the CAE Browser Client before the thread ends.

If a thread triggers multiple alerts, the product attempts to order them in the sequence that most likely shows the 'root cause' followed by the symptoms, not necessarily in the order the alerts are tripped.

For example, poor buffer pool hit ratios might cause SQL delay times to be high and SQL elapsed times to be high. Depending on the alert threshold values any of these could be triggered first, but the 'root cause' of buffer pool hit ratio would be displayed at the top of the hierarchy.

The thread does not have to end to get the alert. Once the SQL has been in flight for at least 5 seconds alerts are generated as the threshold is reached. If the SQL does not last 5 seconds the alert will be generated when the SQL statement ends if the threshold is reached.

---

**Home**

The home page provides you with a central location from which you can access the various components of the CAE Browser Client and view information about the status of your CAE Browser Client session.

**Access to web components**

The home page provides links to the various web components.

**Status**

The status area of the home page displays information about the version and build of Db2 Query Monitor you are running, log in status, and the local date and time (GMT). If you are logged in, this area displays your user ID and a link to log out.

---

**CAE logs**

The logs produced by the CAE Server, CAE Agent, and CAE Browser Clients enable you to diagnose and troubleshoot problems.

**CAE log size and retention limits**

When a log exceeds 10MB in size, a new log is created. Only the most recent 32 logs are retained.

**Description of CAE logs**

**CAE Server log**

The CAE Server log is located on the windows workstation where the CAE Server is running. Locate the folder in which the CAE Server is installed. Inside that folder is another entitled "logs" that holds the CAE Server logs. The CAE Server log has a name of the form cqm_srvr_yyyy-mm-dd-hh-MM.log, for example, cqm_srvr_2011-01-20-16-34.log.

**Note:**
• If the CAE Server is installed on USS, the server log is generated in the location defined in your sites CQMCAESV JCL. For example, the following line in the sample JCL (SCQMSAMP library member CQMCAESV) can be customized to define the location of the CAE Server log on USS:

```
//STDOUT DD PATH='/u/username/cqm/logs/cae_server.log',
```

• If the CAE Server is installed on USS, it only keeps the five most recent logs (including the current log).

• If you customize the STDOUT DD statement, CQM_LOGS must use the same path, for example:

```
CQM_LOGS=/u/username/cqm/logs
```

**CAE Agent log**

Log information generated by the CAE Agent goes to SYSOUT. CQMC*E messages are sent to SYSOUT and WTO.
Chapter 19. Alerts

The Alerts Browser displays message boards and options that enable you to control the display of the messages generated by alerts and exceptions.

By default, the Alerts Browser contains a single message board. Only users who are assigned either Supervisor or Administrator roles can modify the default message board. All other users who want to have a message board that they can modify must create message board of their own.

The default message board displays messages for all domains loaded on the CAE Server. Additionally, you can create message boards that filter messages to achieve various display results, for example, to correspond to a specific scope or set of event names or to match specific criteria such as priority or event name.

In the CAE, the sysname of a system is its identifier. If you change the address (DNS name or IP address) of a system, but do not change the sysname, then all new alerts associated with the sysname are considered to occur on the same system as the alerts that occurred on the system before the change. If you keep the address the same but change the sysname, it is considered a new system.

Topics:
- “About the blackboard” on page 323
- “Viewing messages” on page 324
- “Working with message boards” on page 326

About the blackboard

The blackboard is a component of the CAE that interacts with the CAE Server and the CAE Browser Client. Db2 Query Monitor's CAE Server performs alert analysis and correlation before passing data to the blackboard. The blackboard, in turn, passes data to any automated responses configured on the CAE Server. Additionally, the CAE Browser Client retrieves data from the blackboard.

Messages that are posted on the blackboard are retrieved by message boards in the CAE Browser Clients. Those message boards can be configured to display only messages that meet filter criteria. However, filter criteria affect individual message boards only and have no effect on other message boards or the blackboard.

Some commands that take place on message boards affect the blackboard. These include:

**Acknowledge**
Set the status of the message in the blackboard to acknowledge which indicates to all CAE Browser Client users that the message has been acknowledged by a user. The acknowledgment status suspends the message's priority escalation.

**Unacknowledge**
Clear the acknowledge status and allows the message to resume priority escalation if it continues to remain unacknowledged.

**Clear**
Delete the message from the blackboard and as a result removes it from display in all CAE Browser Client message boards.
Viewing messages

Follow these steps to view message boards and messages.

Procedure
Access the CAE Browser Client Alerts Browser by clicking the Alerts link on the CAE Browser Client home page. Messages display in message boards. Each message board is displayed on an individual tab within the Alerts Browser.

Message properties
A message board lists messages in rows with the columns that represent the various properties of the messages.

The following properties are available to display in columns:

Ack
A checkmark indicates that the message has been acknowledged. No checkmark indicates the message has not been acknowledged.

Pri.
The integer corresponding to the event's priority. All priorities are selected by default. Initial event priority is configured in MITs Configuration. Valid priorities include:

1 Critical - red
2 High - dark orange
3 Medium - orange
4 Low - yellow
5 Warning - turquoise
6 Information - green

Correlation
The name of any message correlation definition applied to a message. A + will appear in this column when there are related events for the message. When the + is clicked it shows related events (which are also shown in the message detail dialog). Refer to the screen shots above for how correlated events are displayed with and without +/- expansion.

Annotations (pencil icon)
The presence of an annotation is indicated by a pencil icon in this column. The product annotates a message when it executes an action in response to an event, when a message is acknowledged, or when a message is unacknowledged; users can add their own notes to messages by right-clicking a row and selecting Annotate.

Related messages (i icon)
Indicates whether or not some other message is associated with the current one. For example, two messages that are correlated are considered to be related. Related messages are listed in the Message Details window.

Event Name
The name of the event.

Sub.
An integer count of other events that are subsumed under (correlated under) the line item.
**Note:** A subsumed message is a message obscured from view as a result of it having been correlated with another message that is its root cause. This reduces the number of event messages to which an administrator needs to be aware and responsive.

**system**
The z/OS system.

**subSystem**
The DB2 subsystem.

**Subject**
The subject associated with the event.

**Received**
The date and time of the first repetition of this event. To see the time of most recent repetition, view the details for the message by double clicking the message line.

**Rep. Count**
The number of times that the message has been posted.

**Note:** Messages are not received directly from source devices but are inferred from a variety of sources and situations.

**Message board filters**
Message board filters provide you with the ability to see only the messages that correspond to one or more specific scopes or sets of event types.

To work with message board filters, click the **Filters** button located in the top bar of the Alerts Browser.

Changes that you make to a message board are persistent. The product retains your changes with other preferences that you have set for your user account.

The following kinds of filtering can be manipulated from the filtering dialog box:

**Priorities**
Turn on or off the appearance of a message based on its priority. The colors correspond to the following priority levels:

- **Red**
  Critical
- **Dark orange**
  High
- **Orange**
  Medium
- **Yellow**
  Low
- **Turquoise**
  Warning
- **Green**
  Information

**Updated before/after**
Hide the events that were updated before or after a defined date and time.

**Hide acknowledged**
Hide acknowledged events.

**Do not apply filter to subsuming (e.g. causing) events**
Do not apply the filter to subsuming events.

**Scopes**
Show only the events whose subject is a member of the selected scope.

**Events**
Show only the events that are one of the set of checked events.
Message details
Message details show you information about the messages you received.
You can display the message details by double-clicking a message in a message board. These tabs show message details:

Messages
Message text, the date the message was last updated, the event name, ID, and description with the message, and any advice appropriate for resolving the message.

Attributes
The name and value of variables for the message.

Annotations
Annotations that are associated with the message.

Related messages
Two mini-message boards show the upstream and downstream events associated with the message.

Text/host vars
The SQL text associated with the message and any host variable information. This tab displays only when the event involved an SQL statement.

Working with message boards
A message board is a portion of the Alerts Browser that displays message text for events taking place in the DB2 subsystems that are managed using Db2 Query Monitor.

The Alerts Browser contains a single message board by default, but you can create as many additional message board as you like, and configure each so that it provides a different view of message activity.

Message boards can be public or private. You can define customized message boards that are limited to specific workloads or sets of workloads, and are limited to specific kinds of alerts. Such a message board might be useful to several members of the team who are all working on the same set of applications and wish to have a message board that shows only the alerts that are of interest to those team members. This feature allows a CAE administrator to define such a message board, and share it so the other members of the team can see it, thus eliminating the need for each user to redefine essentially the same message board.

Taking an action against a message affects the message in all the message boards in which it appears (for example, clearing a message clears it from all message boards).

By default, a message board displays messages for all DB2s that are loaded on the CAE Server. A message board can be selected by clicking on the tab with its name at the bottom of the Alerts Browser.

Message board controls
The following controls are available in the Alerts Browser for working with message boards:

Add
Add a new message board.

Delete
Delete the active message board.

Rename
Rename the active message board.

Clear
Clear the selected messages.

Configure filter
Configure message board filter options.

Note: Each message board (tab) can have its own filter.
Auto-refresh
Specify the time interval at which message board information is refreshed.

Refresh
Refresh the message board.

Note: Refresh is not just for a single message board, it refreshes all message boards in the Alerts Browser.

Export
Export the contents of the message board (with whatever filter is applied).

Note: The Export selected message board button only exports the active message board, not the entire contents of the Alerts Browser.

Message board operation
The message board operation button enables you to acknowledge, unacknowledge or clear selected messages. The available actions include:

Acknowledge all
Acknowledge all messages.

Unacknowledge all
Unacknowledge all messages.

Annotate all
Annotate all messages.

Clear all
Clear all messages.

Adding a message board
If your user role is Supervisor or Administrator, you can add and share a message board. All other user roles can add (but not share) a message board.

Procedure
1. From any window within the CAE Browser Client, click Alerts.
2. Click the Add button.
3. Type a name for the new message board in the prompt.
4. (Supervisor or Administrator roles only) Select public to share the message board.
   
   Note: You cannot add labels to shared (public) message boards.
5. Click OK. The new message board displays as a new tab in the Alerts Browser. The number of alerts and the color of the highest priority alert are shown in the message board tab.

Editing a message board
Follow these steps to edit or rename a message board.

Procedure
1. From any window within the CAE Browser Client, click Alerts.
2. Click Rename.
3. Type a new name for the new message board in the prompt and specify whether you want to make the new board public or private.
4. Click OK.
Filtering messages
Follow these steps to filter the display of messages for a message board.

About this task
By default, a message board displays all messages (regardless of attributes such as priority, scope, or context). You can use filters with message boards to show only the messages that correspond to a specific scope, set of event names, priority, or other criteria.

Procedure
1. To filter by scope or event type:
   a) Click Filters > Scopes.
   b) Highlight the scopes that you want to include in message display and click OK.
   c) Expand the Event tree and select the event types you want to include in message display.
   d) Click OK.
2. To filter by acknowledgement status:
   a) Click Filters.
   b) Select or clear the Hide Acknowledged check box.
   c) Click OK.
3. To filter by message priority:
   a) Click Filters.
   b) Select or clear the Priorities check boxes as appropriate to show or hide message based on priority. From left to right, the priority check boxes correspond to Critical, High, Medium, Low, Warning, and Information priorities.
   c) Click OK.

Sorting messages
Follow theses steps to sort messages in ascending or descending order based on any of the columns shown in a message board.

Procedure
1. From any window within the CAE Browser Client, click Alerts.
2. Select the message board you want to work with.
3. Hover over the column header for the column you want to sort messages by, to display the drop-down arrow.
4. Click the drop-down arrow and select the sort method of choice, either Sort ascending or Sort descending.

Customizing message board columns
Follow these steps to customize the columns that are shown for your message boards.

Procedure
1. From any window within the CAE Browser Client, click Alerts.
2. Select the message board you want to work with.
3. Hover over the column header box to display the drop-down arrow.
4. Click the drop-down arrow and select Columns.
5. Using the fly-out menu that lists the available columns, select or deselect the individual columns as appropriate to customize your column display.
6. To reorder columns, you can click, drag and drop the column to the desired location.
Chapter 20. Activity Browser

The Activity Browser is a component in the CAE Browser Client that enables you to browse and work with Db2 Query Monitor data collected by one or more Query Monitor Subsystems.

Topics:
• “Controls and components” on page 329
• “Viewing and navigating activity” on page 330
• “Workload comparison” on page 336
• “Data table columns descriptions” on page 339
• “General tasks” on page 359
• “Application Menu” on page 360

Controls and components

The Activity Browser offers these basic controls and components. The source, target, perspective, and intervals you select control the data that is displayed in the Activity Browser. You can further refine your view of data using filters and drill down commands.

Sources (drop-down list)
The source of DB2 Query Monitor data you want to work with in the CAE Browser Client. A source can be an active Query Monitor Subsystem or an archive connection to a Performance History Database.

Targets (drop-down list)
The target (system, Query Monitor Subsystem, DB2 subsystem combination, or data sharing group, SSID combination) for which you want to view activity in the CAE Browser Client. The available values in the Targets dropdown depend on the selected Source.

Intervals (drop-down lists for starting and ending interval)
Select the starting and ending intervals for which you want view activity in the CAE Browser Client. For more information, see “Selecting intervals” on page 367.

Show Interval Manager (button)
Select the specific intervals for which you want to view activity in the CAE Browser Client. For more information, see “Selecting intervals” on page 367.

Run (button)
Applies the Source, Target, Interval, Filter, Views, and Perspective selections you have made and refreshes the data table.

History (drop-down list)
A list of the most recent 20 selections you made using the Activity Browser. Shows a spinning wheel when loading data for a request.

Filter (drop-down list)
The filter you want to use when browsing activity. Filters can be either private or shared.

TopN (drop-down list)
The metric for which you want to view only the top-n SQL statements. The TopN dropdown is only applicable if you are in Perspective: Summaries > SQL text. When viewing large volumes of data, the top-n feature enables you to reduce the system resources that are required to view data of interest.

Views (drop-down list)
The Views dropdown enables you to select and create views to use in the Activity Browser. A custom view specifies various aspects of the Activity Browser you want to tailor to suit your viewing needs, such as drilldown, columns, column widths, sort direction, sort order, and number of locked columns. Views can be either private or shared.
Show SQL (button)
The Show SQL button shows the SQL text for the selected line in the data table. When you click the Show SQL button, the SQL Text tab is displayed in the Details panel.

Tune All (popup/dialog)
The Tune All button enables you to send single SQL queries or a set of SQL statements (a workload) for tuning in IBM query workload tuning tools.

Collect HostVars (popup/dialog)
The Collect HostVars popup enables you to configure how host variable information is captured. The Collect HostVars popup is only accessible if you are in Perspective: Summaries > SQL text and a DB2 subsystem (V11) is in the selected drilldown path.

Compare (toggle button)
The Compare toggle button shows/hides a set of dropdowns that enable you to specify workloads for comparison. You can use the comparison to detect and analyze changes in workload performance metrics. The Compare toggle button is only active in Perspective: Summaries.

Export (popup/dialog)
The Export dialog enables you to download data from Activity Browser display (for selected rows, current page, or all data) in either CSV or PDF format.

Chart (toggle button)
The Chart toggle button shows/hides the chart panel of the Activity Browser. The Chart panel displays a chart rendering of the selected line item in the data table and enables you to select the variables that are represented in the chart.

Details (toggle button)
The Details toggle button shows/hides the details panel of the Activity Browser. The Details panel displays details about the selected row (in the data table). The tabs that display in the details panel vary depending on the selection.

Perspective (drop-down list)
The perspective you want to use when viewing activity (summaries, current activity, exceptions, SQLCODES, or DB2 commands).

Navigation path (links)
The navigation path area displays the drilldown path taken to the current data table display. You can click on the links in the navigation path to display prior drilldown command results.

Application Menu
The Application Menu, located in the upper right area of the navigation bar, provides you with access to filters, archive connections, custom views, intervals, labels, preferences, query tuning, and other options that are used throughout the Activity Browser. For more information, see “Application Menu” on page 360.

Viewing and navigating activity
The Activity Browser provides several different ways for you to view and navigate your data about your site's SQL activity.

Overview
These three components in the Activity Browser enable you to view and navigate Db2 Query Monitor data:

data table
The data table shows data collected by Db2 Query Monitor in rows and columns. You can use line commands to drill down and view activity of interest.
details pane
The details pane shows data collected by Db2 Query Monitor in tabs and lists.
pie chart
The pie chart shows data collected by Db2 Query Monitor as a pie chart. The pie chart provides a visual representation of SQL activity.
The data table, details pane, and pie chart are connected to each other. When you select a row in the data table, the corresponding slice in the pie chart is brought into focus and the details pane is updated to reflect the information for the selected row. This enables you to visualize the contribution made by a selected row makes to the whole. When you hover over a slice in the pie chart, the corresponding row in the data table is selected and the details pane is updated. This enables you to view other metrics for a slice of interest.

**Retrieving updated data for a selection**

When you use the data table to navigate the data that is displayed in the Activity Browser, be aware that the source, target, perspective, and intervals you select are the primary controls that determine the data that is displayed. You can further refine your view of data by using filters and by issuing drilldown commands for lines of interest.

Also note that in the Activity Browser, there are controls that you can use to specify the data that is returned to the Activity Browser. In many situations, interacting with these controls does not cause new data to be retrieved. To retrieve new data, you must execute the selection by pressing the Enter key or clicking the Run button. The following actions result in the retrieval of new table data and modify the URL:

- Clicking the Run button
- Pressing Enter when the focus is in an option field
- Clicking on a path link button
- Clicking on the intervals stepper to move the current interval up or down
- Using your browser’s navigation (for example, using the browser’s back button, or selecting a bookmark)

**Using the data table**

Follow these steps to view and navigate the data that is displayed in the Activity Browser using the data table.

**Procedure**

1. From any window within the CAE Browser Client, click **Activity Browser**.
2. Click **Sources** and select the appropriate Query Monitor Subsystem or archive connection.
   - **CQM Subsystems**
     Connect to a Query Monitor Subsystem.
   - **Private / Shared Archive Connections**
     Connect to an archive connection.
   - **Create New**
     Create a new archive connection.
   - **Manage**
     Manage an existing archive connection.
3. Click **Target** and select the appropriate target.

**[SYS:QMID] - SSIDs**

The target system, Query Monitor Subsystem, and DB2 subsystem combination. Each target is listed using the following format:

- **SYS**
  The system (sysname).

**Note:** In the CAE, the sysname of a system is its identifier. If you change the address (DNS name or IP address) of a system, but do not change the sysname, then all new alerts associated with the sysname are considered to occur on the same system as the alerts that occurred on the system before the change. If you keep the address the same but change the sysname, it is considered a new system.
**QMID**
The Query Monitor Subsystem.

**SSIDs**
The DB2 subsystem.

**[DSGroup] - SSIDs**
Data sharing groups are displayed after the Query Monitor Subsystems (a solid black line divides the Query Monitor Subsystems from the data sharing groups in the drop-down list). Each data sharing group is listed using the following format:

- **DSGroup**
  The data sharing group name.
- **SSIDs**
  The DB2 subsystem.

4. Use the **Intervals** controls to select the intervals of interest.
   - From the Intervals lists, select a starting and an ending interval.
   - Use the **Up** and **Down** buttons to navigate intervals in a step-wise manner.
   - Select specific intervals by clicking the **Show Interval Manager** button and selecting the check boxes next to the intervals of interest.

5. (Optional) From the **Filters** list, select the filter you want to use.

6. From the **Perspectives** list, select the appropriate perspective.
   - Select **Summaries** to view and drill down through your system’s query activity.
   - Select **Current Activity** to display active statements currently being executed by DB2.
   - Select **Exceptions** to view the exceptional events for your monitored DB2 subsystems.
   - Select **SQLCODES** to view SQLCODES for your monitored DB2 subsystems.
   - Select **DB2 Commands** to view information about the execution of DB2 commands for your monitored DB2 subsystems.

7. From the **Command** list (for the line of interest in the data table), select the appropriate line command. Alternatively, you can type the line command directly into the **Command** field and click **Run**.

**Sorting columns in the data table**
You can perform a sort in either ascending or descending order based on a single column of data in the data table. You can also perform multi-column sorts.

**Single column sort**
To sort the data displayed in the data table on a column, toggle the sort order between ascending and descending by hovering over the right portion of the column header and clicking the up/down arrow. After you click the up/down arrow, a small black arrow is displayed in the column header to show the current data sort order.

**Multi-column sort**
If you want to sort data on a second or third column, hover over the right portion of the column header for a second (and third, etc.) column. A number displays to indicate its sort priority. Additional up/down arrows enable you to perform nested sorts or revert to a single sort.

Because many queries can be expensive, there are few gestures in the Activity Browser that automatically fetch new data from the CAE Server, CAE Agent, or Performance History Database.

When you use the sort controls from a data table column header to change the sort order for that column, the resultant sorting is done entirely with data that has already been downloaded to the CAE Browser Client. The data displayed in the data table might not be all of the data that has been collected for the current drill down. If the underlying data has more rows than are currently displayed in the CAE Browser Client, a re-fetch of the data might be necessary for the correctly sorted rows to be returned to the CAE Browser Client.
In this situation, the affected column header displays an icon with an exclamation point in it. If you hover over that column header, the tooltip makes note of the situation and presents a **Fetch** button that when clicked re-fetches the data, with the sort done on the CAE Server.

**Moving columns**
To move a column of data in the activity data table, click the column you want to move and drag it to the desired location.

**Using top-n filters**
You can use top-n filters to limit the number of rows that are returned by the CAE Server when viewing SQL text.

**About this task**
By using top-n filters when viewing SQL text to limit the number of rows that are returned by the CAE Server, you can improve performance and reduce the impact your activity browsing has on the CAE Server. Top-n filtering enables you to locate the most problematic SQL statement and using the smallest possible amount of system resources.

The reduction of overhead provided by top-n filters is on the order of one half to one third in the CAE Agent, due to the duplication and slight expansion of the records during translated to Java data structures. In the CAE Server, the reduction is more substantial, because only a small fraction of the records reach the CAE Server.

To limit the number of rows returned by the CAE Server when viewing SQL text, select the column of interest from the top-n dropdown. You can choose the top-n column regardless of your current drill down location. If the top-n you select does not apply to the activity you are currently viewing in the data table, then an exclamation mark icon is displayed to alert you that top-n filtering does not affect the results of the current drill down. When you navigate to view SQL text, the selected top-n filter is applied. To specify that top-n should not be used for the next SQL drill down, select **No TopN**.

You can perform top-n filtering on any column or field that is visible in the details panel with the following exceptions:

- Avg Elapsed
- AvgX Elapsed
- <\% CPU>
- Avg CPU
- AvgX CPU
- Avg Delay
- AvgX Delay
- <\%Delay>
- Avg GetPages
- AvgXGetPages
- <\%UAT>
- Buffer Pool Hit Ratio

The number of rows (n) that are returned by the top-n filter are controlled by the Rows dropdown, located beneath the data table. Available values are:

- **5**
  Returns the top 5 results.

- **25**
  Returns the top 25 results.

- **50**
  Returns the top 50 results.
100
Returns the top 100 results.

200
Returns the top 200 results.

The following limitations that apply to top-n filtering:

- **Limited interaction between top-n and table sorting** - When you click a column header to sort in ascending or descending order, the sort is performed only for rows that are shown on the current page of the table. To sort based on all data, you must click the Fetch button or the Run button. The attribute that is being filtered appears as the first column in the table.

- **Top-n filtering applies to only one display type** - Top-n filtering applies only to SQL text summary displays in Activity Summaries (Operational) and the SQL text summary displays in Activity Summaries (Structural). These are sometimes referred to in the documentation as Instance Folder displays, and are the closest CAE equivalent to Option 16 (SQL) in ISPF Summary displays.

- **Percent calculations** - Percent values are calculated using the records that are returned by the CAE Server, not on all records that exist. This means the values returned from the top-n filter will always add up to 100%.

**Procedure**

1. From any window within the CAE Browser Client, click Activity Browser.
2. Select the appropriate Sources, Targets, and Intervals.
3. From TopN list, select the top-n column of interest.
4. From Rows drop-down list, select the number of results you want to receive by selecting the appropriate number (5, 25, 50, 100, or 200).
5. Select the SQL-S line command for the activity of interest, to drill down to display SQL text.

   The top-n results are shown in the data table.

   **Note:** When you select a top-n column on which to filter results, including those that are not currently displayed in the data table, the selected column is shown in the results as the first column in the table and is assigned a column title that matches the one listed in the property table detail display.

**Top-n filtering and data sharing groups**

In rare situations in which the total range of the filtered column is narrow and the workload is distributed across the data sharing group members in a specific way, the top-n filtering might be slightly inaccurate.

You should consider the following when using top-n filtering in a data sharing environment:

- You cannot sort in ascending order for a data sharing group.
- Due to the nature of summarization in particular, all summary records are entered into CAE Agent memory at the same time. However, top-n filtering prevents the situation where all the records must temporarily exist in raw memory and as Java data structures at the same time. This at least halves the memory requirements for large queries. In addition, it dramatically reduces the CAE Agent Java heap requirements, as only the top-n records need to be brought into the Java heap. While a large request can cause a temporary growth in memory, almost all of that memory is guaranteed to be released to the operating system once the call is done, since it does not involve expanding the Java heap.

Since top-n filtering occurs in the CAE Agent, it greatly reduces memory usage on the CAE Server for large data requests. Top-n filtering operates within the memory limitations of the CAE Server. This might cause incomplete results in rare circumstances.
Viewing activity details

The details pane consists of a set of context-sensitive tabs that show additional information about the selected activity.

Procedure

1. From any window within the CAE Browser Client, click Activity Browser.
2. Navigate to the SQL activity of interest using either the data table or the pie chart.
3. Toggle the Details button to show the details pane.

Each tab in the details pane shows a list of attributes and values. The tabs that are displayed and the information on those tabs depend on the activity that is selected in the data table or pie chart.

The details pane can include one or more of these tabs:

- **Analysis**
  Shows the components that can contribute to the elapsed time (CPU, Delays, Unaccounted Time, and Specific Elapsed). The lists can be expanded to show more detailed statistics. All the sub-lists within a parent list are sorted in descending order of duration. Any sub-list whose contribution to the parent item is more than 50 percent will have its statistics in bold, and is automatically expanded.

- **Buffer Pool**
  Shows buffer pool columns, totals, and averages. This tab is equivalent to the ISPF line command B in Activity Summaries, Current Activity and Exceptions. This tab has no chart.

- **Delays**
  Shows delay events, event counts, and delay times. This tab is equivalent to the ISPF line command D in Activity Summaries, Current Activity and Exceptions.

- **General**
  Shows the general columns and values in the active data table.

- **HostVars**
  Shows host variables. This tab is equivalent to the ISPF line command H in Current Activity and Exceptions.

- **Locks**
  Shows the lock events and counts. This tab is equivalent to the ISPF line command L in Activity Summaries, Current Activity and Exceptions.

- **Misc**
  Shows the miscellaneous statistics columns and values. This tab is equivalent to the ISPF line command Q in Activity Summaries, Current Activity and Exceptions.

- **SQL Text**
  Shows the SQL text for the selected activity. This tab provides you with the option to show raw SQL text or to tune the SQL statement.

- **SQLCA**
  Shows the SQL communication area information for a selected SQL statement. This consists of SQL communication area text describing the execution of the SQL statement, as well as properties with their corresponding values. This is equivalent to line command C in the SQL Code detail display panel.

**Note:**

- The General, Locks, Delays and Buffer Pool tabs all are synchronous and update as soon as the selection in the data table changes.
- The Text, Text/Host-Variables and SQLCA tabs all are asynchronous and update only if the selection in the data table is not actively changing. Asynchronous tabs show a "Loading..." message, while their contents are being retrieved.
Using the pie chart
The pie chart, like the data table, provides a method of navigating SQL activity. You can use the pie chart for navigating data independently of the data table.

You can set the pie chart as the main navigation component (using the Application Menu > View preferences option) and when this is done, the pie chart has its own pagination system and can perform drill downs between tables.

Pie chart actions and components
Pie slices
Each slice in the pie chart corresponds to a row in the data table.

Order of pie slices
The order of pie slices mirrors the order of the rows in the data table. The first row in the data table corresponds to the pie slice located at the three-o’clock position of the pie chart, and subsequent rows correspond to subsequent pie slices in a counter-clockwise manner.

Hovering over a pie slice
When you hover over a pie slice, a popup is displayed that shows the value of the first column in the corresponding row in the data table. The popup also displays the value of the selected pie chart variable (which corresponds to a column in the data table). Additionally, when you hover over a pie slice in the pie chart, the corresponding row in the data table is selected and the details panel is updated.

Size of a pie slice
The size of a pie slice reflects the proportion of the pie chart variable (data table column) for a selected row, with respect to the total of pie chart variable for all rows in the data table.

Note: If there are more rows in the data table than there are slices in the pie chart, the column values for the remaining rows are totaled into a Remainder slice. When that happens, the number of slices in the pie chart will be one greater than the number in the Max Slices Count chooser.

Clicking on a pie slice
When you click a pie slice, a popup menu displays the available drilldown commands. You can use these drilldown commands to perform the same navigation across tables as is available in the data table.

Usage examples
Drilling down using the pie chart
In this usage example, you might drill down by a plan and view the data by CPU. If you then see a pie slice that is of interest, for example, a pie slice that is much larger than the other slices. If you want to then see which users were using that plan, you can left click on the relevant slice, and choose a drill down option (in this case, User) from the menu that pops up. Then the resulting pie represents the contribution of each user of that plan to the total plan CPU consumption.

Viewing the SQL text for different pie slices
In this usage example, you view the pie chart for an SQL drill down, and then want to see what SQL text corresponds to specific slices. To do this, you first open the details panel, and click on the SQL text tab. Then you hover the mouse over the pie slice of interest and the full SQL text corresponding to that slice appears in the SQL text tab.

Workload comparison
When viewing summaries, you can specify one workload as a baseline workload and a second workload as comparison workload to view differences in metrics for the two workloads.

About this task
Comparing workloads allows you to:
- Identify and analyze the differences in the performance metrics for the workloads you select. If the performance of a workload has degraded, you can compare workloads to find the plans, programs, or SQL statements that are contributing most to the decline in performance.
- Measure the effect of any changes to a workload, such as tuning efforts, upgrading DB2 to a new version, or offloading some queries to an accelerator.

The following terms are used when referring to workload comparisons:

**Baseline workload**
The workload to which the comparison workload is to be compared.

**Comparison workload**
The workload that you compare to the baseline workload. The comparison workload is the workload for which you want to diagnose a particular problem, such as decreased performance.

The baseline workload and the comparison workload can be the same workload in different intervals or they can be workloads from different DB2 subsystems.

**Comparing workloads**
Follow these steps to compare workloads. The ability to compare workloads is only available in the summaries perspective.

**Procedure**
1. From any window within the CAE Browser Client, click Activity Browser.
2. From the Perspective list, select Summaries.
3. Click the Compare button.
4. **Define the baseline workload.** From the Baseline drop-down, select a saved baseline or select <Ad Hoc> to define a new baseline. If you are defining a new baseline:
   a) Select the appropriate values from the Sources, Targets, Intervals, and Db2 drop-down lists for the Baseline (the second line of the display).
   b) If you want to save the baseline workload, click the Save button in the Baseline drop-down list, type a name for the baseline, and click Save.
5. **Define the comparison workload.**
   a) From the Sources, Targets, Intervals, and DB2 drop-down lists (located in the first line of the display), select the appropriate values for the comparison workload.
      When you specify your comparison workload after having selected a baseline workload, the results of the comparison are shown in the data table.
6. Select the comparison mode you want to use when viewing comparison data.
   a) From the Compare drop-down list, select one of the following:
      - **All**
        Show the comparison data for all metric statuses (retained, added, and removed).
      - **Retained**
        Show the comparison data for retained metrics. Retained metrics are present in both the baseline workload and the comparison workload.
      - **Added**
        Show the comparison data for added metrics. Added metrics are not present in the baseline workload but are present in the comparison workload.
      - **Removed**
        Show the comparison data for removed metrics. Removed metrics are present in the baseline workload but are not present in the comparison workload.
      - **Percent**
        Data that is shown in the data table reflects the percent change from the baseline to the comparison workload.
Baseline
Only the data from the baseline is shown for the current drill-down. No comparison is made.

Current
Only the data from the current target (the selected source, target, and set of intervals) is shown. No comparison is made.

7. Hover your mouse over a data cell to display the baseline workload value, the comparison workload value, the absolute change, and the percentage change for that data cell.

The value that is shown when you hover your mouse over a data cell depends on the status of the row:

Retained
The value from the baseline is subtracted from the value for current data, and the difference is displayed.

Added
The value from current data is displayed.

Removed
The sign of the value from the baseline is reversed and then displayed. Typically the values will therefore be negative.

Positive values (increases) are displayed with a "+" sign in front. Negative values (decreases) are displayed with a "-" sign in front.

Usage scenarios for comparing workloads
Comparing workloads is useful if you have Db2 Query Monitor data stored for a workload (either in a DB2 offload database or in the interval data sets) that serves as a useful reference, or baseline, against which other workload data can be compared.

Some example scenarios are:

Investigate performance degradation
To identify the causes of performance degradations, you must keep data long enough to provide a baseline for a comparison. For the purposes of this discussion, consider a scenario in which you keep two weeks of data (possibly the older data will have been offloaded to DB2). In this case, you are trying to determine why performance is slower this week than it was last week.

You choose the source, target, and intervals that define a representative sample of last week’s performance metrics. For example, if it is 2:00 pm on Wednesday when the slowness is apparent, they might choose the interval from 2:00 pm the preceding Wednesday, when performance was acceptable. You set this as a baseline.

Then you navigate to the source, target, and intervals of the time when performance seemed slow. You can sort by elapsed or average elapsed and then identify the plans, programs, SQL statements that have slowed down the most since last week. You can then investigate the metrics in more detail. It might turn out that an index was dropped since last week, and this can be determined by looking at the objects used by the queries whose performance has degraded the most.

Upgrading DB2
If you plan to upgrade their DB2 and wish to see how the performance characteristics are changed by that upgrade, you would capture data from a “typical workload run” in Db2 Query Monitor (and probably offload it to a DB2 database for long-term storage) as a "pre-upgrade baseline".

After the DB2 upgrade, you would capture data for a "typical run of the same workload" in Query Monitor.

You choose the source, target, and intervals that hold the data from the "pre-upgrade baseline" and set that as a baseline. You then choose the source, target, and intervals that holds the current data for the "post upgrade" run of the workload.
You can then sort by different columns to investigate changes to the performance profile. If the baseline and current data tend to have different numbers of executions, the "Averages columns" will be most useful.

Other scenarios
The same kinds of investigation techniques can also be used to demonstrate performance improvements that have been made by tuning queries, adding indexes, or offloading some queries to an accelerator. Only in these cases would you sort by elapsed or average elapsed in ascending order.

Data table columns descriptions
This topic describes the columns shown in the Activity Browser data table.

Column descriptions - Summaries (CAE Browser Client)
This topic describes the columns that are shown on the various Summaries displays. The columns that display depend on the drilldown path taken.

Accel Elig CPU
The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
CQM_SUMM_METRICS
Column name
ACCEL_ELIGIBLE_CPU

Accel Elig Elapsed
The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
CQM_SUMM_METRICS
Column name
ACCEL_ELIGIBLE_ELAPSED

Accel Elig ZIIP
The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name
CQM_SUMM_METRICS
Column name
ACCEL_ELIGIBLE_ZIIP

Accelerator
The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the accelerator.

Offload table name
CQM_SUMM_METRICS
Column name
ACCELERATOR

Authid
The primary authorization ID.

Offload table name
CQM_SUMM_METRICS
**Column name**

**AUTHID**

**Avg CPU**
The average CPU time each SQL call spent in Db2. Avg CPU = (Total CPU for this object)/(Total SQL instructions for this object)

**Offload table name**
not applicable

**Column name**
not applicable

**Avg Elapsed**
The average amount of elapsed time each SQL call spent in Db2. Avg Elap = (Total Elap for this object)/(Total SQL instructions for this object)

**Offload table name**
not applicable

**Column name**
not applicable

**Avg Delay**
The average delay time per SQL call.

**Offload table name**
not applicable

**Column name**
not applicable

**Avg Getpages**
The average number of getpages issued.

**Offload table name**
not applicable

**Column name**
not applicable

**AvgX CPU**
The average amount of CPU time for each execution count in Db2.

**Offload table name**
not applicable

**Column name**
not applicable

**AvgX Delays**
The average amount of delay time for each execution count in Db2.

**Offload table name**
not applicable

**Column name**
not applicable

**AvgX Elapsed**
The average amount of elapsed time for each execution count in Db2.

**Offload table name**
not applicable

**Column name**
not applicable

**AvgX GetPages**
The average of the getpages divided by the execution count.
Offload table name
   not applicable

Column name
   not applicable

Calls
   The total number of individual SQL calls executed by Db2.

Offload table name
   CQM_SUMM_METRICS

Column name
   SQL_CALLS

Collection
   The collection ID.

Offload table name
   CQM_SUMM_METRICS

Column name
   COLLECTION

Connname
   The connection name.

Conntype
   The DB2 connection type. Valid connection types include: 1 - TSO (TSO Foreground and Background),
   2 - DB2CALL (DB2 Call Attach), 3 - IMSDLI (DL/I Batch), 4 - CICS (CICS Attach), 5 - IMSBMP (IMS
   Attach BMP), 6 - IMSMMP (IMS Attach MPP), 7 - DB2PRIV (DB2 Private Protocol), 8 - DRDA (DRDA
   Protocol), 9 - IMSCtl (IMS Control Region), A - IMSTRAN (IMS Transaction BMP), B - UTILITY (DB2
   Utilities), and C - RRSAF (RRSAF Attach).

Contoken
   The hexadecimal value of the consistency token.

Corrid
   The correlation ID.

Corrname
   The correlation ID adjusted by the conventions used by IMS and CICS.

%CPU
   The percent CPU time SQL calls (for a line item) spent in DB2 relative to the total CPU time that all SQL
   calls spent in DB2:
   \[ \%CPU = 100.0 \times \frac{(CPU\ for\ this\ object)}{(SUM\ of\ all\ objects\ CPU)} \]

<%CPU>
   The percent CPU usage for the SQL calls (for a line item) relative to the total elapsed time for the SQL
   calls (for the line item):
   \[ <\%CPU> = 100.0 \times \frac{(CPU\ Usage\ for\ this\ object)}{(Total\ Elapsed\ Time\ for\ this\ object)} \]

CPU
   The total amount of CPU time SQL calls spent in DB2.

DB2 SSID
   The DB2 subsystem on which the activity occurred.

%Delay
   The percent delay time for SQL calls (for a line item) relative to the total elapsed time for those SQL
   calls.
   \[ %DELAY = 100.0 \times \frac{(DELAY\ for\ this\ object)}{(SUM\ of\ all\ objects\ DELAYS)} \]

<%DLY>
   The percent of delay time for the SQL calls (in a line item) relative to the total elapsed time for those
   SQL calls:
<%Dly> = 100.0 * ((DELAY for this object)/(Total Elapsed Time for this object))

**Delay**
The total time SQL calls (for a line item) spent in delays (due to lock or latch delays, synchronous I/O delays, read/write delays).

**Dynamic Prefetch Requests**
The number of DYNAMIC PREFETCH requested for the object.

**%Elap**
The percentage of elapsed time SQL calls spent in Db2 relative to the total elapsed time all SQL calls spent in Db2.

**Elapsed**
The accumulated elapsed time while executing within Db2.

**Note:** The elapsed time in Operational Summaries is the elapsed time of the duration of entire SQL calls and the elapsed time in Structural Summaries is the elapsed time of GETPAGE operations.

**Execution Count**
The number of times the SQL statement has executed. Db2 Query Monitor does not update the execution count for SQL that does not have a CLOSE call (for example, if the SQL ends with a negative SQLCODE or the SQL is canceled). In this case, the execution count of the SQL is shown as zero.

**Failed**
The number of times a parallel query failed to find a page in the buffer pool.

**GetPages**
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests.

**GETPAGE Fail**
The number of times a parallel query failed to find a page in the buffer pool.

**Jobname**
The name of the job.

**Latch Delay**
The accumulated wait time due to page latch contention.

**Latch Suspensions**
The number of suspensions due to latch conflicts.

**List Prefetch Req**
The number of LIST PREFETCH requested.

**Lock Deadlocks**
The number of lock deadlocks.

**Lock Delay**
The number of lock delays.

**Lock Event**
The number of lock events detected for the object.

**Lock or Latch Delays**
The accumulated lock and latch elapsed wait time for lock and latch suspensions.

**Lock Suspensions**
The number of suspensions due to locking conflicts.

**Lock Timeouts**
The number of lock timeouts.

**Log Write I/O Evt**
The number of log write IO events detected.

**Log Write IO Delay**
The total amount of log write IO delay time for the object spent in DB2.

**LstPftch**
The number of LIST PREFETCH requests for the object.
Open/Close Delays
The DB2 service waits for OPEN/CLOSE DATASET.

Other Read Delays
The accumulated wait time for read I/O.

Other Write Delays
The accumulated wait time for write I/O.

Package Version
The package version associated with the SQL statement.

Page Latch Delay
The total amount of page latch delay time for the object spent in DB2.

Page Latch Event
The number of page latch events detected for the object.

Parallel
Indicates whether or not the SQL activity was formulated using DB2 query parallelism.

Plan
The DB2 plan name.

Program
The DB2 package or DBRM name.

Sect #
The section number.

SeqPftch
The number of SEQ PREFETCH requested for the object.

Service Task Switch Delays
The accumulated wait time due to synchronous execution unit switch to DB2 services.

Schema
The current schema that executed the SQL.

SP Creat
The creator of the stored procedure.

SP Name
The name of the stored procedure.

SQL Text
The abbreviated view of the SQL text.

SQLCalls
The number of SQL calls that occurred for the displayed activity.

StdDev CPU
The rolling standard deviation of the CPU time for a line item. In the Activity Browser > Summaries
data table, the StdDev CPU field shows the value "N/A" when you are viewing data for archive
connections. You can calculate this metric if required, by querying the CQM_SUMM_METRICS table.
For example, to calculate StdDev CPU time where group_by is the metric by which you want to group
information (plan, program, etc) you can use the following query:

```sql
WITH MEAN(group_by, AVERAGE_MEAN_CPU) AS (
    SELECT group_by, SUM(cast(DB2_CPU_COUNT*DB2_CPU_MEAN as DOUBLE)) AS DB2_CPU_MEAN
    FROM SYSTOOLS.CQM_SUMM_METRICS
    GROUP BY group_by
)
SELECT SQRT(SUM(cast(DB2_CPU_DELTA_SQR as DOUBLE)) +
    SUM(cast(DB2_CPU_COUNT as DOUBLE) * POWER(DB2_CPU_MEAN -
    MEAN.AVERAGE_MEAN_CPU, 2))) / SUM(cast(DB2_CPU_COUNT as DOUBLE))
FROM SYSTOOLS.CQM_SUMM_METRICS
LEFT JOIN MEAN
ON SYSTOOLS.CQM_SUMM_METRICS.group_by = MEAN.group_by
GROUP BY SYSTOOLS.CQM_SUMM_METRICS.group_by;
```

StdDev Elapsed
The rolling standard deviation of the elapsed time for a line item. In the Activity Browser >
Summaries data table, the StdDev Elapsed field shows the value "N/A" when you are viewing data
for archive connections, but if needed, you can calculate this metric. For an example of such a
calculation, refer to the query in the description of StdDev CPU.

**StdDev Getpages**
The rolling standard deviation of the getpages for a line item. In the Activity Browser > Summaries
data table, the StdDev Getpages field shows the value "N/A" when you are viewing data for archive
connections, but if needed, you can calculate this metric. For an example of such a calculation, refer
to the query in the description of StdDev CPU.

**Stmt#**
The SQL statement number assigned by the DB2 pre-compiler to an individual SQL call.

**Sync I/O Evt**
The number of synchronous IO events detected for the object.

**Sync I/O Dly**
The total amount of Sync IO delay time for the object spent in DB2.

**Synchronous I/O Delays**
The accumulated elapsed wait time for I/O. Synchronous I/O delays are further broken-down into
Database I/O Delays and Log Write I/O Delays.

**SyncReads**
The number of synchronous read I/O for the object.

**SyncWrites**
The number of synchronous write I/O for the object.

**Table Creator**
The table creator associated with the activity.

**Table Name**
The table name associated with the activity.

**Type**
The type of object. Valid values are TABLE and INDEX.

**<%UAT>**
The percent unaccounted time (the amount of time not accounted for by SQL calls). Represents the
time for which DB2 does not track or report statistics.

\[
<%UAT> = 100 \times \frac{(\text{Total Elapsed Time}) - (\text{Total Delay Time} + \text{DB2 CPU Time})}{(\text{Total Elapsed Time})}
\]

**Workstation Name**
The workstation name.

**Workstation Tran**
The workstation transaction.

**Workstation User**
The workstation user.

**WrteEvnt**
The number of log write IO events detected.

**<%zIIP>**
The percent zIIP.

**zIIP CPU**
The amount of CPU time accumulated while executing in DB2 on a zIIP processor.

**Column descriptions - Current activity (CAE Browser Client)**
This topic describes the columns that are shown on the Current Activity display.

**Accel Elig CPU**
The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call
was run on an accelerator. This column contains a value only if the statement or call is eligible to run
on an accelerator.
**Accel Elig Elapsed**
The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

**Accel Elig ZIIP**
The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

**Accelerator**
The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the IBM Db2 Analytics Accelerator for z/OS.

**Acctg Token**
The accounting token.

**Alerts**
If an alert event exceeds an alert threshold, this field displays a string of codes indicating the type of alerts encountered during the execution of an SQL statement within Db2. Data entered within a monitoring profile defines the alerts. The codes for alert classes include:

- **C**  
  Db2 CPU Time threshold exceeded

- **E**  
  Db2 Elapsed Time threshold exceeded

- **G**  
  GETPAGE threshold exceeded

- **Q**  
  SQLCODE exception raised

- **S**  
  SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display CEGQ.

**Note:** The same codes are used in both the EXCEPTIONS and ALERTS columns. However, due to differences in monitoring profile specification, the two columns might not contain the same information (for example, the elapsed time threshold for an ALERT might be set significantly higher than the threshold for an EXCEPTION).

**Offload table name**
not applicable

**Column name**
not applicable

**ASQLCode**
The SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

**Authid**
The primary authorization ID.

**Avg GetPages**
The average number of getpages issued.

**Child**
Indicates whether the exception is related to another (parent) exception.

**Collection**
The collection ID.

**Connname**
The connection name.
Conntype
The DB2 connection type. Valid connection types include: 1 - TSO (TSO Foreground and Background),
2 - DB2CALL (DB2 Call Attach), 3 - IMSDLI (DL/I Batch), 4 - CICS (CICS Attach), 5 - IMSBMP (IMS
Attach BMP), 6 - IMSMMP (IMS Attach MPP), 7 - DB2PRIV (DB2 Private Protocol), 8 - DRDA (DRDA
Protocol), 9 - IMSCTL (IMS Control Region), A - IMSTRAN (IMS Transaction BMP), B - UTILITY (DB2
Utilities), and C - RRSAF (RRSAF Attach).

ConToken
The hexadecimal consistency token for the activity.

Coordinator
The DB2 subsystem name acting as the parallelism coordinator for a parallel task.

Corrid
The correlation ID.

Corrname
The correlation ID adjusted by the conventions used by IMS and CICS.

Corrnum
The correlation number which is set based on the default OMEGAMON parsing of the CORRID value.

CPU
The total amount of CPU time SQL calls spent in DB2.

Cursor Name
The cursor name.

DB2 SSID
The DB2 subsystem on which the activity occurred.

Delay
The total time SQL calls (for a line item) spent in delays (due to lock or latch delays, synchronous I/O
delays, read/write delays).

Delay Count
The total number of delay events encountered.

Elapsed
The accumulated elapsed time while executing within Db2.

End Time
The ending time (as seen by Db2 Query Monitor) that an individual SQL statement finished executing
its last SQL call.

ESQLCode
The SQL code that raised an exception condition. Exception criteria are defined within a monitoring
profile.

Exceptions
If an exceptional event exceeds an exception threshold, this field displays a string of codes indicating
the type of exceptions encountered during the execution of an SQL statement within Db2. Data
entered within a monitoring profile defines the exceptions. The codes for event classes include:

C    Db2 CPU Time threshold exceeded
E    Db2 Elapsed Time threshold exceeded
G    GETPAGE threshold exceeded
Q    SQLCODE exception raised
S    SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For
example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time

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threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display CEQG.

**Note:** The same codes are used in both the EXCEPTIONS and ALERTS columns. However, due to differences in monitoring profile specification, the two columns might not contain the same information (for example, the elapsed time threshold for an ALERT might be set significantly higher than the threshold for an EXCEPTION).

**Getpages**
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests.

**HV?**
Indicates whether or not host variables have been collected for the activity.

**Jobname**
The name of the job.

**Log Bytes Written**
The number of log bytes written for the SQL statement.

**Log Records Written**
The number of log records written for the SQL statement.

**LUName**
The logical unit name.

**Netid**
The network identifier.

**Orig Token**
The thread token assigned to the thread that generated the parallel task(s) on the parallelism coordinator Db2 subsystem.

**Package Version**
The package version associated with the SQL statement.

**Parallel**
Indicates whether or not the SQL activity was formulated using Db2 query parallelism.

**Plan**
The DB2 plan name.

**Program**
The DB2 package or DBRM name.

**Req Site**
The requesting site name.

**Section**
The section number assigned by the Db2 pre-compiler.

**SP Creator**
The creator of the stored procedure.

**SP Name**
The name of the stored procedure.

**SQL Calls**
The total number of individual SQL calls executed by Db2.

**Sqlcode**
The SQL return code issued by Db2.

**DB2 SSID**
The Db2 subsystem on which the activity occurred.

**Start Time**
The starting time (as seen by Db2 Query Monitor) that an individual SQL statement started executing its first SQL call.
**Token**
The thread token. A thread token uniquely identifies an individual connection to a Db2 subsystem.

**Workload**
The name of the workload assigned to an SQL statement executing within Db2. The workload name is assigned by Db2 Query Monitor and is defined within a monitoring profile.

**WS Name**
The name of the workstation.

**WS Tran**
The workstation's transaction.

**WS User**
The user ID logged on to the workstation connected to Db2.

**zIIP CPU**
The amount of CPU time accumulated while executing in Db2 on a ZIIP processor.

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**Column descriptions - Exceptions (CAE Browser Client)**

This topic describes the columns that are shown on the Exception display.

**Accel Elig CPU**
The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ACCEL_ELIGIBLE_CPU

**Accel Elig Elapsed**
The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ACCEL_ELIGIBLE_ELAPSED

**Accel Elig ZIIP**
The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ACCEL_ELIGIBLE_ZIIP

**Accelerator**
The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the IBM Db2 Analytics Accelerator for z/OS.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ACCELERATOR

**Acctg Token**
The accounting token.
Alerts
If an alert event exceeds an alert threshold, this field displays a string of codes indicating the type of alerts encountered during the execution of an SQL statement within Db2. Data entered within a monitoring profile defines the alerts. The codes for alert classes include:

C  
Db2 CPU Time threshold exceeded

E  
Db2 Elapsed Time threshold exceeded

G  
GETPAGE threshold exceeded

Q  
SQLCODE exception raised

S  
SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display CEGQ.

Note: The same codes are used in both the EXCEPTIONS and ALERTS columns. However, due to differences in monitoring profile specification, the two columns might not contain the same information (for example, the elapsed time threshold for an ALERT might be set significantly higher than the threshold for an EXCEPTION).
Column name
AGETPGS_ROLLLM

ASQLCode
The SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

Offload table name
CQM_EXCEPTIONS

Column name
ALERT_SQLCODE

Authid
The primary authorization ID.

Offload table name
CQM_EXCEPTIONS

Column name
AUTHID

Avg Getpages
The average number of getpages issued.

Call Type
The type of SQL call executed by a package or DBRM within Db2 (for example, PREPARE, OPEN, FETCH, etc).

Offload table name
CQM_EXCP_CALLS

Column name
TYPE

Child
Indicates whether the exception is related to another (parent) exception.

Collection
The collection ID.

Offload table name
CQM_EXCEPTIONS

Column name
COLLECTION

Connname
The connection name.

Offload table name
CQM_EXCEPTIONS

Column name
CONNECTION

ConToken
The hexadecimal consistency token.

Offload table name
CQM_EXCEPTIONS

Column name
CONSISTENCY_TOKEN

Conntype
The Db2 connection type. Valid connection types include: 1 - TSO (TSO Foreground and Background), 2 - DB2CALL (Db2 Call Attach), 3 - IMSDLI (DL/I Batch), 4 - CICS (CICS Attach), 5 - IMSBMP (IMS Attach BMP), 6 - IMSMMP (IMS Attach MPP), 7 - DB2PRIV (Db2 Private Protocol), 8 - DRDA (DRDA Protocol), 9 - IMSCTL (IMS Control Region), A - IMSTRAN (IMS Transaction BMP), B - UTILITY (Db2 Utilities), and C - RRSAF (RRSAF Attach).
**Offload table name**
CQM_EXCEPTIONS

**Column name**
CONNECTION_TYPE

**Coordinator**
The DB2 subsystem name acting as the parallelism coordinator for a parallel task.

**Corrid**
The correlation ID.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
CORRID

**Corrname**
The correlation ID adjusted by the conventions used by IMS and CICS.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
CORRNAME

**Corrnum**
The correlation number which is set based on the default OMEGAMON parsing of the CORRID value.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
CORRNUM

**CPU**
The accumulated total of all TCB and SRB CPU time spent executing in Db2.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
DB2_CPU

**CPU Discarded**
Indicates whether or not the value of the CPU for a given SQL statement was not factored in to the rolling mean and standard deviation.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
CPU_DSC

**CPU Discard Threshold**
The discard level that would have to be crossed in order for a SQL statement's CPU time not to update the rolling mean and standard deviation.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
CPU_DSCT

**CPU Factor**
The amount of standard deviations from the mean the CPU was at the time the exception was generated.

**Offload table name**
CQM_EXCEPTIONS
**Column name**
- CPU_FACTOR

**Cursor Name**
The cursor name.

**DB2 SSID**
The DB2 subsystem on which the activity occurred.

**Delay**
The total time SQL calls (for a line item) spent in delays (due to lock or latch delays, synchronous I/O delays, read/write delays).

**Delay Count**
The total number of delay events encountered.

**ECPU Roll Limit**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for CPU.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ECPU_ROLLLM

**EElapsed Roll Limit**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for elapsed time.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
EELAP_ROLLLM

**EGetpages Roll Limit**
The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for getpages.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
EGETPGS_ROLLLM

**Elapsed Discarded**
Indicates whether or not the value of the elapsed time for a given SQL statement was not factored in to the rolling mean and standard deviation.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ELAP_DSC

**Elapsed Discard Threshold**
The discard level that would have to be crossed in order for a SQL statement’s elapsed time not to update the rolling mean and standard deviation.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
ELAP_DSCT

**Elapsed Factor**
The amount of standard deviations from the mean the elapsed time was at the time the exception was generated.
**Offload table name**
CQM_EXCEPTIONS

**Column name**
ELAP_FACTOR

**Elapsed**
The accumulated elapsed time while executing within DB2.

**End Time**
The date and time that an individual SQL statement finished executing its last SQL call.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
END_TIME

**ESQLCode**
The SQL code that raised an exception condition. Exception criteria are defined within a monitoring profile.

**Offload table name**
CQM_EXCEPTIONS

**Column name**
EXCEPTION_SQLCODE

**Exceptions**
If an exceptional event exceeds an exception threshold, this field displays a string of codes indicating the type of exceptions encountered during the execution of an SQL statement within Db2. Data entered within a monitoring profile defines the exceptions. The codes for event classes include:

- **C**: Db2 CPU Time threshold exceeded
- **E**: Db2 Elapsed Time threshold exceeded
- **G**: GETPAGE threshold exceeded
- **Q**: SQLCODE exception raised
- **S**: SQL Calls threshold exceeded
- **L**: Db2 Elapsed Time anomaly detected
- **P**: Db2 CPU Time anomaly detected
- **T**: GETPAGE anomaly detected

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display CEGQ.

**Note:** The same codes are used in both the EXCEPTIONS and ALERTS columns. However, due to differences in monitoring profile specification, the two columns might not contain the same information (for example, the elapsed time threshold for an ALERT might be set significantly higher than the threshold for an EXCEPTION).

**Offload table name**
not applicable
Column name
nen applicable

Getpages
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGES of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

Offload table name
CQM_EXCEPTIONS

Column name
GETPAGES

Getpages Discarded
Indicates whether or not the value of the getpages for a given SQL statement was not factored in to the rolling mean and standard deviation.

Offload table name
CQM_EXCEPTIONS

Column name
GETPGS_DSC

Getpages Discard Threshold
The discard level that would have to be crossed in order for a SQL statement's getpages not to update the rolling mean and standard deviation.

Offload table name
CQM_EXCEPTIONS

Column name
GETPGS_DSCT

Getpages Factor
The amount of standard deviations from the mean the getpages were at the time the exception was generated.

Offload table name
CQM_EXCEPTIONS

Column name
GETPGS_FACTOR

HV?
Indicates whether or not host variables have been collected for the activity.

Offload table name
CQM_EXCEPTIONS

Column name
JOBNAME

Log Bytes Written
The number of log bytes written.

Offload table name
CQM_EXCEPTIONS

Column name
LOG_BYTES_WRITTEN

Log Records Written
The total number of log records written.
Offload table name
  CQM_EXCEPTIONS

Column name
  LOG_RECORDS_WRITTEN

LUName
  The logical unit name.

Offload table name
  CQM_EXCEPTIONS

Column name
  LUNAME

Netid
  The network identifier.

Offload table name
  CQM_EXCEPTIONS

Column name
  NETID

Orig Token
  The thread token assigned to the thread that generated the parallel task(s) on the parallelism coordinator Db2 subsystem.

Offload table name
  CQM_EXCEPTIONS

Column name
  ORIGINATING_TOKEN

Package Version
  The package version associated with the SQL statement.

Offload table name
  CQM_EXCEPTIONS

Column name
  PROGRAM_VERSION

Parallel
  Indicates whether or not the SQL activity was formulated using Db2 query parallelism.

Offload table name
  CQM_EXCEPTIONS

Column name
  PARALLEL

Plan
  The plan name.

Offload table name
  CQM_EXCEPTIONS

Column name
  PLAN

Program
  The Db2 package or DBRM name.

Offload table name
  CQM_EXCEPTIONS

Column name
  PROGRAM

Req Site
  The requesting site name.
**Offload table name**  
CQM_EXCEPTIONS

**Column name**  
REQ_SITE_NAME

**RollAvg CPU**  
The value of the CPU rolling average at the time the exception was generated.

**Offload table name**  
CQM_EXCEPTIONS

**Column name**  
CPU_ROLL_AVG

**RollAvg Elapsed**  
The value of the elapsed time rolling average at the time the exception was generated.

**Offload table name**  
CQM_EXCEPTIONS

**Column name**  
ELAP_ROLL_AVG

**RollAvg Getpages**  
The value of the getpage rolling average at the time the exception was generated.

**Offload table name**  
CQM_EXCEPTIONS

**Column name**  
GETPGS_ROLL_AVG

**Section**  
The section number.

**Offload table name**  
CQM_EXCEPTIONS

**Column name**  
SECTION

**SP Creator**  
The creator of the stored procedure.

**Offload table name**  
CQM_EXCEPTIONS

**Column name**  
SP_CREATOR

**SP Name**  
The name of the stored procedure.

**Offload table name**  
CQM_EXCEPTIONS

**Column name**  
SP_NAME

**SQL Calls**  
The total number of individual SQL calls executed by Db2.

**Offload table name**  
CQM_EXCEPTIONS

**Column name**  
SQL_CALLS

**Sqlcode**  
The SQL return code issued by Db2.
**Start Time**
The date and time that an individual SQL statement started executing its first SQL call.

**StdDev CPU**
The value of the CPU rolling standard deviation at the time the exception was generated.

**StdDev Elapsed**
The value of the elapsed time rolling standard deviation at the time the exception was generated.

**StdDev Getpages**
The value of the getpages rolling standard deviation at the time the exception was generated.

**Token**
The thread token. A thread token uniquely identifies an individual connection to a Db2 subsystem.

**Workload**
The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current activity, exceptions, and alerts. It is recommended that you name your workload to facilitate the identification of the monitoring profile line and the workload with which captured activity is associated.

**WS Name**
The workstation name.
**Column name**  
**WORKSTATION_NAME**

**WS Tran**  
The workstation transaction.

**Offload table name**  
**CQM_EXCEPTIONS**

**Column name**  
**WORKSTATION_TRAN**

**WS User**  
The workstation user.

**Offload table name**  
**CQM_EXCEPTIONS**

**Column name**  
**WORKSTATION_USER**

**zIIP CPU**  
The amount of CPU time accumulated while executing in Db2 on a zIIP processor.

**Offload table name**  
**CQM_EXCEPTIONS**

**Column name**  
**ZIIP_CPU_TIME**

---

**Column descriptions - SQLCODEs (CAE Browser Client)**

This topic describes the columns that are shown on the **SQLCODEs** display.

**Authid**  
The primary authorization ID.

**Collection ID**  
The collection ID.

**ConnName**  
The connection name.

**DB2 SSID**  
The DB2 subsystem on which the activity occurred.

**Description**  
The SQLCODE description.

**Detail Count**  
The number of instances of the SQL code denotes that the number of instances of the SQL code has exceeded the maximum SQL code detail value that you set in CQMPARMS. The SQLCODE detail is set in CQMPARMS via the **MAX_SQLCODE_DETAIL(n)** parameter.

**Jobname**  
The name of the job.

**Occurrences**  
The number of instances of the SQL code.

**Plan**  
The DB2 plan name.

**Program**  
The DB2 package or DBRM name.

**Section**  
The section number.

**Sqlcode**  
The return codes in the SQLCODE and SQLSTATE host variables or corresponding fields of the SQLCA.
**Stmt Number**
The SQL statement number assigned by the DB2 pre-compiler to an individual SQL call.

**Timestamp**
The date and time the SQLCODE occurred.

**Column descriptions - Db2 commands (CAE Browser Client)**
This topic describes the columns that are shown on the Db2 commands display.

**Authid**
The primary authorization ID.

**Command text**
The text of the Db2 command.

**Command timestamp**
The date and time the Db2 command was executed.

**Db2 SSID**
The Db2 subsystem.

**Jobname**
The name of the job.

**General tasks**
You can perform general tasks to customize the way you work with the Activity Browser including sorting columns, moving columns, bookmarking, and exporting data.

**Bookmarking**
You can bookmark the data you navigate to using the Activity Browser to enable quick access to that data in the future.

Most aspects of the data on an Activity Browser page is preserved as part of the bookmark. The state of the details panel and the activity data table page selection are not saved with a bookmark.

Navigating to a bookmarked page (or using the browser’s back or forward buttons) does not result in a re-retrieval of the data requested for that view.

**What you can bookmark**
The aspects of a data request that you can bookmark include:

- System name (the sysname, not the SMFID, except when the source is Archive/Offload)
- Query Monitor Subsystem name
- Perspective
- Drill down path
- Name of the current filter
- Indication as to whether the named filter is active
- Interval selection
- TopN selections

**What you cannot bookmark**
The following fields and aspects of application state are not reflected in bookmarks:

- Application layout
- The details panel state. This includes, which row is selected in the table (and hence what data row is reflected in the activity details table), and which tab is selected.
• Page selector state. Accessing a bookmark shows the first 25 rows of data, regardless of what the start row field displayed at the time the bookmark was made.

Some of the above states are maintained when using the web browser's back or forward features. If a page has intervals selected (for example, it is displaying intervals that are not the current interval), then the bookmark might return no results if the intervals roll-off.

Exporting data

Follow these steps to export data from the current Activity Browser display in either CSV or PDF format.

**Procedure**

1. From any window within the CAE Browser Client, click Activity Browser.
2. Use the data table to browse to the activity you want to export. You can export the current page of activity or all data for the selected source, target perspective and interval.
3. Click **Export**.
4. Choose the file type to which you want to export the data:
   - Click **CSV** to export the data to a comma separated value (CSV) format file.
     **Note:** When exporting to CSV:
     - Duration fields are exported as **seconds in floating point** so the values can be easily manipulated in your spreadsheet application
     - The percent sign (%) is not exported to CSV
     - The plus sign (+) is not exported to CSV
   - Click **PDF** to export the data to a PDF format file.
5. Choose the scope of data to be exported:
   - Click **Selected Rows** to export only the rows you have selected.
   - Click **Current Page** to export only the current page of data for the selected activity.
     **Note:** When exporting data from pie chart view, only the data that is visible on the pie chart is exported. Rows with zero values are not visible on pie charts.
   - Click **All Data** to export all data for the selected activity.
     **Note:** When exporting data from pie chart view, all data is exported, including any rows with zero values.
6. Click **OK**.
7. Depending on your browser settings, you are presented with the options to open or save the exported file.
8. Select the appropriate options to save or view the exported file.

**Application Menu**

The Application Menu provides access to various administrative options and features such as Archive Connections, custom views, intervals, labels, and preferences.

**Filters**

You can use filters to define the display criteria that is used to show data in the Activity Browser data table.

Filters do not affect the data that is collected by Db2 Query Monitor, filters only filter data for display purposes.
Adding a filter
Add a filter to refine your view of the data displayed in the Activity Browser data table.

Procedure
1. From any window within the CAE Browser Client, click Application Menu > Filters > Manage.
2. Click Add.
3. Type a filter name in the Filter Name field.
4. Specify the following options:
   • Select the Mixed Case checkbox to apply the filter to mixed case characters.
   • Select the Match Case checkbox to apply the filter to characters that match the filter case.
   • Select the Exclude checkbox to exclude any activity that matches the filter.

Mixed Case and Match Case behave as follows:
• Mixed Case (selected) and Match Case (not selected) - Filter values are stored as entered but filter values and field values are treated as upper case for comparison.
• Mixed Case (selected) and Match Case (selected) - Filter value are stored as entered but filter values and field values are compared as is.
• Mixed Case (not selected) and Match Case (not selected) - Filter values are upper cased when stored and field values are treated as upper case for comparison.
• Mixed Case (not selected) and Match Case (selected) - Filter values are upper cased when stored and comparison are made to field values, as is.
5. Specify how to handle AND/OR between columns.
6. Specify how to handle AND/OR within columns.
7. Click Add Row.
8. From the Column list, select the column for which you want to create a filter line.
9. From the Operator list, select the operator you want to use in the filter line.
10. In the Value field, type the value you want to use in the filter line.

You can use the Remove Row button to remove rows you do not want to include in your filter. Db2 Query Monitor evaluates data based on the Column, Value, and Operator you specify in each filter line. If a match occurs, then the data are filtered according to the Exclude check box status. If the Exclude check box is selected, data are excluded from display when a match occurs. If the Exclude check box is not selected, data are included from display when a match occurs (and data that do not produce a match are excluded from display).
11. Click Save.

Editing a filter
Follow these steps to edit an existing filter.

Procedure
1. From any window within the CAE Browser Client, click Application Menu > Filters > Manage.
2. Highlight the filter you want to edit.
3. Click Edit.
4. Modify the filter as needed.
   For more information about the available options, see “Adding a filter” on page 361.
5. Click Save.
Deleting a filter
Follow these steps to deleting filters that you no longer need.

Procedure
1. From any window within the CAE Browser Client, click Application Menu > Filters > Manage.
2. Highlight the filter you want to delete.
3. Click Delete.
4. Click Yes.

Archive connections
You can use Archive Connections to connect to Db2 Query Monitor data that has been loaded to a Performance History Database. An Archive Connection is a connection between the CAE Browser Client and a Performance History Database. An Archive Connection can be either private or shared.

Procedure
From any window within the CAE Browser Client, click Application Menu > Archive Connections > Manage.

These options are available:

History
View a history of Archive Connection actions.

Show All Public Configurations
Check this box to show all public configurations. Uncheck this box to hide all public configurations.

Refresh
Refresh the Archive Connection list.

Add
Add an Archive Connection.

Delete
Delete an Archive Connection.

Rename
Rename an Archive Connection.

Edit
Edit an Archive Connection.

Clone
Clone an Archive Connection.

Share
Share an Archive Connection.

Private Configurations
A list of private Archive Connections.

Shared Configurations
A list of shared Archive Connections.

Existing Labels
Current list of labels associated with Archive Connections.

Adding an Archive Connection
Follow these steps to add an Archive Connection.

Procedure
1. From any window within the CAE Browser Client, click Application Menu > Archive Connections > Manage.
2. Click **Add**.
3. In the **Name** field, type a name for your Archive Connection.
4. Define the Db2 connection using one of the following methods:
   a) Choose from a list of discovered DB2s.
      - The **Choose DB2 From List** tab shows the Db2 locations, ports, and hosts that Db2 Query Monitor has automatically discovered. Select the appropriate values from the following lists:
        - **System**
          - The system where the Performance History Database to which you want to connect resides.
        - **Db2**
          - The Db2 subsystem where the Performance History Database to which you want to connect resides.
      b) Enter connection information.
         - If the Db2 to which you want to connect is not available on the **Choose DB2 From List** tab, you can enter the connection information on the **Enter Connection Information** tab instead. Specify the following fields:
           - **Location**
             - The location name where the Performance History Database resides.
           - **Host**
             - The host where the Performance History Database resides.
           - **Port**
             - The data listener port of the Db2 where the Performance History Database resides.
     5. Specify secure connection settings.
        a) Check the **Use SSL** box to use SSL for the connection.
        b) From the **Truststore** list, select the appropriate truststore.
        c) Type the appropriate secure port in the **Secure Port** field.
        a) In the **Schema** field, type the schema associated with the Performance History Database to which you are creating a connection.
        b) If you want to override default table names, click **Edit Table Names** and modify the table names as needed.
           - **Note:** This option is not commonly used. If, when creating the Performance History Database, you specified alternate table names, you would use this dialog to enter those table names.
        c) Select the **Calculate Percent Columns** check box if you want to calculate the percent columns.
     7. Specify user defined function settings.
        a) Type the creator of the UDF that is used to format host variables in the **UDF Creator** field.
        b) Type the name of the UDF that is used to format the host variables in the **UDF Name** field.
     8. Click **Save**.

**Deleting an Archive Connection**
Follow these steps to delete an Archive Connection.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Archive Connections > Manage**.
2. Highlight the Archive Connection you want to delete.
3. Click **Delete**.
Renaming an archive connection
Follow these steps to rename an Archive Connection.

Procedure
1. From any window within the CAE Browser Client, click **Application Menu > Archive Connections > Manage**.
2. Highlight the Archive Connection you want to rename.
3. Click **Rename**.
4. In the **New Name** field, type a new name for the Archive Connection.
5. Click **OK**.

Editing an archive connection
Follow these steps to edit an Archive Connection.

Procedure
1. From any window within the CAE Browser Client, click **Application Menu > Archive Connections > Manage**.
2. Highlight the Archive Connection you want to edit.
3. Click **Edit**.
4. Edit the Archive Connection as needed. For information about the available options, see “Adding an Archive Connection” on page 362.

Cloning an archive connection
Follow these steps to clone an Archive Connection.

Procedure
1. From any window within the CAE Browser Client, click **Application Menu > Archive Connections > Manage**.
2. Highlight the Archive Connection you want to clone.
3. Click **Clone**.
4. In the **New Name** field, type a name for the new Archive Connection.
5. Click **OK**.

Sharing an archive connection
Follow these steps to share an Archive Connection.

Procedure
1. From any window within the CAE Browser Client, click **Application Menu > Archive Connections > Manage**.
2. Highlight the Archive Connection you want to share.
3. Click **Share**.
4. Select the **Public Configuration** check box.
5. From the list, select the label that you want to use to share the Archive Connection, or click **Add New Label** to create new label to use for sharing. Labels control the visibility of the shared user configurations, including shared Archive Connection.
6. Click **Done**.

Custom views
You can use custom views to customize the presentation of data that you see in the Activity Browser data table. You can select, order, and specify the width of the columns you want to see for the various data
tables in the Activity Browser. For some views, such as Operational Summaries, Structural Summaries, and SQL Codes, you can define custom views for one or more specific drill down paths.

**Procedure**

From any window within the CAE Browser Client, click Application Menu > Custom Views > Manage.

These options are available:

**History dropdown**
- Shows a history of Custom Views actions.

**Show all public configurations**
- Check this box to show all public configurations. Uncheck this box to hide all public configurations.

**Refresh**
- Refresh the Custom Views list.

**Add**
- Add a Custom View.

**Delete**
- Delete a Custom View.

**Set as default**
- Sets the selected Custom View as the default view.

**Rename**
- Rename a Custom View.

**Edit**
- Edit a Custom View.

**Clone**
- Clone a Custom View.

**Share**
- Share a Custom View.

**List of Custom View configurations**
- The list of Custom View configurations is broken down by the area of the Activity Browser it is associated with (such as operational summaries, structural summaries, exceptions, exception objects, current activity, etc.) and by whether or not the Custom View is private or shared.

**Existing labels**
- A list of the labels associated with Custom Views.

**Adding a Custom View**

Follow these steps to add a new Custom View.

**Procedure**

1. From any window within the CAE Browser Client, click Application Menu > Custom Views > Manage.
2. Highlight the product area for which you want to add a custom view. For example, to add a custom view to Operational Summaries, highlight Operational Summaries.
3. Click Add.
4. In the Custom View Name field, type a name for your Custom View.
5. Highlight the columns in the left box that you want to include in your Custom View. Use the > and < buttons to move the columns to the right box which shows the selected columns.
6. Specify any custom settings such as column width, sort direction, or sort order.
7. Use the Top, Up, Down, and Bottom buttons to move the columns so they are in the order you want them to be displayed.
8. Type a number in the Locked Columns Count that specifies the number of columns to lock in place at the left side of the data table.
9. Click Save.
10. To apply the filter, highlight the filter and click **Set as Default**.

**Adding custom views for specific drilldowns**
Follow these steps to add custom views that apply to specific drilldowns.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Custom Views > Manage**.
2. Highlight the product area for which you want to add a custom view for specific drilldown paths.
   
   **Note:** Custom views for specific drilldown paths are available for Operational Summaries, Structural Summaries, and SQL Codes.
3. Click **Add**.
4. In the **Custom View Name** field, type a name for your Custom View.
5. Use the **Specific Drilldown View** dropdown box to select the drilldown for which you want to define a custom view. For example, to create a custom view that is to be used only when viewing the plan drilldown, select **Plan**.
6. Highlight the columns in the left box that you want to include in your Custom View. Use the > and < buttons to move the columns to the right box which shows the selected columns.
7. Specify any custom settings such as column width, sort direction, or sort order.
8. Use the **Top**, **Up**, **Down**, and **Bottom** buttons to move the columns so they are in the order you want them to be displayed.
9. Type a number in the **Locked Columns Count** that specifies the number of columns to lock in place at the left side of the data table.
10. If you want to specify a custom view for additional drilldown paths, use the **Specific Drilldown View** dropdown box to select the next view and specify your custom settings for that view. Repeat as needed until you have specified all the specific drilldown views you need.
11. Click **Save**.
12. To apply the filter, highlight the filter and click **Set as Default**.

**Deleting a Custom View**
Follow these steps to delete a Custom View.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Custom Views > Manage**.
2. Highlight the custom view you want to delete.
3. Click **Delete**.

**Setting a Custom View as default**
Follow these steps to set a Custom View as default. When you set a custom view as default, it applies the custom view to the appropriate view in the data table.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Custom Views > Manage**.
2. Highlight the custom view you want to apply and click the **Set as Default** button.

**Renaming a Custom View**
Follow these steps to rename a Custom View.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Custom Views > Manage**.
2. Highlight the Custom View you want to rename.
3. Click **Rename**.
4. In the **New Name** field, type a new name for the Custom View.
5. Click **OK**.

**Editing a custom view**
Follow these steps to edit a Custom View and modify it as needed.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Custom Views > Manage**.
2. Highlight the Custom View you want to edit.
3. Click **Edit**.
4. Edit the Custom View as needed. For information about the available options, see “Adding a Custom View” on page 365 or “Adding custom views for specific drilldowns” on page 366.

**Cloning a Custom View**
Follow these steps to clone a Custom View and use it as a starting point for a new custom view.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Custom Views > Manage**.
2. Highlight the Custom View you want to clone.
3. Click **Clone**.
4. In the **New Name** field, type a name for the new Custom View.
5. Click **OK**.

**Sharing a Custom View**
Follow these steps to share a Custom View with other CAE Browser Client users.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Custom Views > Manage**.
2. Highlight the Custom View you want to share.
3. Click **Share**.
4. Select the **Public Configuration** check box.
5. From the list, select the label that you want to use to share the Custom View, or click **Add New Label** to create new label to use for sharing. Labels control the visibility of the shared user configurations, including shared custom views.
6. Click **Done**.

**Selecting intervals**
You can use the select intervals option to select the intervals for which you want to view data in the Activity Browser.

**Procedure**
From any window within the CAE Browser Client, click **Application Menu > Select Intervals**. Select one or more intervals by checking the box next to the intervals of interest.

These options are available:

**Sel**
Check the box to select an interval for display.

**Start**
The date and time the interval started.

**End**
The date and time the interval ended.
<table>
<thead>
<tr>
<th>Number</th>
<th>The interval number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Elapsed Time</td>
<td>The total accumulated elapsed time while executing within Db2.</td>
</tr>
<tr>
<td>Total Cpu Time</td>
<td>The total of all TCB and SRB CPU time spent while executing in Db2</td>
</tr>
<tr>
<td>Total Getpages</td>
<td>The number of GETPAGE requests. This count includes conditional, unconditional, successful, and unsuccessful requests.</td>
</tr>
<tr>
<td>Total Delay Time</td>
<td>The total time spent waiting due to specific delay events.</td>
</tr>
<tr>
<td>Total Sql Calls</td>
<td>The total number of individual SQL calls executed by Db2.</td>
</tr>
</tbody>
</table>

**Show Only Selected Intervals**
Check this box to show only intervals that have been selected.

**Show Empty Intervals**
Check this box to show empty intervals (intervals that contain zero SQL calls, zero CPU time, zero Db2 commands, and zero exceptions).

**Snap Intervals**
Stops the current interval and starts a new interval for the Query Monitor Subsystem subsystem (selected from the Sources field in the activity browser). This is equivalent to issuing the `F cqmtaskname, INTERVAL` operator command to force the specified Query Monitor Subsystem task to snap an interval.

**Using interval selection tools**
Follow these steps to use interval selection tools to navigate and select intervals for which to view activity.

**Procedure**
1. From any window within the CAE Browser Client, click **Activity Browser**.
2. Select the **Source**, **Target**, and **Perspective** of interest.
3. Select a start and end **Intervals** from the intervals lists.
4. Click **Run**.
5. To navigate through intervals in a step-wise manner, either forwards or back, using the up and down buttons to the right of the **Intervals** start and end lists.

**Note:** You do not need to click **Run** when using the interval stepper, the action is immediately applied.

**Intervals and data sharing**
When using the CAE Browser Client in a data sharing environment, the intervals that are shown for selection are obtained from the master Query Monitor Subsystem of the subsystem group.

When you retrieving data from the other Query Monitor Subsystems, the CAE Server chooses intervals from the other Query Monitor Subsystems that overlap with master intervals by more than 30 seconds.

All Query Monitor Subsystems in a group have the same interval length, and if you specify `INTERVAL_MIDNIGHT(Y)` in CQMPARMS, the intervals will generally have the same start and end times as the master intervals.

**Keep or release intervals**
You can use the keep or release intervals option to specify the intervals you want to keep or release.

**Procedure**
1. From any window within the CAE Browser Client, click **Application Menu > Keep/Release Intervals**.
The following options and columns display:

**Keep**
Check the box to keep an interval, this prevents the interval from rolling off. To release an interval, uncheck the box.

**Sel**
Indicates whether or not the interval is selected for display.

**Start**
The date and time the interval started.

**End**
The date and time the interval ended.

**Number**
The interval number

**Total Elapsed Time**
The total accumulated elapsed time while executing within DB2.

**Total Cpu Time**
The total of all TCB and SRB CPU time spent while executing in DB2

**Total Getpages**
The number of GETPAGE requests. This count includes conditional, unconditional, successful, and unsuccessful requests.

**Total Delay Time**
The total time spent waiting due to specific delay events.

**Total Sql Calls**
The total number of individual SQL calls executed by DB2.

**Show Empty Intervals**
Indicates whether or not to show empty interval. Check this box to show empty intervals. Un-check this box to hide intervals that contain zero SQL calls, zero CPU time, zero DB2 commands, and zero exceptions.

**Snap Intervals**
Stops the current interval and starts a new interval for the Query Monitor Subsystem subsystem (selected from the Sources field in the activity browser). This is equivalent to issuing the F cqmtaskname,INTERVAL operator command to force the specified Query Monitor Subsystem task to snap an interval.

2. To keep one or more intervals, check the box in the **Keep** column that corresponds to each interval you want to keep.

3. Click **OK**.

**Refreshing navigation**
Refreshing navigation refreshes the targets and intervals for the current source and all loaded configuration files (filters, archive connections, custom views, baselines, and tuning connections).

**Procedure**
From any window within the CAE Browser Client, click **Application Menu > Refresh Navigation**.

**Toggle details**
The Activity Browser provides you with the option to toggle the details pane in order to show or hide details for the activity you are browsing.

**Procedure**
From any window within the CAE Browser Client, select **Application Menu > Toggle Details**.
Preferred labels
Follow these steps to assign preferred labels. You can use preferred labels to limit the shared user configurations that you see.

Procedure
1. From any window within the CAE Browser Client, click Application Menu > Preferred Labels.
2. Select the check box next to each label you would like to use. Selecting a check box limits the shared configurations you see to only those that have been assigned that label.
   To view all configurations, do not select any label check box. To update the list of existing labels to ensure that those that were recently created are on the list, click Update Labels.
3. Click Done.

Sharing user configurations
Follow these steps to share user configurations. You can share CAE Browser Client configurations (such as filters, custom views, archive connections, baselines, or staging table connections) with other users and you can control that sharing through the use of labels.

Procedure
1. After you configure a filter, custom view, archive connection, baseline, or staging table connection that you want to share, click the Share button (located within the manage panel for filters, custom views, archive connections, or staging table connections).
2. Select Public Configuration.
3. Select the labels to control the visibility of the configuration. Users can filter what configurations are visible to them using the Preferred Labels dialog available under the Applications menu.

Note:
- Each label has a check box that can be selected to indicate you want to apply that label to your configuration.
- The list of existing labels includes all labels used by all configurations of all types.
- If a label is no longer used in any configuration, it will disappear from the list of existing labels (and for this reason there is no delete feature for labels). If you do not specify a label for a configuration, it will be visible for all users.
4. If appropriate, select an existing label (or labels), or click Create Label and specify a name for the new label and click Create.
5. When you have selected or created all the labels you want to use for your configuration, click Done.

Setting view preferences
You can choose the visualization tool (table or chart) that you want to use in the Activity Browser and select the elements (table, chart, details) that you want to show by default. Your view preferences are retained in future sessions.

Procedure
From any window within the CAE Browser Client, click Application Menu > View Preferences.
These options are available:

Driven By
The navigational tool that drives the Activity Browser. Select one of the following:

Table
The data table is used as the main navigational tool to drive the Activity Browser.

Chart
The pie chart is used as the main navigation tool to drive the Activity Browser.
Show By Default
The navigational tools and displays that are shown by default in the Activity Browser.

Note: The choice you select for Driven By is disabled (it will be shown by default).

Table
The data table is shown by default in the Activity Browser.

Chart
The pie chart is shown by default in the Activity Browser.

Details
The details pane is shown by default in the Activity Browser.

Toggle compare
The Application Menu provides you with the ability to toggle (show or hide) the compare workloads options (sources, targets, intervals, DB2 subsystems, baseline, and comparison type) in the Activity Browser.

Procedure
To toggle the compare workloads options on or off, click Application Menu > Toggle Compare. Alternatively, you can click the Compare button located above the data table to toggle the compare workload options.

Decache SQL codes
Follow these steps to clear the cache on the CAE Server that contains SQLCODE detail information.

About this task
When you view SQLCODE data that includes data from the current interval and drill down to summarize by any key other than SQLCODES (for example, you drill down by PLAN), the CAE Server caches SQLCODE information to improve performance. As the current interval progresses, the information in the cache can becomes outdated. For this reason, sometimes you might want to empty the cache of SQL codes so the CAE Server can loads the latest SQLCODE information. If your interval selection does not include the current interval, clearing the cache should not be necessary.

Procedure
From any window within the CAE Browser Client, click Application Menu > Decache SQL Codes.

Note: You do not need to decache SQL codes in the following situations:
• If you are viewing data for the current interval and your initial drill down is by SQLCODES.
• If you are viewing data for prior intervals.

Show SQL
Follow these steps to show SQL for selected activity. The option to show SQL text is available for Summaries, Exceptions, Current Activity, and SQL Code Details.

Procedure
From any window within the CAE Browser Client, click Application Menu > Show SQL.
Query tuning

The CAE Browser Client integrates with various tuning clients so you can tune single SQL queries or SQL workloads.

The query tuning options in the Application Menu provide access to features such as query tuning, host variable collection, and staging tables.

Requirements for query tuning integration

These requirements must be met to enable integration between the CAE Browser Client and query tuning clients.

You must have one of the following query tuning clients installed:

- IBM Data Server Manager, V2.1 (or higher)
  - IBM Data Server Manager, V2.1.4 adds SQLID field in workload tuning protocol, Db2 Query Monitor APAR PI89058 needs to be applied to support this new field
  - IBM Data Server Manager, V2.1.5 supports users without saved password, Db2 Query Monitor APAR PI89061 needs to be applied to support this feature
- IBM DataStudio, V4.1 (or later)

You must also verify that the following requirements are met:

- The Db2 subsystem you choose for tuning must have an appropriate license and be configured for the type of query tuning that you want to perform.
- The query tuning client you use must be running the data bridge server.

You must verify the following before tuning workloads:

- For workload tuning, the entire workload must be guaranteed to originate from the same Db2 subsystem. If your target collector monitors more than one Db2 subsystem, you must include Db2 in one of your drill-downs to have access to workload tuning.
- The mechanism for transferring workload data differs depending on the tuning client you use.
- The HTTP POST mechanism can only accept a certain amount of data (usually 4 MB, depending on tuning client configuration), limiting the size of the workload that can be transferred from Db2 Query Monitor to the tuning client.

Query tuning integration tips and troubleshooting

If you attempt to send SQL text to a query tuning tool for analysis and tuning but the Tune button is disabled, consider the following troubleshooting tips.

Verify the following:

- The SQL text must be explainable. By default, Db2 Query Monitor applies a filter (referred to as the EXPLAIN filter) which prevents SQL statements that cannot be explained from being sent to the query tuner. A small fraction of SQL statements that can be explained might not pass this filter and as a result might not be sent to the query tuner. For this reason, you have the option of using the EXPLAIN filter. To turn on or off the EXPLAIN filter, select the menu option Query Tuning > Use 'EXPLAIN' Filter.
- You must start the tuning client before you attempt to tune an SQL statement or workload from the CAE Browser Client.
- Start the data bridge in the query tuning client. Verify that the data bridge has started and the port it is using.
- After you start the query tuning client and data bridge, refresh the CAE Browser Client by selecting Activity Browser > Query Tuning > Check Query Tuning.
- The query tuning client might have an untrusted certificate. To troubleshoot this possible scenario, access the following URL in a new tab or browser window: https://localhost:56789/crossdomain.xml

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Note: If your data bridge is using a port other than 56789, modify the URL to reflect the port your data bridge is using. For example, if your data bridge uses port 56792, point your browser to: https://localhost:56792/crossdomain.xml

Tuning a single SQL query (tune button)
Follow these steps to tune a single SQL query from the SQL Text tab in the details panel of the Activity Browser or the Alert Browser.

Procedure
1. Start the query tuning client you plan to use to tune SQL queries.
2. Start the CAE Browser Client.
3. Configure tuning. For more information, see “Configure tuning” on page 377.
4. From any window within the CAE Browser Client, select Activity Browser.
5. Use the data table to navigate to the SQL text you want to tune.
6. Click Show SQL to display the SQL text in the details panel.
7. Click Tune.
8. From the Tuner Client list, select the tuner client you want to use to tune your SQL queries.
   - Data Server Manager (DSM)
     Select this option to use IBM Data Server Manager.
   - Query Workload Tuner
     Select this option to use IBM DataStudio V4.1 or higher.
9. Specify the appropriate options for the tuning client you select.
   The options you must specify vary depending on the tuning client you select. Some of the options listed below might not be displayed or required for the tuning client you select.
   - SQLID
     (DSM Tuner Client only) (Optional) The SQLID you want DSM to use when locating the EXPLAIN tables for tuning. If you do not type a value in this field, DSM sets the SQLID to the userid that is saved in the Database connection in DSM field.
   - Db2 Subsystems
     The Db2 subsystem for which you want to tune the SQL query.
   - Database Connection in DSM
     (DSM Tuner Client only) The Db2 connection profile in DSM. Click the + button to define a new DSM database connection for the current DB2. Click the refresh button to refresh the list of connections after adding a new connection.
   - Db2 Connection Name
     (Query Workload Tuner Only) The Db2 connection name.
10. Click OK.
11. Click Check Status.
12. Tune the SQL statement as appropriate using the tuner client.

Tuning an SQL workload (tune all)
Follow these steps to perform workload tuning (tune all) for an SQL workload of interest.

Procedure
1. Start the tuning client you plan to use to tune SQL queries.
2. Start the CAE Browser Client.
3. Configure tuning. For more information, see “Configure tuning” on page 377.
4. From any window within the CAE Browser Client, select Activity Browser.
5. Use the data table to navigate to the workload you want to tune.

The **Tune All** option is available in Summaries SQL text drill down and when the target is a Query Monitor Subsystem monitoring only one DB2 subsystem, the drill down path contains a single DB2 subsystem, or the target is a DSGROUP.

6. Click **Application Menu > Query Tuning > Tune All**.

7. From the **Tuner Client** list, select the tuner client you want to use to tune your SQL queries.

The following options are available:

- **Data Server Manager (DSM)**
  Select this option to use IBM Data Server Manager.

- **Query Workload Tuner**
  Select this option to use IBM DataStudio V4.1 or higher.

8. Specify the appropriate options for the tuning client you select.

The options you must specify vary depending on the tuning client you select. Some of the options listed below might not be displayed or required for the tuning client you select.

- **Scope**
  The SQL queries you want to tune. Select **Selected Rows** to tune only the rows you select. Select **Current Page** to tune all SQL statements on the current data table page. Select **All Rows** to tune all SQL statements in the data table.

- **Ignore SQL Text Retrieval Errors**
  Select this check box to ignore SQL text retrieval errors.

- **SQL Statements**
  The number of SQL statements that are to be tuned.

- **Staging Table Connection**
  The staging table connection to use for the storing SQL statements for tuning.

- **Delete Sharing Data**
  Select this check box to delete sharing data.

- **Workload Prefix Name**
  The workload prefix name.

- **Monitor Database Connection in DSM**
  The Db2 connection profile in DSM.

- **Staging Table Database Connection in DSM**
  The staging table connection profile in DSM.

- **SQLID**
  (DSM Tuner Client only) (Optional) The SQLID you want DSM to use when locating the EXPLAIN tables for tuning. If you do not type a value in this field, DSM sets the SQLID to the userid that is saved in the **Database connection in DSM** field.

9. Click **OK**.

10. Click **Check Workload Status**.

11. Tune the activity as appropriate.

### Tuning an archived workload

You can tune SQL workloads that you have archived.

**Procedure**

1. Start the tuning client.
2. Start the CAE Browser Client.
3. Configure tuning. For more information, see “Configure tuning” on page 377.
4. From any window within the CAE Browser Client, click **Activity Browser**.
5. Select **Query Tuning > Manage Staging Tables > Manage Workloads**
6. Select the checkbox for the archived workload you want to tune and click **Tune**.
Specify the following options:

**Tuner Client**
The tuning client you want to use to tune your SQL workload. The values shown in this field are the tuning clients that have been discovered.

**Scope**
The scope of the tuning.

**Ignore SQL Text Retrieval Errors**
When checked, ignores SQL text retrieval errors.

**SQL Statements**
The number of SQL statements that are to be tuned.

**Staging Table Connection**
The staging table that is to be used for the tuning.

**Delete Sharing Data**
Indicates whether or not to delete sharing data.

**Workload Prefix Name**
The workload prefix name.

**Monitored Database Connection in DSM**
The monitored database connection profile.

**Staging Tables Database Connection in DSM**
The staging table database connection profile.

**SQLID**
(DSM Tuner Client only) (Optional) The SQLID you want DSM to use when locating the EXPLAIN tables for tuning. If you do not type a value in this field, DSM sets the SQLID to the userid that is saved in the Database connection in DSM field.

7. Click **OK**.
8. Tune the activity as appropriate using the DSM Client.

### Collecting host variables
Db2 Query Monitor allows you to collect, by sampling, the relative frequency of host variable combinations for SQL statements in workloads that you define. Follow these steps to collect host variables for SQL text of interest.

#### Before you begin
Before you collect host variables, verify the following:

- The Db2 subsystems for which you want to collect host variables are running Db2 V11.
- You have the proper authority to use this feature. For more information, see “Reviewing and setting proper authorizations” on page 55.
- A Host Variable Agent has been set up. A Host Variable Agent is a CAE Agent that coordinates the host variable collection process for one or more Query Monitor Subsystems on an LPAR. For more information, see “Setting up a Host Variable Agent to act as a database connection proxy” on page 61.
- You have created a connection to the staging table that is to hold the collected host variables. For more information, see “Manage staging tables” on page 378.

Other considerations:

- Host variable samples are stored in staging tables for potentially long periods of time and are not deleted automatically.
- To prevent wasting disk space, you must delete host variable information from staging tables manually, when it is no longer needed.
About this task

When you use this feature, Db2 Query Monitor collects a fixed-size representative sample of all host variable values seen during a sampling interval. This allows you to find the most commonly used host variable values and better understand your application’s performance. You can also use host variable information to tune your SQL queries. In the case of stripped SQL text, the staging table contains the first unstripped SQL text, even though sampling is performed on all unstripped SQL texts.

Procedure

1. From any window within the CAE Browser Client click Activity Browser.
2. Use the data table to navigate to the SQL text for which you want to collect host variables and click Collect HostVars.
3. Specify the following:
   - **Scope**: Select the appropriate option for the Scope of the host variable collection. Click Selected Rows to capture host variables for the selected rows. Click Current Page to capture host variables for all rows shown on the current page in the data table. Click All Rows to capture host variables for all rows on all pages of the data table.
   - **Staging Tables Connection**: From the Staging Tables Connection list, select the staging table connection you want to use to store collected host variable information. Click Create New to create a new staging table connection, if the list does not contain a staging table connection you want to use.
   - **Ignore SQL Text Retrieval Errors**: Select this check box if you want to ignore errors encountered while retrieving SQL text.
4. Click Next.
5. Specify the following:
   - **Collection Period**: Specify the period of time during which you want to collect host variable information. Select the Start Time and End Time using the date and time drop down lists.
   - **Sample Size**: Type an integer in the Sample Size box to define the sample size to use when collecting host variable information. For every SQL query from the workload, the CAE Agent collects a fixed size representative sample (the Sample Size) of all host variable values that occurred during the sampling interval.
6. Click Finish.
7. You can view collected host variable information by navigating to an SQL drilldown that contains the statements from the workload and selecting the Host Variables tab in the details panel. Alternatively, you can select Application Menu > Query Tuning > Manage Staging Tables and clicking Manage Workloads. For more information, see “Managing workloads” on page 382.

Example

A user tries to tune SQL statements that use host variables (static text) or parameter markers (dynamic text). To help guide their tuning decisions, the user wants to identify the values of the host variables that are used most often. The user can select a set of SQL statements (from the SQL drill down in Operational Summaries). After selecting the SQL statements for which they want to collect host variable information, they can click Collect Host Variables, which presents a dialogue that asks them to specify the staging tables in which to store the workload. In this same dialogue, the user specifies the time period for which to collect the host variables.
When that time period is over, the user can:

- View the relative frequency of host variables used for individual SQL statements by a going to an SQL
drill down that includes the statements of interest
- Select one of those statements, and
- In the Details panel, select the Host Variables tab

The resulting display shows a table where there is a column for each host variable, plus an additional
column to show the percentage (the percentage column will actually be the first column). Each row shows
the following data:

- The percentage of samples in which the specific combination of host variable values occurred
- The individual host variable values

**Configure tuning**

Follow these steps to configure tuning.

**Procedure**

1. From any window within the CAE Browser Client, click Activity Browser > Application Menu >
Configure Tuning.
2. Select the tuning application you want to use to tune SQL queries.
3. If you want to change the tuning application connection information, click Change for that tuning
application.
   - For a DSM Server connection, specify the following:
     - **Protocol**
       The protocol for the connection (HTTP or HTTPS). If you allow non-secure query tuning (HTTP),
       the CAE Browser Client passes your user name, password, and SQL text in plain text to the
       query tuning client from your browser. Check with your security administrator to verify that it is
       acceptable for you to allow non-secure tuning.
     - **Host**
       The host to be used when connecting to the DSM Server.
     - **Port**
       The port used to connect to the DSM Server.
     - **TrustStore**
       Select a Protocol > HTTPS and click Show Advanced Settings. Select the truststore to use for
       the connection. Click the + button to go to the Truststore Configuration window in a new tab,
       from there you can edit truststore settings. For more information, see “Truststore
       configuration” on page 417.
   - For an OQWT or DataStudio connection, specify the following:
     - **Protocol**
       The protocol for the connection (HTTP or HTTPS). If you allow non-secure query tuning (HTTP),
       the CAE Browser Client passes your user name, password, and SQL text in plain text to the
       query tuning client from your browser. Check with your security administrator to verify that it is
       acceptable for you to allow non-secure tuning.
     - **Host**
       The host to be used when connecting to the tuning client.
     - **Port**
       The port used to connect to the tuning client.
4. Click Test to test the connection.

After you have tested and confirmed that the connection is working, you can then send a query to the
tuning client.
Using the EXPLAIN filter

Follow these steps to use the EXPLAIN filter. By default, Db2 Query Monitor applies a filter (referred to as the EXPLAIN filter) which prevents SQL statements that cannot be explained from being sent to the query tuner. A small fraction of SQL statements that can be explained might not pass this filter and as a result might not be sent to the query tuner. For this reason, you have the option to turn on or off the EXPLAIN filter. By default, Db2 Query Monitor applies a filter (referred to as the EXPLAIN filter) which prevents SQL statements that cannot be explained from being sent to the query tuner. A small fraction of SQL statements that can be explained might not pass this filter and as a result might not be sent to the query tuner. For this reason, you have the option to turn on or off the EXPLAIN filter.

Procedure

From any window within the CAE Browser Client, click Activity Browser > Application Menu > Query Tuning > Use 'EXPLAIN' Filter.

This is a toggle option, if a checkmark is shown next to the Use 'EXPLAIN' Filter menu item, the EXPLAIN filter is active. If no checkmark is shown next to the Use 'EXPLAIN' Filter menu item, the EXPLAIN filter is not active.

Manage staging tables

Db2 Query Monitor uses staging tables to store workloads for query tuning and to store collected host variables.

Adding a staging table connection

Follow these steps to add a connection to the Db2 subsystem on which your staging table resides.

Procedure

1. From any window within the CAE Browser Client select Activity Browser > Application Menu > Query Tuning > Manage Staging Tables.
2. Click Add.
3. Click Next.
4. Specify the naming convention and the connection.
   
   Use Default Naming Convention
   Select this checkbox to use the default naming convention for the new Db2 connection. The default naming convention is to use the location name of the Db2 as the name of the connection. If you select the Use Default Naming Conventions checkbox, the connection name field is entered automatically when you configure the connection information.

   Connection Name
   If you do not select the Use Default Naming Conventions checkbox, you must type a connection name in this field.

5. Specify the connection information.
   You can specify connection information by choosing a Db2 subsystem from a list (in this case, the connection information is populated automatically) or by entering connection information manually. Select the Choose DB2 From List tab to choose a Db2 subsystem from a list or select the Enter Connection Information tab to enter connection information manually. Connection information for these tabs includes some or all of the following:

   System
   The z/OS system on which the Db2 subsystem is installed.

   DB2
   The Db2 subsystem.

   Location
   The location name associated with the Db2 subsystem.

   Host
   The host name used to connect to the Db2 subsystem.
Port
The port used to connect to the Db2 subsystem.

6. In the **Schema** box, type the schema for the connection.
7. Click **Next**.

The CAE Browser Client checks for staging tables with the schema you specified. The following scenarios are possible:

- If the specified Db2 has staging tables with the same schema name, the dialog box indicates this and you can use those tables for your connections. To do so, click **Finish**. Multiple users can use the same staging tables.
- If the staging tables do not exist or you want to further configure them, see “Creating staging tables using the CAE Browser Client” on page 379.

**Related tasks**

**Creating staging tables using the CAE Browser Client**
Follow these steps to create new staging tables using the CAE Browser Client.

**Creating staging tables using CQMCSDDL**
Follow these steps to create new staging tables using CQMCSDDL.

**Granting user access to staging tables**
Follow these steps to grant or revoke the authorization to staging tables.

**Deleting a staging table connection**
Follow these steps to delete a connection to the Db2 subsystem on which your staging table resides.

**Managing workloads**
Follow these steps to manage the workloads in your staging tables. Use the manage workloads options to review information that has been stored in staging tables and remove any samples that you no longer need.

**Creating staging tables using the CAE Browser Client**
Follow these steps to create new staging tables using the CAE Browser Client.

**Procedure**

1. Complete the steps described in “Adding a staging table connection” on page 378.
2. Select **Recreate Staging Tables**.
3. In the **SQLID** field type the appropriate SQLID to be used when creating the staging tables.
4. Specify the following table parameters for the new staging tables:

   **Database Name**
   The name of the database in which the staging tables are to be created. If the database you specify does not exist, you must create it. To do so, click **New**. Specify a database name, storage group, buffer pool, and index buffer pool for the new database.

   **Storage Group**
   The storage group associated with the table spaces.

   **Buffer Pool**
   The buffer pool associated with the table spaces.

   **Index Buffer Pool**
   The index buffer pool associated with the table spaces.

   If you want to use an existing database to hold your staging tables, and that database already contains table spaces for staging tables, be aware that executing the DDL drops those table spaces and all tables they contain. To prevent table spaces from being dropped, select another database. You cannot create two sets of staging tables in the same database. The main reason to select **Recreate Staging Tablespaces** in this context is to use a different schema for the tables in the database.

5. To grant or revoke authorizations on staging tables, select the **Grant or Revoke Authorizations on Staging Tables** check box.
Related tasks
Adding a staging table connection
Follow these steps to add a connection to the Db2 subsystem on which your staging table resides.

Creating staging tables using CQMCSDDL
Follow these steps to create new staging tables using CQMCSDDL.

Granting user access to staging tables
Follow these steps to grant or revoke the authorization to staging tables.

Deleting a staging table connection
Follow these steps to delete a connection to the Db2 subsystem on which your staging table resides.

Managing workloads
Follow these steps to manage the workloads in your staging tables. Use the manage workloads options to review information that has been stored in staging tables and remove any samples that you no longer need.

Creating staging tables using CQMCSDDL
Follow these steps to create new staging tables using CQMCSDDL.

Procedure
1. Edit SCQMSAMP library member CQMCSDDL as needed for your environment:
   a) Change &BUFFERPOOL to the desired buffer pool name.
   b) Change &INDEXBP to the desired index buffer pool name.
   c) Change &STOGROUP to the desired storage group name.
   d) Change &DBNAME to the desired database name.
   e) Change &SQLID to the desired SQL ID.
2. Run CQMCSDDL.

Related tasks
Adding a staging table connection
Follow these steps to add a connection to the Db2 subsystem on which your staging table resides.

Creating staging tables using the CAE Browser Client
Follow these steps to create new staging tables using the CAE Browser Client.

Granting user access to staging tables
Follow these steps to grant or revoke the authorization to staging tables.

Deleting a staging table connection
Follow these steps to delete a connection to the Db2 subsystem on which your staging table resides.

Managing workloads
Follow these steps to manage the workloads in your staging tables. Use the manage workloads options to review information that has been stored in staging tables and remove any samples that you no longer need.

Granting user access to staging tables
Follow these steps to grant or revoke the authorization to staging tables.

Procedure
1. From any window within the CAE Browser Client select Activity Browser > Application Menu > Query Tuning > Manage Staging Tables.
2. Highlight the connection for which you want to modify user access.
   Note: Staging tables can hold potentially sensitive information (such as dynamic SQL text and host variables). Grant a user access to staging tables only if it is acceptable for the user to access that information.
3. Click **Edit**.
4. Click **Next**.
5. Click **Next**.
6. Select **Grant or Revoke Authorization on Staging Tables**.
   If you have existing tables and want to modify the authorization, then clear the **Recreate Staging Tables** check box.
7. Click **Next**.
   - To add an authorization, click **Add Row**. Type the authorization ID of the user you want to define access for in the **Authorization ID** field.
   - To remove an authorization, highlight the corresponding row in the authorization list and click **Remove Row**.
   - To grant authority, select **YES** in the corresponding list (SELECT, INSERT, UPDATE, or DELETE). To revoke authority, select **NO** in the corresponding list.
8. Click **Next**.
9. Review the DDL.
10. Click **Execute SQL**.

**Related tasks**

Adding a staging table connection
Follow these steps to add a connection to the Db2 subsystem on which your staging table resides.

Creating staging tables using the CAE Browser Client
Follow these steps to create new staging tables using the CAE Browser Client.

Creating staging tables using CQMCSDDL
Follow these steps to create new staging tables using CQMCSDDL.

Deleting a staging table connection
Follow these steps to delete a connection to the Db2 subsystem on which your staging table resides.

Managing workloads
Follow these steps to manage the workloads in your staging tables. Use the manage workloads options to review information that has been stored in staging tables and remove any samples that you no longer need.

Deleting a staging table connection
Follow these steps to delete a connection to the Db2 subsystem on which your staging table resides.

**Procedure**

1. From any window within the CAE Browser Client select **Activity Browser > Application Menu > Query Tuning > Manage Staging Tables**.
2. Highlight the staging table connection you want to delete.
3. Click **Remove**.
4. Click **Yes**.

**Related tasks**

Adding a staging table connection
Follow these steps to add a connection to the Db2 subsystem on which your staging table resides.

Creating staging tables using the CAE Browser Client
Follow these steps to create new staging tables using the CAE Browser Client.

Creating staging tables using CQMCSDDL
Follow these steps to create new staging tables using CQMCSDDL.

Granting user access to staging tables
Follow these steps to grant or revoke the authorization to staging tables.

Managing workloads
Follow these steps to manage the workloads in your staging tables. Use the manage workloads options to review information that has been stored in staging tables and remove any samples that you no longer need.

Procedure
1. From any window within the CAE Browser Client select Activity Browser > Application Menu > Query Tuning > Manage Staging Tables.
2. Click Manage Workloads.
3. You can select workloads in the table and perform the following tasks:
   - **Refresh**
     Click Refresh to refresh the list of workloads.
   - **Tune**
     Click Tune to tune selected workloads.
   - **Clean**
     Click Clean to delete selected workloads from the staging tables.
   - **Cancel EO**
     Click Cancel EO to stop host variable collection for the selected workload.
   - **Clean All**
     Click Clean All to delete all workloads from the staging tables.
   - **Browse**
     Click Browse to browse captured SQL statements for the selected workload.
4. Use the Clean or Clean All options to manually delete any content from staging tables that you no longer need. This prevents wasting disk space. Be aware that host variable sample information is not deleted automatically.
5. Click Close.

Related tasks
Adding a staging table connection
Follow these steps to add a connection to the Db2 subsystem on which your staging table resides.

Creating staging tables using the CAE Browser Client
Follow these steps to create new staging tables using the CAE Browser Client.

Creating staging tables using CQMCSDDL
Follow these steps to create new staging tables using CQMCSDDL.

Granting user access to staging tables
Follow these steps to grant or revoke the authorization to staging tables.

Deleting a staging table connection
Follow these steps to delete a connection to the Db2 subsystem on which your staging table resides.
Chapter 21. Configuration

You can use the CAE Browser Client configuration and tools to customize actions, scopes, responses, custom launch, monitoring, monitoring overrides, monitored information types, action schedules, optional alert keys, QM subsystem management, and OMEGAMON integration as needed for your site.

Configuration Browser usage restrictions

- Users whose roles are **Administrator** can use the Configuration Browser without restriction.
- Users whose roles are **Viewer** or **Operator** cannot use the Configuration Browser.

**Topics:**
- “Actions” on page 383
- “Scopes” on page 388
- “Responses” on page 393
- “Custom launch” on page 397
- “Monitoring” on page 398
- “Monitoring overrides” on page 400
- “MITs” on page 401
- “Action schedules” on page 404
- “Optional alert keys” on page 405
- “QM subsystems management” on page 406
- “OMEGAMON integration” on page 415
- “Truststore configuration” on page 417

**Actions**

An action is a command that is executed in response to an event. You can configure actions to be executed automatically, interactively, or by schedule.

- **Automatic action** - The action is executed as determined by a response you have configured.
- **Interactive action** - The action is available as a right-click option when you select a row on the data table.
- **Scheduled action** - The action is executed at a specific time for all objects in a particular scope.

Actions are grouped as follows:

- **CAE Browser Client based actions** - Actions executed by the CAE Browser Client that are never dispatched to remote agents.
- **CAE Server based actions** - Actions executed by the CAE Server that are never dispatched to remote agents.
- **CAE Agent based actions** - Actions executed by the CAE Agent that are dispatched to remote agents.

**Adding a command action**

You can use a command action to execute command scripts in scripting languages such as DOS, MVS, JCL, or CSH.

**About this task**

- You can pass device or event-specific information into the script or batch file using variable bindings as command line arguments.
• The variable bindings that are available for use depend on the context in which the action is executed.
• The script type used is based on where the object resides.
• Invoking the action does not run all script types. If the object is a z/OS logical volume, the first appropriate script type is submitted. If the first script type is an MVS command, then TCSH and DOS scripts do not run (the TCSH script does not run because it comes after the MVS command and the DOS script does not run because it is not appropriate for the platform).

Procedure
1. From any window in the CAE Browser Client, click Configuration > Actions.
2. Highlight the appropriate action group.
   An action group is a set of actions that follow the same action dispatch rule. An action dispatch rule specifies the action agents that are valid for executing a given action for a particular subject.
3. Click Add > Command Action.
4. In the Enter Name field, type a name for the action.
5. Click OK.
6. In the Action Group field, select the appropriate action group.
7. In the Subject Type field, select the appropriate subject type against which the action is to be executed.
8. In the Event Type field, select the appropriate event type for which the action is to be executed.
9. In the Related Event Type field, select the related event type for which the action is to be executed.
10. In the Script Definitions section, click Add and select the appropriate definition for the command action.

   DOS Batch Script
   Create a DOS batch script.

   SH
   Create an SH command. As a UNIX command shell, SH only applies when running the CAE Server under USS and only runs on the LPAR of the CAE Server.

   BASH
   Create a BASH command. As a UNIX command shell, BASH only applies when running the CAE Server under USS and only runs on the LPAR of the CAE Server.

   CSH
   Create a CSH command. As a UNIX command shell, CSH only applies when running the CAE Server under USS and only runs on the LPAR of the CAE Server.

   TCSH
   Create a TCSH command. As a UNIX command shell, TCSH only applies when running the CAE Server under USS and only runs on the LPAR of the CAE Server.

   CQM JCL
   Create a JCL command.

   CQM Operator Command
   Create an operator command.
11. In the Script field, type the script to execute.
12. Add more script definitions as needed.
13. Click Apply.
Adding an email action
You can use an email action to send a custom email message from an account you specify to one or more recipients.

Procedure
1. From any window in the CAE Browser Client, click Configuration > Actions.
2. Highlight the appropriate action group.
3. Click Add > Email Action.
4. In the Enter Name field, type a name for the action.
5. Click OK.
6. In the Action Group field, select CAE Server-based actions.
7. In the Subject Type field, select the appropriate subject type against which the action is to be executed.
8. In the Event Type field, select the appropriate event type for which the action is to be executed.
9. In the Related Event Type field, select the related event type for which the action is to be executed.
10. In the To field, type the email address of any user to whom the notification is to be sent.
11. In the From field, type the sender name to be shown in the recipient's inbox.
12. (Optional) In the Cc field, type the email address of any recipient who is to be copied on the message.
13. (Optional) In the Bcc field, type the email address of any recipient who is to be copied on the message. Any Bcc recipients you specify will not be visible to other recipients.
14. (Optional) In the Subject field, type a description of the message.
15. On the Primary SMTP tab, specify the following:
   a) In the SMTP Host field, type the name of the mail server, running SMTP (simple mail transfer protocol).
   b) (Optional) In the SMTP Username field, type the username for the SMTP user account that sends the message.
   c) (Optional) In the SMTP Password field, type the password for the SMTP user account that sends the message. If no password has been defined, click Set Password to specify an SMTP password.
   d) (Optional) In the SMTP Port field, type the SMTP port.
   e) (Optional) Select the Use SSL check box to use SSL. This option is only applicable to MS Exchange.
16. On the Backup SMTP tab, specify the following:
   a) (Optional) In the Backup SMTP Host field, type the name of the backup mail server.
   b) (Optional) In the Backup SMTP Username field, type the username for the backup SMTP user account that sends the message.
   c) (Optional) In the Backup SMTP Password field, type the password for the backup SMTP user account that sends the message. If no password has been defined, click Set Password to specify an SMTP password.
   d) (Optional) In the Backup SMTP Port field, type the backup SMTP port.
   e) (Optional) Select the Backup Use SSL check box to use SSL for the backup. This option is only applicable to MS Exchange.
17. In the File Attachment field, type the path to the file attachment for the email. Any files that are specified in the File Attachment field must be present on the CAE Server.
18. In the Message field, type the message text.
19. Click Apply.
**Adding a WTO action**

You can add an action that issues a write-to-operator (WTO) message.

**Procedure**

1. From any window in the CAE Browser Client, click **Configuration > Actions**.
2. Highlight the appropriate action group.
3. Click **Add > WTO Action**.
4. In the **Enter Name** field, type a name for the action.
5. Click **OK**.
6. In the **Action Group** field, select the appropriate action group.
7. In the **Subject Type** field, select the appropriate subject type against which the action is to be executed.
8. In the **Event Type** field, select the appropriate event type for which the action is to be executed.
9. In the **Related Event Type** field, select the related event type for which the action is to be executed.
10. In the **Routing code** field, select the routing code for the WTO action.
11. In the **Descriptor code** field, select the descriptor code for the WTO action.
12. In the **Message ID** field, type a message ID to used for the WTO message and select the message suffix from the drop-down list.
13. In the **Message** field, type the WTO message text.
14. Click **Apply**.

**Adding a config control action**

You can add a configuration control (config control) action to make changes to the configuration of the CAE Server.

**Procedure**

1. From any window in the CAE Browser Client, click **Configuration > Actions**.
2. Highlight the appropriate action group.
3. Click **Add > Config Control Action**.
4. In the **Enter Name** field, type a name for the action.
5. Click **OK**.
6. In the **Action Group** field, select the appropriate action group.
7. Click **Add** and select the appropriate configuration change:
   - Select **Monitoring Configuration** to enable or disable monitoring configurations.
   - Select **Response** to enable or disable responses.
   - Select **Action Schedule** to enable or disable action schedules.
   - Select **Override Configuration** to enable or disable override configurations.
8. Add other configurations changes as needed.
9. Click **Apply**.

**Adding an SNMPv2 notification**

You can add an action that will send a Simple Network Management Protocol Version 2 (SNMPv2) notification.

**Procedure**

1. From any window in the CAE Browser Client, click **Configuration > Actions**.
2. Highlight the action group to which you want to add the action.
A sample **SNMP v2 Alert Notification** CAE-Server-based actions is included in the CAE Browser Client.

3. Click **Add > SMTPv2 Notification Action**.
4. In the **Enter Name** field, type a name for the action.
5. Click **OK**.
6. In the **Action Group** field, select the **CAE Server-based actions** action group.
7. In the **Subject Type** field, select the appropriate subject type against which the action is to be executed.
8. In the **Event Type** field, select the appropriate event type for which the action is to be executed.
9. In the **Related Event Type** field, select the related event type for which the action is to be executed.
10. In the **Target Host** field, type the IP address or DNS name of the host to which the traps are to be sent.
11. In the **Target Port** field, type the UDP port on which the target host listens for traps.
12. In the **Enterprise OID** field, type the trap's text-based object ID.
13. In the **Variable Bindings** section, click **Add**.
14. Expand the **New Binding** tree and select MIB module of interest.
15. Verify the values in the **Numeric OID** and **Object ID** fields.
16. In the **Type** field, select the appropriate type.
17. In the **Value** field, type the value to which the SNMP object is set.
18. Click **OK**.
19. Click **Apply**.

**Adding a web browser action**

You can add an action that executes a task in a web browser.

**Procedure**

1. From any window in the CAE Browser Client, click **Configuration > Actions**.
2. Highlight the **Web Browser Actions** action group.
3. Click **Add > Web Browser Action**.
4. In the **Enter Name** field, type a name for the action.
5. Click **OK**.
6. In the **Subject Type** field, select the appropriate subject type against which the action is to be executed.
7. In the **Event Type** field, select the appropriate event type for which the action is to be executed.
8. In the **Related Event Type** field, select the related event type for which the action is to be executed.
9. In the **Protocol** field, type the protocol for the web browser action (HTTP, HTTPS).
10. In the **Location** field, type the URL that is opened by the web browser action.
11. In the **Timeout** field, type the number of seconds after which the web browser action will time out.
12. Click **Apply**.

**Cancel thread actions**

There are two built-in cancel thread actions included in Db2 Query Monitor.

**Automatic Cancel Thread**

Cancel a thread associated with the SQL statement without user authentication. This cancel thread action:

- This cancel thread action uses the AUTHID of the CAE Agent address space to cancel the thread.
- This cancel thread action is intended for use in responses.
Cancel Thread
Cancel a thread associated with the SQL statement after authentication and under the user's AUTHID.

- This cancel thread action is available for use in custom launches.

Note: Cancel thread actions cannot be used in action schedules.

Scopes
A scope defines a set of domain elements and or events based on several criteria.

The following types of scopes are available:

**Domain element scopes**
Domain element scopes are scopes defined by a set of domain elements. Domain element scopes can be constraint-based, union-based, or enumerated member. A constraint-based scope is used when there are one or more properties shared between the members of the set.

**Event scopes**
Event scopes are scopes defined by a set of events and variables within those events. Event scopes can be constraint-based or union-based.

**Constraint-based scopes**
A constraint-based scope is defined by a set of elements that meet specified criteria. Both domain element scopes and event scopes can be of the constraint-based scope type.

**Union-based scopes**
A union-based scope is defined by the union of at least two existing scopes. Both domain element scopes and event scopes can be of the union-based scope type.

**Enumerated member scopes**
An enumerated member scope is defined by an explicit list of individual elements. Only domain element scopes and event scopes can be of the enumerated member scope type. An enumerated member scope is used when you want to define a set of related objects where the relationship is not obvious from the metrics available from the operating system.

Tips for defining scopes
When defining a constraint-based scope, you must first use two special constraints to establish a starting set of domain elements by specifying a base scope (subject is in scope) and the subject type (subject is a). Additional constraints can be added to further pare down the scope.

**Starting set constraints**
At minimum, all constraint-based scopes must specify a starting (base) scope and a subject type. By default these are set to **Everything** and **Domain Element** respectively.

**Subject is in scope**
The starting scope or base scope. This can be a built-in scope or a scope you have defined. Nothing that is not in this scope will be included in the scope you are defining.

**Subject is a**
All members of the scope you are defining will be of the type you specify here.

**Adding constraints**
A constraint can be thought of as a requirement for membership in a scope and all top-level constraints are combined with a logical “and” operation. Therefore, constraints can never add to the starting set of domain elements.

Notes:
1. **Properties and relations** - The set of properties and relations available to you when writing a constraint depends upon what subjects are defined by earlier constraints. For example, the address
property applies (and is available) when the subject is a device but does not apply (and is therefore not available) when the subject is an interface.

2. **Introducing other variables** - The set of properties and relations available to you when writing a constraint depends upon what subject is defined to be by earlier constraints.

3. **Nested constraints** - You can combine constraints with logical or operation into a single group that is then ANDed with other top-level constraints. You can also nest constraints to any arbitrary depth alternating between AND and OR with each additional level of depth.

4. **Using wildcards in scope constraints** - You can use the wildcard character "*" when specifying values in scope constraints. For example, the following scope constraint uses wildcards to match on all subjects whose bestName starts with "RS": Subject.bestName matches "RS*".

**Scopes options**

This topic describes the options for constraint-based scopes, union-based scopes, and enumerated member scopes.

**Note:** Built-in scopes delivered with the product cannot be edited.

The options that display for a scope varies based on which type of scope you are working with (constraint-based scope or enumerated member scope):

**Constraint-based scope options**

These options display when working with a constraint-based scope:

- **Definition panel**
  Displays either a text view of the scope definition or a design view of the scope definition. Text view enables you to directly view and work with the syntax of the scope. Design view enables you view and work with the scope definition via a series of menu options.

- **subject is in scope**
  The scope that defines the starting set of domain elements from which you will pare down (via the "subject is a" and other constraints) to arrive at the desired set definition.

- **subject is a**
  Everything in the scope will be of this type. If your scope will contain elements of varying type, choose the DomainElement type or some other abstract type that encompasses all of the types you need.

- **AND link**
  Displays a drop down menu of options. Select **AND <new>** to include a new element in the constraint definition. Select **Copy** to copy an existing element in the constraint definition. Select **AND <paste>** to paste a copied element in the constraint definition. Select **Simplify** to remove all hierarchical nesting conventions from the selected block of constraints, making them flat.

- **Keep private**
  Prevent a scope from being shown to other users.

- **Watch for changes**
  Posts events to the message board when elements are added or removed from a watched scope.

- **Comments**
  (Optional) Enables you to specify a description of the scope. Comment text is not part of the scope definition.

**Union-based scope options**

These options display when working with a union-based scope:

- **Subject is in union of**
  Displays a tree structure of scopes that are available for selection for inclusion in the union scope.

- **Keep private**
  Prevent a scope from being shown to other users.

- **Comments**
  (Optional) Enables you to specify a description of the scope. Comment text is not part of the scope definition.
Enumerated member scope options
These options display when working with enumerated member scopes:

Domain
Drop down list that enables you to select the domain to which the enumerated member scope is to apply.

Scope members
A list of scope members to which the enumerated member scope is to apply. The Add button displays a tree browser that enables you to locate the domain elements that are to be added to the scope.

Keep private
Prevent a scope from being shown to other users.

Comments
(Optional) Enables you to specify a description of the scope. Comment text is not part of the scope definition.

Scope constraint editor
The scope constraint editor is a series of options that guide you step-by-step through the definition of a scope constraint.

To access the scope constraint editor, select a scope to edit or create a new scope. The scope editor displays in the right panel of Scopes Configuration.

The scope constraint editor contains these fields or options:

Constraint
Displays the text representation of the scope as it is being constructed. The constraint begins with the scope's subject.

Select the subject of this constraint
Enables you to select the subject of the constraint from a list of valid subjects. Build a new constraint by stepping sequentially through the built-in syntactic building blocks.

Select a property of the subject of this constraint
Enables you to select a property of the subject for the constraint being created from a list of valid properties.

Back
Returns to the previous building block in the scope constraint definition.

Next
Continues to the next building block in the scope constraint definition.

Cancel
Abandons the current scope constraint definition.

Adding a constraint based scope
A constraint-based scope includes all domain elements by default (subject is in scope "Everything"). You can select a different existing scope to act as the new scope's basis and edit it as needed.

Procedure
1. From any window within the CAE Browser Client, click Configuration > Scopes.
2. Select the Elements tab (to create a domain element scope) or the Events tab (to create an event scope).
3. Click Add > Constraint-Based Scope.
4. In the Enter New Scope Name field, type a name for the new constraint-based scope.
5. Click OK.
6. Edit the scope and subject values as needed for your objectives.
If you need to add new constraints to the scope definition, click the Add button and select **AND <new>**. The scope constraint editor displays to guide you through the process of creating each constraint. For more information, see “Scope constraint editor” on page 390.

Constraints you define are added to the scope definition and comments field displayed in the right panel of the Configuration Browser.

**Note:** The set of properties and relations available to you when writing a constraint depends upon what subjects are defined by earlier constraints. For example, the address property applies (and is available) when the subject is a device but does not apply (and is therefore not available) when the subject is an interface.

7. You can modify and re-order constraints if necessary.

To do so, click the **AND** operator that joins the "Subject is in scope" and "Subject is a" fields. A drop down menu displays the following options:

- **AND <new>**
  - Creates a new constraint to be ANDed with the selected constraint.

- **AND <paste>**
  - ANDs the selected constraint with the one from the clipboard.

- **Copy**
  - Copies the selected constraint and put it on the clipboard. This action copies everything in the selected constraint block.

- **Simplify**
  - Removes all hierarchical nesting conventions from the selected block of constraints, making them flat.

Additionally, you can click on a Boolean operator or constraint within the scope definition. A drop down menu displays with the some or all of following options enabled:

- **Edit**
  - Enables you to edit the selected constraint.

- **Cut**
  - Enables you to delete the selected constraint from the scope definition.

- **Copy**
  - Enables you to copy the selected constraint.

- **Remove**
  - Enables you to delete the selected constraint definition from the scope definition.

- **NOT**
  - Changes the BOOLEAN logic for selected constraint to be FALSE (not equal to the constraint string specified).

- **AND <new>**
  - Enables you to create a new constraint that is to be ANDed to the selected constraint. The new constraint is placed at the level of the selected constraint, thus enabling you to nest constraints in the scope definition.

- **AND <next>**
  - ANDs the selected constraint with the constraint that follows it.

- **AND <paste>**
  - Enables you to paste a copied constraint as an AND statement related to the selected constraint.

- **OR <new>**
  - Enables you to create a new constraint that is to be ORed to the selected constraint. The new constraint is placed at the level of the selected constraint, thus enabling you to nest constraints in the scope definition.

- **OR <next>**
  - ORs the selected constraint with the constraint that follows it.
**OR <paste>**
Enables you to paste a copied constraint as an OR statement related to the selected constraint.

**Raise**
Enables you to move the selected constraint up one level in its current block.

**Lower**
Enables you to move the selected constraint down one level in its current block.

**Promote**
Enables you to promote to the next highest block level in the scope definition.

8. (Optional) Type a comment to describe the scope.
9. Press the **Apply** button to save the scope definition.

### Adding a union based scope
For a union-based scope, select the individual scopes that the new (union) scope comprises.

**About this task**
**Note:** The selection of both a parent and child scope in the creation of a union scope is not valid because the parent scope already encompasses the child scope, thus making a “union” of the two inapplicable. For example, since “Everything” is the parent to all other scopes, it cannot be selected when defining a union scope because it is redundant to attempt to create a union between “Everything” and a child scope which is already included in “Everything”.

**Procedure**
1. Access Actions Configuration from your CAE Browser Client home page by clicking **Configuration** > **Scopes**.
2. Select the appropriate tab, **Elements** or **Events**.
3. Press the **Add** button.
4. Select **Union Based Scope**. The **Scopes** dialog box displays.
5. Type the scope's name, then press **OK**.
   The following options display:
   **Scope list**
   Displays an expandable hierarchical list of existing scopes with a check box for each scope that enables you to select at least two scopes on which to base the union scope.

   **Keep private**
   Marks the scope as private.

   **Comments**
   (Optional) Enables you to specify a description of the scope. Comment text is not part of the scope definition.
6. Expand the tree structure to locate and select the individual scopes that you want to include in the union scope.
7. Specify whether or not you want to keep the scope private.
8. (Optional) Type a comment to describe the scope in the **Comments** box.
9. Click **Apply** to save the union-based scope.

### Adding an enumerated member scope
For an enumerated member scope, select the individual elements that the scope comprises. A new enumerated member scope comprises no elements by default, and includes only those elements that you specify explicitly.

**Procedure**
1. Access the CAE Browser Client Configuration Browser.
2. Select the **Elements** tab.
3. Press the **Add** button.
4. Select **Enumerated Member Scope**.
5. Type the scope’s name and press the **OK**.
6. Select the domain to which you want the scope to apply using the **Domain** drop-down box.
7. Press the **Add** button to specify domain elements to include in the scope. A dialog box named for the scope appears, providing access to selection trees of the domain’s domain elements. Choose a perspective from the drop-down menu to view domain elements organized in a way that is useful to you.
8. Select the individual domain elements that you want to include in the scope, then press the **OK** button to add them to the list of scope members. You can remove a domain element from the list by selecting it and pressing the **Remove** button. If you want to select domain elements using a different perspective, you must press **OK** or **Cancel**, then press the **Add** button again to re-display the selection dialog box.
9. (Optional) Type a comment to describe the scope in the **Comments** box.
10. Press **Apply** to save the scope definition.

**Adding a ParallelismCategory scope**

You can optionally create a ParallelismCategory if you want to minimize the number of responses you see to parallel statement alerts and do not choose to use the any of the default scopes.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > Scopes**.
2. Select the **Events** tab and click **Add > Constraints Based Scope** and enter a scope name.
3. Click the **event is a** link.
4. Locate and select **Alert Threshold Problem**.
5. Click **OK**.
6. Click the **AND** link and select **AND <new>**.
7. Select the **event** constraint and click **Next**.
8. Select **ParallelismCategory** and click **Next**.
9. Select **value** and click **Next**.
10. Specify the appropriate value for your objectives:

   **NonParallel**
   Includes events for non-parallel SQL statement threads, parent threads of parallel SQL statements.

   **FirstThread**
   Includes events of first-child threads that exceed the alert monitoring threshold.

   **ExtraThread**
   Includes events of non-first-child threads that exceed the alert monitoring threshold.

11. Specify any remaining scope options as appropriate for your objectives.
12. The scope is now available for selection when setting up a response. For more information, see “Optimizing responses for parallel statement alerts” on page 396.

**Responses**

A response is an action or set of actions (such as sending email notifications) that Db2 Query Monitor executes automatically when specific events of interest or concern occur.

These event state changes can cause these event triggers:

- A event is posted
• A event is acknowledged
• A acknowledged event is unacknowledged
• A event is cleared
• The priority of an event changes
• The repetition count of an event increments
• The alert status of an element has changed
• An event is restored
• An event is correlated

A new response is defined by choosing a scope, selecting one or more event types that are pertinent to that scope, then selecting an action, or multiple actions, that address those events for that scope.

**Note:** Only those actions that are guaranteed to apply to every element encompassed by the scope and event combination are shown, even though other actions may have been defined. For example, you might define a response which causes an Email message to be sent automatically to a user any time that a certain SQL error occurs for a SQL statement run under a particular plan. A scope is used to define the set of SQL statements run by the corresponding user.

Check boxes located in the list next to the responses configurations can be toggled to enable or disable specific responses configurations or groups of responses configurations. If you toggle a check box, a dialog box prompts you to confirm your change before it takes effect.

**Adding a response**

Add a response to define how Db2 Query Monitor responds automatically to events. The definition of a response requires you to first select a scope and an event that affects that scope, then select an action that addresses that event for that scope.

**About this task**

Only those actions that are guaranteed to apply to every element encompassed by the scope and event combination are shown, even though other actions may have been defined. In addition, you must define how the response handles messages relative to the triggering event.

For an action to be listed in a response the scope of the response must have a subject type that is at least as restrictive (“subject is a xxxx”) as the subject type chosen for the action. For example:

• Subject Type in the Action: Db2SqlStatement
• Scope in the Response (“Response applies to events on these Domain Elements”): Db2SqlStatement

The **Response applies to** field of the response should be set to **Event Types** with a selection in the tree that is at least as restrictive as the event type selected in the action.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > Responses**.
2. Press the **Add** button.
3. Type a name for the response and press **OK**.
4. Select the **Domain Elements & Event Types** tab.
5. Enable or disable the response by selecting or deselecting the **Enabled** box.
6. Click the combo-box button under the **Response Applies to Events on These Domain Elements** heading.

   The **Select a Scope** window displays. The following controls are available:

   **Alphabetical mode**

   Enables you to toggle the way in which scopes are listed. By default, the hierarchical view lists scopes in a tree, organized hierarchically according to the domain elements that each scope encompasses. When you press the alphabetical mode button, scopes display as a flat list of domain element scopes, sorted alphabetically by name.
Show/hide private scopes
Displays/hides private scopes.

Search
Enables you to search for a scope based on the text you type. The scopes list is updated immediately to reflect the results that apply to the text as you type it.

Scopes list
A list of scopes from which you can select those to which the response is to apply.

7. Select the scope of interest and click OK.
8. In the Response Applies To field, select Event Types or Event Scopes.
9. Use the tree to locate the event type (or event scope) for which you want the response to apply.
10. Click the Actions to Execute tab.
11. Select the appropriate options in the Response is Triggered When section.
   The following options are available:

   An event is posted
   Triggers a response when an event has been posted to the message board.

   An event is acknowledged
   Triggers a response when an event is acknowledged by a user.

   An acknowledged event is unacknowledged
   Triggers a response when an event that was previously acknowledged by a user is unacknowledged.

   An event is cleared
   Triggers a response when an event is removed from the message board.

   The priority of an event changes
   Triggers a response when the priority level associated with an event is altered.

   The repetition count of an event increments
   Triggers a response when the event has taken place again, thus the number of times the event has occurred is incremented.

   The alert status of an element has changed
   Triggers a response when the alert status of an element is raised or lowered.

   An event is restored
   Triggers a response when an event is restored to the message board.

   An event is correlated
   Triggers a response when the event is correlated.

12. Select the appropriate options in the Execute the Following Actions section. The options displayed in this section include those actions that are valid for the currently specified scope.
13. Press the Apply button.

Adding an adaptive policy change
Follow these steps to add an adaptive policy change.

About this task
Adaptive policy changes enable you to perform server configuration changes based on events. For example, if a problem occurs with a device, change the monitoring request to a more frequent interval. When the problem clears, a response can be used to change the monitoring request back to a longer interval. Adaptive policy changes are activated the same as any other automated response.

Procedure
1. Create a config control action. This change action should encompass the CAE Server configuration changes you would like executed in response to an event. For more information, see “Adding a config control action” on page 386.
2. Access Actions Configuration from your CAE Browser Client home page by clicking **Configuration > Responses**.

3. Press the **Add** button.

4. Type a name for the response and press **OK**.

5. Select the **Actions to Execute** tab.

6. Select the appropriate response that is triggered by the CAE Server configuration changes:
   - **An event is posted**
     Triggers a response when an event has been posted to the message board.
   - **An event is acknowledged**
     Triggers a response when an event is acknowledged by a user.
   - **An acknowledged event is unacknowledged**
     Triggers a response when an event that was previously acknowledged by a user is unacknowledged.
   - **An event is cleared**
     Triggers a response when an event is removed from the message board.
   - **The priority of an event changes**
     Triggers a response when the priority level associated with an event is altered.
   - **The repetition count of an event increments**
     Triggers a response when the event has taken place again, thus the number of times the event has occurred is incremented.
   - **The alert status of an element has changed**
     Triggers a response when the alert status of an element is raised or lowered.
   - **An event is restored**
     Triggers a response when an event is restored to the message board.
   - **An event is correlated**
     Triggers a response when the event is correlated.

7. Select one or more of the actions from the **Execute the following actions** list.

8. Click **Apply**.

**Optimizing responses for parallel statement alerts**

Follow these steps to optimize the number of responses you see to parallel statement alerts.

**About this task**

When Db2 activates parallelism for certain SQL statements, several threads are started to evaluate the query results. Db2 Query Monitor monitors each of these thread as individual SQL statements and generates an alert on the message board for each thread that exceeds the alert threshold. As result, one parallel SQL statement might produce multiple alerts on the message board.

If you activate a response for such an SQL statement and select the option **The repetition count of an event increments**, then a response is triggered every time a thread exceeds the alert thresholds. To avoid too many responses being triggered, Db2 Query Monitor suppresses responses for most child threads. Db2 Query Monitor triggers responses only for parent threads and the first child threads.

**Procedure**

1. Select the **Parallel Threads** optional alert key. For more information, see “Optional alert keys” on page 405.

2. Add a response and specify appropriate scope that limits the number of responses you see for parallel statement alerts.
   a) In the **Response Applies To** field, select **Event Scopes**.
b) Select the appropriate scope to limit the number of responses you see for parallel statement alerts. Expand the tree to show the **Non Extra Threads** scopes and check the box for the scope you want to use:

**Non Extra Threads**
Includes all Db2SqlEvent events for non-parallel SQL statement threads, parent threads of parallel SQL statements, or first-child threads that exceed the alert monitoring threshold.

**Get Page Count Exceeded Problem for Non Extra Threads**
Includes all GetPageCountExceededProblem events for non-parallel SQL statement threads, parent threads of parallel SQL statements, or first-child threads that exceed the alert monitoring threshold.

**SQL Call Count Exceeded Problem for Non Extra Threads**
Includes all SqlCallCountExceededProblem events for non-parallel SQL statement threads, parent threads of parallel SQL statements, or first-child threads that exceed the alert monitoring threshold.

**SQL CPU Problem for Non Extra Threads**
Includes all SqlCpuProblem events for non-parallel SQL statement threads, parent threads of parallel SQL statements, or first-child threads that exceed the alert monitoring threshold.

**SQL Elapsed Time Problem for Non Extra Threads**
Includes all SqlElapsedTimeProblem events for non-parallel SQL statement threads, parent threads of parallel SQL statements, or first-child threads that exceed the alert monitoring threshold.

Alternatively, you can create and select your own custom scope. For more information, see “Adding a ParallelismCategory scope” on page 393.

c) On the **Actions to Execute** tab, select **The repetition count of an event increments**.

d) Specify other settings for your response as appropriate and save the response. For more information, see “Adding a response” on page 394.

### Custom launch

Custom launch menu choices are available in pop-up menus when you right-click a domain elements in the Alerts Browser. You can configure these menu choices to show for a subset of domain elements in a scope. Custom launches can be configured to trigger any action.

Custom launches enable you to specify external applications to initiate for certain domain elements in a particular scope. You can use custom launch to link an action (such as launching an external application or executing a shell command) with the domain elements in a particular scope. Each time a custom launch is executed, there will be a message in the Action Console output at the start and end of the action.

**Notes:**

1. The **Cancel Thread** custom launch is added and enabled for Db2SqlStatement. You should not use “Automatic Cancel Thread” in this context.

2. In the Alerts Browser, for messages of Db2SqlStatement, the right-click menu will show **Tools > Cancel Thread** to launch the cancel thread custom launch. This action uses the same cancel thread security verification as **Cancel Thread under Current Activity**.

3. Configuration control actions are global actions, that is, they are not executed upon a specified DomainElement but instead have no subject. Because configuration control actions are global actions, Db2 Query Monitor does not currently allow their placement of in a custom launch.
Adding a custom launch

Follow these steps to create a custom launch.

Procedure
1. From any window within the CAE Browser Client, click Configuration > Custom Launch.
2. Click Add.
3. Type a name for the custom launch in the name box and press OK. The custom launch is added to the list of applications in the Custom Launch list and available options for the new custom launch display in the right section of the Profiles & Configuration Browser.
4. Specify the options appropriate for the custom launch you are configuring:
   - **Enabled**
     Enables you to toggle the custom launch to on or off. The custom launch is active only if it is enabled by checking this box.
   - **Show output**
     Enables you to toggle the display of the custom launch output to on or off. Output will only be available if you select this check box.
   - **Obtain user confirmation before executing**
     Enables you to require user confirmation prior to performing the custom launch.
   - **Minimum user privilege required**
     The minimum user privilege required to use the custom launch.
   - **Attach actions to these domain elements.**
     Combo-box that enables you to select the domain elements for which the custom launch is to apply.
   - **Make these actions available**
     Identifies the actions that are to be performed for the custom launch. You can select multiple actions for a custom launch.
   - **Comments**
     Descriptive text associated with the custom launch.
5. Press the Apply button to complete the application launch definition.

Monitoring

Monitoring configurations define what events are received for which domain elements and with what alternative event processing options.

When defining a monitoring configuration, you specify a set of event types and a set of elements (a scope), and optionally one or more parameter overrides that modify the event processing behavior.

To specify the set of elements covered by the monitoring configuration, you select a scope from the list of all scopes for your Db2 Query Monitor system.

To specify the set of event types, you check off those event types or groups of event types to include or exclude using a tree structure selection tool. In the case where two monitoring configurations overlap and only one specifies overrides, the overrides will apply to the common events and elements. In overlap cases with conflicting parameter overrides, behavior is non-deterministic, and a configuration error will be reported.
Check boxes located in the list next to the monitoring configurations can be toggled to enable or disable specific monitoring configurations or groups of monitoring configurations. If you toggle a check box, a dialog box prompts you to confirm your change before it takes effect.

**Adding a monitoring configuration**
You can add a monitoring configuration to specify event processing options.

**Procedure**
1. From any window within the CAE Browser Client, click **Configuration > Monitoring**.
2. Click **Add**.
3. In the **Enter Name** field, type a name for the new monitoring configuration.
4. Click **OK**.
5. Select the **Basics** tab and specify the following options:
   - **Enabled**
     Select this check box to enable monitoring.
   - **Polling Period**
     Type the appropriate number and select the time unit for the polling period you want to use for monitoring.
   - **Data Retention Period**
     Type the appropriate number and select the time unit for the data retention period you want to use for monitoring.
   - **These Elements**
     Select the domain elements to monitor.
   - **Monitor For These Information Types**
     Select the check boxes that correspond to the information types you want to monitor.
6. Select the **Domains** tab and specify the following options:
   - **Applies To**
     Select the domains you want to monitor.
7. Click **Apply**.

**Editing a monitoring configuration**
Follow these steps to edit a monitoring configuration.

**Procedure**
1. From any window within the CAE Browser Client, click **Configuration > Monitoring**.
2. Select a monitoring configuration from the list located on the left panel of the **Monitoring Configuration Editor**. The configuration settings for the selected monitoring configuration display in the right panel of the **Monitoring Configuration Editor**.
3. Edit the monitoring options as appropriate.
   - **Note**: If you want to temporarily stop monitoring (for example, if you are concerned about the number of alerts you might receive), deselect **All Monitoring**, so that none of the monitoring configurations are checked and then the CAE will not pick up any alerts. You can use the ISPF Client to view statistical data from previous intervals when Db2 Query Monitor is not actively monitoring any Db2 subsystems. However at least one Db2 subsystem must be actively monitored in order for the system and subsystem target to be visible for selecting on the Activity Browser page in the CAE Browser Client.
4. Press the **Apply** button.
Monitoring overrides

Monitoring overrides allow you to monitor specific criteria without having to make a widespread change to your monitoring settings.

The parameter override is used by monitoring configurations that apply to the scopes. This enables you to fine-tune a monitoring operation by specifying a different value for one or more of the parameters that define an event type.

You can set an event type parameter value that takes effect only for the monitoring operation; the parameter value in the event type's global definition remains unchanged.

Parameter overrides modify event processing behavior ONLY for the intersection of the set of elements and the set of MITs specified in the monitoring configuration. When two monitoring configurations overlap and only one specifies overrides, the overrides will apply to the common events and elements. In overlap cases with conflicting parameter overrides, behavior is non-deterministic, and a configuration error will be reported to the agent log.

Monitoring Overrides Configuration enables you to configure overrides for individual parameter values. An override is defined in terms of one or more particular scopes, which specify the set of domain elements to which the override applies.

Check boxes located in the list next to the overrides configurations can be toggled to enable or disable specific override configurations. If you toggle a check box, a dialog box prompts you to confirm your change prior to it taking effect.

To access Monitoring Configuration, click Configuration > Monitoring.

Adding a monitoring override

Follow these steps to add a monitoring override.

Procedure

1. Click Configuration > Monitoring Overrides.
2. Press the Add button.
3. Type a name for the new monitoring override in the box.
4. Click OK.
5. Enable or disable the override by selecting or deselecting the Enabled box.
6. Click the Add domain element scope link and expand the tree structure and select the scope to which you want the monitoring override to apply.
7. Click OK.
8. Select the MIT for which you want to define a monitoring override.
9. Select the parameter for which you want to define an override.
10. Specify the override value for the parameter. Depending on the parameter, this might entail typing a new value, selecting new units from a pull-down menu, or some combination of available actions.
11. Click Apply.
12. Define additional overrides as needed.
13. Press OK when finished defining overrides.

Note: The override applies to all visible domains by default. If you want to restrict the override to one or more particular domains, select the dropdown option These Domains and select one or more individual domains to which the override will be restricted. If you select the These Domains dropdown option but do not individual domains, the override will not apply to any domain.

14. Click Apply. The override is applied.
**Adding an event processing override**

Event processing overrides are overrides that take effect after an event has occurred. Follow these steps to add an event processing override.

**Procedure**

1. From any window within the CAE Browser Client, click Configuration > Monitoring Overrides.
2. Select the Event Processing Overrides tab.
3. Click Add.
4. Type a name for the new event processing override in the box and click OK.
5. Enable or disable the override by selecting or deselecting the Enabled box.
6. Select Event Types or Event Scopes from the Override Applies To drop down list.
7. Use the tree structure to select specific event types or event scopes to which the override will apply.
8. Click the Add domain element scope link and expand the tree structure and select the scope to which you want the override to apply.
9. Click OK. The Parameter Override dialog displays.
10. Select the event processing parameter for which you want to define an override.
11. Specify the override value for the parameter. Depending on the parameter, this might entail typing a new value, selecting new units from a pull-down menu, or some combination of available actions.
12. Click Apply.
13. Define additional overrides as needed.
14. Press OK when finished defining overrides.

**Note:** The override applies to all visible domains by default. If you want to restrict the override to one or more particular domains, select the dropdown option These Domains and select one or more individual domains to which the override will be restricted. If you select the These Domains dropdown option but do not individual domains, the override will not apply to any domain.

15. Click Apply. The override is applied.

**MITs**

This topic describes how to use MITs Configuration to work with MITs.

An event type is any data that Db2 Query Monitor is capable of monitoring and using to assist in the process of managing your DB2.

MITs Configuration lists the data types in a tree that organizes the data types two different ways: by form and by subject. The actual data types are listed under both categories, but the organization of each tree is somewhat different. The Event Types include DBMS Information, Device Information, and SQL Information, as well as some other types. The Event Types view enables you to configure those events that are of interest to you, modifying their global parameters such as threshold, initial priority, and escalation criteria. These list includes some of the common characteristics that can be configured for event types; the exact list of parameters varies according to the event:

- The criteria for posting a message for the event: how many times the message must occur in some interval before a message is sent to the message board.
- The event's initial priority.
- The time to wait between receiving the event and posting a message about it, in case the event is transient.
- If the event recurs, whether to post a new message or increment the count of the existing message.
- The increment by which to escalate the event's priority per interval, up to a maximum priority.
- The interval after which the event should be cleared from the message board automatically.
**Monitored Information Types list**

The monitored information type (MIT) list is a set of event types built in to Query Monitor that characterize most typical events and statistics encountered by administrators and other users. The MIT hierarchy is organized as a tree. An information type that has sub-types can be expanded by clicking on the “+” to the left of its name to show the sub-types. The Query Monitor MIT hierarchy supports multiple inheritance, so you will often see the same MIT in several places within the tree.

The occurrences of an MIT are listed in two ways:

- **By form** - (MonitoredInformationByForm) The information under the MonitoredInformationByForm node organizes the MITs according to what they are (such as data, event, and statistic).
- **By subject** - (MonitoredInformationBySubject) The information under the MonitoredInformationBySubject node organizes MITs according to what they affect (such as device). For example, you will find InterfaceUtilizationProblem under both OverUtilizationProblem (which is a sub-event type of PerformanceProblem) and under InterfaceEvent.

**Self events**

Query Monitor provide self events to inform you about changes to the server configuration and other state changes in server processing. Self events are implemented using a new domain element type, SelfElement, and a new set of monitoring variables, Self Events. The following self events are available:

- Action Failure
- Active Availability Monitoring Change
- Alert Discarded
- Alert Rate Too High
- CAE Agent Abend Problem
- Configuration Problem
  - Authentication Configuration Problem
  - Cannot Monitor Scope Warning
  - Circular Correlation Warning
  - Conflicting Param Override Warning
- Discover State Change event
  - Discovery Abort Event
  - Discovery Complete Event
  - Discovery Start Event
- License Expiration Warning
- Log File Failure
- Monitoring Agent Connect Event
- Monitoring Agent Failure
- Monitoring Agent Overload
- Polling Period Too Short Warning
- Qm Subsystem Terminated
- Self Configuration Change Event

You can view these self events by expanding the tree view to a category named “Self Event” (located under Monitored Information **By Subject > Self Information > Self Event**). Expand the items under **Self Event** to see all of the events that are provided. You can modify parameters for these events and create overrides, just like any other Db2 Query Monitor monitored information type item.
SelfElements can be used for message board filtering to only display self events, for example. You may also configure responses to self events. Actions that are connected to self events must be created as server based actions.

**MITs form**

Each monitored information type has a description and a set of configurable parameters associated with it. An MIT sub-type inherits its parameters and the default value for each from its parent event types (taking the value from the first if there is more than one parent with the same parameter). Often, an MIT will have a predefined override value for a parameter that it inherited from a parent information type. For example, Event defines the initialPriority parameter to have a value of 6 (least important) but AvailabilityProblem contains a built-in override for initialPriority to be 4. Look at the Config View tab to see the inheritance of an event type (its parent event types) and from where exactly the value of each of its parameters is inherited.

To view the description and parameters associated with an MIT:

1. Select Configuration > Monitored Information Types.
2. Expand the monitored information types tree to locate the MIT of interest.
3. Highlight the MIT of interest. The description and parameters for the MIT displays in the right panel of the monitored information types configuration editor.

The MIT form displays the following tabs and options:

**Description**
A brief explanation of the monitored information type.

**Parameters**
This section displays information about the parameters that control the monitored information type’s behavior.

**Operator View tab**
This tab displays a text-based description of the monitored information type’s parameter settings. Clicking on a value in the Operator View tab switches you to the Config View tab for changing the value.

**Config View tab**
This tab displays a tree-based view of the monitored information type’s parameter settings.

**Use default value**
Accept the parameter’s default setting.

**Specify a value**
Change the parameter’s setting to a new value. A box displays a text-based description of the value. You can edit values using the editable boxes and drop down selections displayed.

**Apply**
Press this button to effect changes made to the selected monitored information type’s parameters.

**Revert**
Discard all changes made to the selected monitored information type’s parameters.

**Editing MITs**

A monitored information type (MIT) is any data that Db2 Query Monitor is capable of monitoring and using to assist in the process of managing your network environment. Most MITs are events but MITs could also include statistics and raw data.

**Procedure**

1. From any window within the CAE Browser Client, click Configuration > Monitored Information Types.
2. Select the MIT you want to edit.
3. Modify the description as necessary.
4. If you want to use the default value for the parameter select **Use Default Value**. If you want to specify a value for the parameter, select **Specify a Value** and modify the options shown in the box as needed.

5. Repeat the above steps as needed for all the parameters you would like to modify.

6. Click **Apply**.

### Action schedules

You can use Action Schedules Configuration to define a schedule that Db2 Query Monitor follows to perform one or more actions at a specified time or interval.

#### Adding an action schedule

An action schedule is a tool for initiating one or more actions at a predetermined time or interval. The action schedule consists of a set of domain elements encompassed by a particular scope within one or more domains, the actions that it implements, and the timetable by which those actions are performed on those domain elements.

**About this task**

When you schedule an action for a scope, the action is executed on every member of the scope.

Some scopes are more appropriate than others for selection with action schedules. For example, the Db2 SQL statements included in the "Db2SqlStatements" scope changes frequently and depends on the alerts that are on the message board at a point in time. For this reason, it is not practical to use the Db2SqlStatements scope for scheduled actions. The Db2Dbms or OS390Images scopes would be better scopes to use with action schedules than the Db2SqlStatements scope.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > Actions Schedules**.

2. Click **Add**.

3. Type the name of the new action schedule and click **OK**.

4. Select or deselect **Enabled** to toggle the action schedule on or off.

5. If you want to execute actions on specific domains, select the **Execute Actions on These Domain Elements** box and use the combo-box to select the appropriate domain elements.

6. Specify the actions to execute by checking the boxes corresponding to the desired action.

7. Define the schedule that will dictate when those actions are executed by clicking the **Add** button to select the interval and filling in the appropriate interval information.

8. Specify the domains to which the schedule applies.

9. Click **Apply**.

#### Adding a domain rediscovery schedule

Follow these steps to add a domain rediscovery schedule. A domain rediscovery schedule enables you to automate the rediscovery of your domain.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > Actions Schedules**.

2. Click **Add**.

3. Type the name of the new action schedule and press the **OK** button. The new action schedule is added to the list of action schedules in the center section of the window and options for the action schedule display in the right section of the window.

4. Select/deselect **Enabled** to toggle the action schedule on or off.

5. Select the **Apply Only to these Domains** check box and select or deselect the domains to which the action schedule applies.
6. Deselect the **Execute Actions on these Domain Element** check box.
7. In the **Actions to Execute** box, select **Rediscover Domain**.
8. In the **Schedule (all times are server based)** box, press the **Add** button.
   A drop down list displays the scheduling options:
   
   **One time**
   Executes the action only one time.
   
   **Hourly**
   Executes the action each hour.
   
   **Daily**
   Executes the action once a day.
   
   **Weekly**
   Executes the action once a week.
   
   **Monthly**
   Executes the action once a month.
   
   **End of month**
   Executes the action at the end of each month.
9. Select the appropriate scheduling option.
10. Specify a time of day for the action to occur.
11. Press the **Apply** button to finish defining the action schedule.

### Optional alert keys

You can use Optional Alert Keys Configuration to tailor the uniqueness criteria for all Db2SqlStatements. Uniqueness criteria for Db2SqlStatements define what types of SQL are to be grouped together (treated as 'the same') or considered unique (treated as 'different').

To access Optional Alert Keys Configuration, click **Configuration** > **Optional Alert Keys**.

You can use Optional Alert Keys Configuration to specify optional alert keys, add fields to the uniqueness criteria for all Db2SqlStatements, group the SQL statements, and send responses or notifications. For example, you can use the optional alert key 'User' to group all of the SQL statements a user executes. You can then create a response (such as sending a notification) so a notification is issued to the user if the queries that user runs exceeds a given threshold of CPU consumption. Optional alert keys enable you to allow for more granular processing of generated alerts. For example, in an SAP environment, this enables you to identify SQL as coming from a particular SAP server. If optional alert keys are not used, uniqueness is not generated.

The following optional alert keys are displayed in Optional Alert Keys Configuration:

**User**
Adds the **User** field to the uniqueness criteria for all future Db2SqlStatements.

**Corrname**
Adds the **Corrname** field to the uniqueness criteria for all future Db2SqlStatements.

**WsTran**
Adds the **WsTran** field to the uniqueness criteria for all future Db2SqlStatements.

**WsName**
Adds the **WsName** field to the uniqueness criteria for all future Db2SqlStatements.

**WsUser**
Adds the **WsUser** field to the uniqueness criteria for all future Db2SqlStatements.

**Parallel Threads**
Adds the **Parallel Threads** field to the uniqueness criteria for all future Db2SqlStatements. For more information, see “Optimizing responses for parallel statement alerts” on page 396.
The Optional Alert Keys Configuration Editor displays the following additional optional keys for dynamic SQL:

**Plan**
- Adds the Plan field to the uniqueness criteria for all future Db2SqlStatements.

**Program**
- Adds the Program field to the uniqueness criteria for all future Db2SqlStatements.

**Section**
- Adds the Section field to the uniqueness criteria for all future Db2SqlStatements.

**Note:** The User, WsTran, WsName, WsUser, and Parallel Threads optional alert keys apply to both static and dynamic SQL. The Plan, Program, and Section optional alert keys apply only to dynamic SQL (these optional alert keys are already uniqueness criteria for static SQL).

**QM subsystems management**

You can use QM Subsystems Management to work with monitoring profiles and monitoring agents for all of your Query Monitor Subsystems.

**Creating a monitoring profile**

Follow these steps to add a monitoring profile.

**Procedure**
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. In the System field, select the appropriate system.
3. In the Perspective field, select Profiles.
4. In the QM subsystem field, select the appropriate Query Monitor Subsystem.
5. Click the Add button.
6. In the Profile Name field, type a name for the new monitoring profile and click OK.
7. Define the monitoring profile and add monitoring profile line as needed.
8. Click OK.

**Updating a monitoring profile**

Follow these steps to update a monitoring profile.

**Procedure**
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. Select the appropriate system using the System chooser.
3. Select the Profiles perspective using the Perspective chooser.
4. Select the appropriate Query Monitor Subsystem using the QM subsystem chooser.
5. Highlight the monitoring profile you want to update.
6. Click the Update button.
7. Edit the monitoring profile and monitoring profile lines as needed.
8. Click OK.

**Deleting a monitoring profile**

Follow these steps to delete a monitoring profile.

**Procedure**
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate Query Monitor Subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile you want to delete.
6. Click the **Remove** button.
7. Click **Yes** to confirm the deletion.

**Viewing a monitoring profile**

Follow these steps to view a monitoring profile.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate Query Monitor Subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile you want to view.
6. Click the **View** button.

**Adding a monitoring profile line**

Follow these steps to add a monitoring profile line.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate Query Monitor Subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile to which you would like to insert a monitoring profile line and click **Update**.
6. Click **Add Line**.
7. Edit the monitoring profile line as needed.
8. Click **OK**.

**Deleting a monitoring profile line**

Follow these steps to delete a monitoring profile line.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate Query Monitor Subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile for which you want to remove a monitoring profile line and click **Update**.
6. Highlight the monitoring profile line you want to remove and click **Remove Line**.
7. Click **OK**.
Moving a monitoring profile line

Follow these steps to move a monitoring profile line.

Procedure
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. Select the appropriate system using the System chooser.
3. Select the Profiles perspective using the Perspective chooser.
4. Select the appropriate Query Monitor Subsystem using the QM subsystem chooser.
5. Highlight the monitoring profile for to which you would like to move a monitoring profile line and click Update.
6. Highlight the monitoring profile line you would like to move and click Move Up or Move Down.
7. Click OK.

Updating a monitoring profile line

Follow these steps to update a monitoring profile line.

Procedure
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. Select the appropriate system using the System chooser.
3. Select the Profiles perspective using the Perspective chooser.
4. Select the appropriate Query Monitor Subsystem using the QM subsystem chooser.
5. Highlight the monitoring profile for to which you would like to update a monitoring profile line and click Update.
6. Highlight the monitoring profile line you would like to update and edit the fields for the profile line as needed.
7. Click OK.

Viewing and creating monitoring profiles - columns and fields (CAE Browser Client)

The following columns and fields are available for working with monitoring profiles in the CAE Browser Client.

Fields

Exclude QM Plans
Indicates whether or not the profile excludes QM plans from exceptions, alerts, and current activity. Valid values are Yes (or checked in the CAE Browser Client) to exclude the plans listed in the QM Plan1, QM Plan2, QM Plan3 fields, and No (or unchecked in the CAE Browser Client) to not exclude any QM plans.

QM Plan#1
The QM plan to be excluded from exceptions, alerts, and current activity. Wildcards can be used when specifying QM plans.

QM Plan#2
The QM plan to be excluded from exceptions, alerts, and current activity. Wildcards can be used when specifying QM plans.

QM Plan#3
The QM plan to be excluded from exceptions, alerts, and current activity. Wildcards can be used when specifying QM plans.

Workload
The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current activity, exceptions, and alerts. It is recommended that you name your workload to facilitate the
identification of the monitoring profile line and the workload with which captured activity is associated.

**DB2**

The Db2 subsystem on which the activity occurred.

**Plan**

The Db2 plan name.

**Program**

The Db2 package or DBRM name.

**Workload Filter tab**

**Exclude**

Indicates whether matching SQL activity is to be included in or excluded from processing. If excluded activity is also to be removed from summaries, Disable Summary Reporting must be set to Y on the exclude line.

**Disable Summary Reporting**

Indicates whether or not summary information is to be reported for the unit of SQL activity.

**Note:**

- A Disable Summary Reporting value of Y is only valid for EXCLUDE profile lines. A Disable Summary Reporting value of N must be specified for all INCLUDE profile lines.
- Disable Summary Reporting does not impact Db2 command reporting. Monitoring profiles do not have any effect on Db2 commands.

**Gather Host Variables**

Indicates whether or not host variables are to be collected for the workload.

**Workload Name**

The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current activity, exceptions, and alerts. It is recommended that you name your workload to facilitate the identification of the monitoring profile line and the workload with which captured activity is associated.

**DB2 Subsystem**

The Db2 subsystem.

**Plan**

The Db2 plan name.

**Program**

The Db2 package or DBRM name.

**Auth ID**

The primary authorization ID.

**Job**

The name of the job.

**Connection**

The connection ID.

**Correlation Name**

The correlation ID adjusted by the conventions used by IMS and CICS.

**Correlation ID**

The correlation ID.

**Workstation User**

The workstation user.

**Workstation Tran**

The workstation transaction.
Workstation Name
The workstation name.

Summaries tab
Exclude SQL Codes
Indicates whether or not SQL codes listed in the SQL Codes Excluded box are to be excluded from summary reporting.

SQL Codes Excluded
A list of SQL codes to be excluded from summary reporting if the Exclude SQL Codes field is set to True.

Include SQL Codes
Indicates whether or not SQL codes listed in the SQL Codes Included box are to be included from summary reporting.

SQL Codes Included
A list of SQL codes to be included in summary reporting if the Included SQL Codes field is set to True.

Generate Positive SQLCODEs
Indicates whether or not positive SQLCODEs are processed in addition to negative SQLCODEs for the SQL code summaries. This column is only checked for profile include lines.

Exceptions and Alerts tab
Threshold Exceptions
Check this box to generate threshold-based exceptions for CPU, Elapsed, Getpages, and SQL Calls. These options in this section define parameters used for the profile line's exception processing.

Threshold Exceptions - CPU
The Db2 CPU time that, when exceeded, produces an exception for that unit of SQL activity.

Note: You must select the Threshold Exceptions box to enable Threshold Exceptions - CPU.

Threshold Exceptions - Elapsed
The Db2 elapsed time that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Note: You must select the Threshold Exceptions box to enable Threshold Exceptions - Elapsed.

Threshold Exceptions - Getpages
The number of getpages that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Note: You must select the Threshold Exceptions box to enable Threshold Exceptions - Getpages.

Threshold Exceptions - SQL Calls
The number of SQL calls that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: You must select the Threshold Exceptions box to enable Threshold Exceptions - SQL Calls.

Exceptions - Limit
The maximum number of exceptions that will be generated for workload line in the monitoring profile. If you specify a value of zero, collected activity that matches other criteria in the profile line will not be treated as an exception for display (because the exception limit threshold of zero would have been exceeded).

Generate SQLCODE Exceptions
Indicates whether or not SQLCODES generate exceptions. Valid values are True (SQLCODES generate exceptions) and False (SQLCODES do not generate exceptions).
Exclude SQL Codes
Indicates whether or not exceptions for SQLCODEs listed in the SQL Codes Excluded box are excluded by the profile line. This field is only active for profile include lines.

SQL Codes Excluded
A list of SQL codes to exclude from exceptions when Exclude SQL codes is set to True.

Include SQL Codes
Indicates whether or not SQL codes listed in the SQL Codes Included box are to be included from exceptions.

SQL Codes Included
A list of SQL codes to be included in exceptions if the Included SQL Codes field is set to True.

Generate Positive SQLCODEs
Indicates whether or not positive SQLCODEs are treated as exceptions in addition to negative SQLCODEs for the SQL activity identified by the selection criteria on the line.

Anomaly-based Exceptions

Anomaly-based Exceptions - CPU
Check this box to generate exceptions for CPU anomalies for the specified sensitivity.

Anomaly-based Exceptions - CPU - Sensitivity
Indicates the CPU sensitivity (toleration) that when exceeded produces an anomaly exception for CPU time for an SQL statement.

Offload table name
CQM_EXCEPTIONS

Offload column name
DB2_CPU_TIME_PROF_EXCP_TOLER

Anomaly-based Exceptions - Elapsed
Check this box to generate exception for elapsed time anomalies for the specified sensitivity.

Anomaly-based Exceptions - Elapsed - Sensitivity
Indicates the elapsed time sensitivity (toleration) that when exceeded produces an anomaly exception for elapsed time for an SQL statement.

Offload table name
CQM_EXCEPTIONS

Offload column name
DB2_ELAP_TIME_PROF_EXCP_TOLER

Anomaly-based Exceptions - Getpages
Check this box to generate exceptions for getpage anomalies for the specified sensitivity.

Anomaly-based Exceptions - Getpage - Sensitivity
Indicates the getpage sensitivity (toleration) that when exceeded produces an anomaly exception for getpage for an SQL statement.

Offload table name
CQM_EXCEPTIONS

Offload column name
TOTAL_GETP_PROF_EXCP_TOLER

Threshold Alerts
Check this box to generate threshold-based alerts for CPU, Elapsed, Getpages, and SQL Calls.

Threshold Alerts - CPU
The CPU time that when exceeded produces an alert for the workload.

Note: You must select the Threshold Alerts box to enable Threshold Alerts - CPU.

Threshold Alerts - Elapsed
The elapsed time that when exceeded produces an alert for the workload.

Note: You must select the Threshold Alerts box to enable Threshold Alerts - Elapsed.
Threshold Alerts - Getpages
The number of getpages that when exceeded produces an alert for the workload.

**Note:** You must select the **Threshold Alerts** box to enable **Threshold Alerts - Getpages**.

Threshold Alerts - SQL Calls
The number of SQL calls that when exceeded produces an alert for the workload.

**Note:** You must select the **Threshold Alerts** box to enable **Threshold Alerts - SQL Calls**.

Generate SQLCODE Alerts
Indicates whether or not SQLCODES generate alerts. Valid values are **True** (SQLCODES generate alerts) and **False** (SQLCODES do not generate alerts).

Exclude SQL Codes
Indicates whether or not alerts for SQLCODEs listed in the **SQL Codes Excluded** box are excluded by the profile line. This field is only active for profile include lines.

SQL Codes Excluded
A list of SQL codes to be excluded from alerts.

Include SQL Codes
Indicates whether or not SQL codes listed in the **SQL Codes Included** box are to be included from alerts.

SQL Codes Included
A list of SQL codes to be included in alerts if the **Included SQL Codes** field is set to **True**.

Generate Positive SQLCODEs
Indicates whether or not positive SQLCODEs are treated as alerts in addition to negative SQLCODEs for the SQL activity identified by the selection criteria on the line.

Anomaly-based Alerts

**Anomaly-based Alerts - CPU**
Check this box to generate alerts for CPU anomalies for the specified sensitivity.

**Anomaly-based Alerts - CPU - Sensitivity**
Indicates the CPU sensitivity (toleration) that when exceeded produces an anomaly alert for CPU time for an SQL statement.

**Offload table name**
CQM_EXCEPTIONS

**Offload column name**
DB2_CPU_TIME_PROF_ALRT_TOLER

**Anomaly-based Alerts - Elapsed**
Check this box to generate alert for elapsed time anomalies for the specified sensitivity.

**Anomaly-based Alerts - Elapsed - Sensitivity**
Indicates the elapsed time sensitivity (toleration) that when exceeded produces an anomaly alert for elapsed time for an SQL statement.

**Offload table name**
CQM_EXCEPTIONS

**Offload column name**
DB2_ELAP_TIME_PROF_ALRT_TOLER

**Anomaly-based Alerts - Getpages**
Check this box to generate alerts for getpage anomalies for the specified sensitivity.

**Anomaly-based Alerts - Getpage - Sensitivity**
Indicates the getpage sensitivity (toleration) that when exceeded produces an anomaly alert for getpage for an SQL statement.

**Offload table name**
CQM_EXCEPTIONS
Discard Tolerance

Discard CPU data above
Indicates the discard level that has to be crossed in order for an SQL statement's CPU time not to update the rolling mean and standard deviation.

Discard Elapsed Time data above
Indicates the discard level that has to be crossed in order for an SQL statement's elapsed time not to update the rolling mean and standard deviation.

Discard Getpages data above
Indicates the discard level that has to be crossed in order for an SQL statement's number of getpages not to update the rolling mean and standard deviation.

Optional Keys tab

Override Optional Keys
The OPTKEYS parameter specifies the level of granularity for summary buckets. You can set up monitoring profile lines to override OPTKEYS settings in CQMPARMS for individual OPTKEYS.

Text
The TEXT parameter reduces collected information down to the level of the unique piece of SQL text. OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

Authids
The AUTHIDS parameter reduces collected information down to the level of individual Db2 authorization IDs.

Corrid
The CORRID parameter reduces collected information down to the level of the individual correlation ID. When OPTKEYS CORRID is specified both the CORRNAME and CORRNUMBER translations are performed.

Note: OPTKEYS(CORRNAME) and OPTKEYS(CORRID) are mutually exclusive. If OPTKEYS(CORRID) is used, the regular CORRID is collected, if OPTKEYS(CORRNAME) is used, the field is filled in according to the TSO/CAF/RRSAF/CICS/IMS descriptions above.

Corrname
The CORRNAME parameter directs Db2 Query Monitor to move only certain subsets of bytes from the originating correlation ID to the target summary record during the collection process. When OPTKEYS CORRNAME is specified only the CORRNAME translation is performed.

These subsets of bytes vary depending on the type of connection to Db2 (for example, TSO, BATCH, RRSAF, CICS, IMS, etc.). The bytes that will be moved for the various connection types are shown below (the remaining right-most bytes will be space padded with EBCDIC blanks):

- **TSO, CAF, RRSAF** - Bytes 1-8 of the originating correlation ID.
- **CICS** - Bytes 5-8 of the correlation ID (Transaction ID).
- **IMS** - Bytes 5-8 of the correlation ID (IMS PST#).

Note: OPTKEYS(CORRNAME) and OPTKEYS(CORRID) are mutually exclusive. If OPTKEYS(CORRID) is used, the regular CORRID is collected, if OPTKEYS(CORRNAME) is used, the field is filled in according to the TSO/CAF/RRSAF/CICS/IMS descriptions above.

Corrnum
The CORRNUM parameter reduces collected information down to the level of the individual correlation number.

Wsuser
The WSUSER parameter reduces collected information down to the level of the individual workstation user ID.
**Wsname**  
The WSNAME parameter reduces collected information down to the level of the individual workstation name.

**Wstran**  
The WSTRAN parameter reduces collected information down to the level of the individual workstation transaction.

**Calls**  
The CALLS parameter reduces collected information down to the level of the individual SQL calls. If the CALLS option is not specified in the OPTKEYS parameter, the statement number and description can contain N/A in the operational summaries.

**Ptext**  
The PTEXT parameter strips literals and multiple blanks from summary text. Literals are replaced by the indicator "&". Multiple whitespaces characters, including blank (X'20'), tab (X'09'), line feed (x'0A'), form feed (x'0C'), and carriage return (X'0D') are reduced to a single blank. Literals included after an SQL "IS IN" clause will be stripped and replaced by the & indicator. This allows SQL text that differs by only literal values to be summarized together. OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

**Schema**  
The SCHEMA parameter reduces collected information down to the level of the individual Db2 Special Register Current SCHEMA value.

**Conntype**  
The CONNTYPE parameter reduces collected information down to the level of the individual Db2 connection type.

**Conname**  
The CONNNAME parameter reduces collected information down to the level of the individual Db2 connection name.

**SP**  
The SP parameter reduces collected information down to the level of the individual stored procedure value.

**Jobname**  
The JOBNAME parameter reduces collected information down to the level of the individual z/OS batch jobname.

**Parallel**  
The PARALLEL parameter reduces collected information down to the level of individual queries that are formulated using Db2 query parallelism.

---

**Common Collection tab**

**Collect Object Data**  
Indicates whether or not object data is collected for the workload.

**Note:** If you specify N for this parameter and you attempt to issue the ENABLE_OBJECTS dynamic configuration change commands to enable object statistics collection, it will be ignored.

**Override CQMPARMS Settings**  
Indicates whether or not Db2 Query Monitor overrides CQMPARMS settings.

**Collect Static SQL**  
Indicates whether or not data is collected for static SQL for the workload.

**Collect Dynamic SQL**  
Indicates whether or not data is collected for dynamic SQL for the workload.

**Ignore SQLCODE 100**  
Indicates whether or not to ignore positive SQLCODE 100.
Activating a monitoring agent
Follow these steps to activate a monitoring agent.

Procedure
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. Select the appropriate system using the System chooser.
3. Select the Monitoring Agents perspective using the Perspective chooser.
4. Highlight the monitoring agent you want to activate and click Activate.

Deactivating a monitoring agent
Follow these steps to deactivate a monitoring agent.

Procedure
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. Select the appropriate system using the System chooser.
3. Select the Monitoring Agents perspective using the Perspective chooser.
4. Highlight the monitoring agent you want to deactivate and click Deactivate.

Changing a monitoring profile
Follow these steps to change a monitoring profile.

Procedure
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. Select the appropriate system using the System chooser.
3. Select the Monitoring Agents perspective using the Perspective chooser.
4. Highlight the monitoring agent you want to change the profile for and click Change Profile.
5. Select the appropriate monitoring profile and click OK.

Refreshing a monitoring profile
Follow these steps to refresh a monitoring profile.

Procedure
1. From any window within the CAE Browser Client, click Configuration > QM Subsystems Management.
2. Select the appropriate system using the System chooser.
3. Select the Monitoring Agents perspective using the Perspective chooser.
4. Highlight the monitoring agent for which you want to refresh the monitoring profile and click Refresh.

OMEGAMON integration
Follow these steps to manage the connection between the CAE Server and IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS.

The integration of Db2 Query Monitor with IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS provides you with access to more detailed information about your Db2 subsystems.

By using the CAE Browser Client to configure a connection between Db2 Query Monitor and a Tivoli Enterprise Monitoring Server (TEMS), you can send data from Db2 Query Monitor to IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS.
To enable this integration, Db2 Query Monitor runs a KQQ Agent in the CAE Server. The KQQ Agent receives requests from IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS, executes these requests in the CAE Server, and sends the results back to IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS. The CAE Server can start the KQQ Agent for a Db2 subsystem as long as the following conditions are met:

- The Db2 subsystem is monitored by OMEGAMON.
- The Db2 subsystem is monitored by the CAE Server.
- There is no other KQQ Agent monitoring the Db2 subsystem.

Before you begin

Before you configure the CAE Browser Client to integrate with OMEGAMON, you must perform the following actions:

1. Copy the required configuration members from the Db2 Query Monitor libraries to the libraries used by the OMEGAMON TOM task and the Hub/Remote TEMS task (if the Hub/Remote TEMS that is used by OMEGAMON runs on z/OS). A sample copy job, generated during the OMEGAMON PARMGEN customization process, resides in the hlq.xKANSAMU(KOBXKNCP) member. Customize the JCL according to your OMEGAMON and Db2 Query Monitor installation parameters as described in comments sections then submit the job. TOM and Hub/Remote TEMS (if necessary) tasks should be restarted after successful job completion.

2. If the Hub/Remote TEMS used by OMEGAMON runs on Windows or Linux and the SDA feature is disabled, application support files for the KQQ agent must be installed manually using the IBM OMEGAMON Application Support Files for z/OS DVD.

Configuring OMEGAMON Integration

To configure OMEGAMON Integration:

1. Access OMEGAMON Integration from your CAE Browser Client home page by clicking Configuration > OMEGAMON Integration. The following options display:

   **TEMs Address**
   - The TEMs address.

   **TEMs Port**
   - The TEMs port.

   **Test**
   - Tests the specified TEMs address and TEMs port values to determine if the values specified are valid.

   **Database Access**
   - A selection tree that shows the databases that are monitored by Db2 Query Monitor and that you want to be accessible to TEMS. By default, all Db2 subsystems are monitored.

2. Specify a TEMs address and port in the corresponding fields. The KQQ and OMPE agents should both be connected to the same TEMS (either Remote or Hub). If you want to test the specified values before applying them, click the Test button. When ready to apply the specified values, click Apply. The database monitoring tree displays the Db2 subsystems about which Db2 Query Monitor will share data with the specified TEMS. By default, all Db2 subsystems are monitored. To stop monitoring a Db2 subsystem, clear the check box next to the Db2 subsystem. The following states are reported for Db2 subsystems in the database monitoring tree:

   **Started against ssid**
   - The TEMS has a KQQ Agent for the Db2 subsystem but the KQQ Agent is not running.

   **Not monitored by specified TEMS**
   - The specified TEMS does not currently have access to the Db2 subsystem.

   **Running**
   - The KQQ Agent is running.
The KQQ Agent is not running.

3. To stop sharing, click the **Stop** button. To refresh OMEGAMON Integration click the **Refresh** button.

## Truststore configuration

You can use truststores to create secure (SSL) connections to a DB2 subsystem or to a DSM Server.

### Adding a truststore

Follow these steps to add a new truststore.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > Truststore Configuration > Add**.
2. Specify the following:
   - **Name**: The name of the truststore you are defining.
   - **Path**: The path to the truststore on the file system of the CAE Server. This is the local path on the file system where the CAE Server is installed, for example `C:\truststores\truststore.jks` (on Windows) or `/tmp/truststores/truststore.jks` (on USS). You must manually copy the truststore to the CAE Server.
   - **Description**: A description of the truststore.
   - **DB2 Default**: When checked, this causes the truststore to be used by default when creating a new archive connection.
   - **DSM Default**: When checked, this causes the truststore to be used by default when creating a new DSM server connection.
3. After adding a truststore, you can define a secure archive connection that uses the truststore you added.
   a) Follow the steps described in “Adding an Archive Connection” on page 362.
   b) When defining the new archive connection be sure to:
      - Check the **Use SSL** box to use SSL for the connection.
      - From the **Truststore** list, select the appropriate truststore.

### Deleting a truststore

Follow these steps to delete a truststore.

**Procedure**

1. From any window within the CAE Browser Client, click **Configuration > Truststore Configuration**.
2. Highlight the truststore you want to delete and click **Delete**.

**Note**: You cannot delete the `<Default TrustStore>`.
Chapter 22. Tools

The tools feature provides you with access to various tools for the CAE Browser Client.

Topics:
• “Action Console” on page 419
• “Using the Reorganization Recommendation Monitor” on page 420
• “CAE Server administration” on page 423

Action Console

The Action Console is an administrative tool that displays information about actions that running or have previously run on the CAE Server or CAE Agent.

To access the Action Console, click Tools > Action Console.

Action schedules

Action schedules are displayed in a hierarchy of folders based on the interval at which they are configured (one time, hourly, daily, weekly, monthly, and end of month). To display action schedule information select the folder of interest to display a table with the following information:

Schedule Name
The name of the action schedule.

Next Occurrence
The next time the action schedule is to occur.

Schedule Type
The action schedule type.

Active actions

The Active Actions folder displays information about actions that are currently active. The following information is displayed:

Action
The action's name.

Subject
The IP address of the action’s target. The name of the domain element (such as a logical volume or storage group) on which the action is performed. The element that was in the alert that triggered the action.

User
The user associated with the action’s subject.

Start Time
The time at which the action began to be executed.

End Time
The time at which the action ceased to be executed.

Status
This parameter can have a number of values, including dispatched to agent, started, running, failed, etc.

Event Type
The event type.

Event ID
The event ID.
Action history
The Action History folder displays information about action history. The following information is displayed:

Action
The action's name.

Subject
The IP address of the action's target. The name of the domain element (such as a logical volume or storage group) on which the action is performed. The element that was in the alert that triggered the action.

User
The user associated with the action's subject.

Start Time
The time at which the action began to be executed.

End Time
The time at which the action ceased to be executed.

Status
This parameter can have a number of values, including dispatched to agent, started, running, failed, etc.

Event Type
The event type.

Event ID
The event ID.

Related Event Type
The related event type.

Related Event ID
The relate event ID.

Output and error logs
The Output Log and Error Log tabs are displayed when you select an Active Actions or Action History folders. These Output Log shows the output from the action. The Error Log shows the error messages that are associated with the action's execution (or lack of execution).

Output logs and error logs that are more than one month old are automatically removed.

Using the Reorganization Recommendation Monitor
The Reorganization Recommendation Monitor enables you to view reorganization recommendations and analyze performance windows and that have been captured as potential candidates for reorganization analysis. You can also view information about the thresholds that are currently used to evaluate your data and stop reorganization recommendation monitoring.

Procedure
1. In the CAE Browser Client, click Tools > Reorganization Recommendation Monitor.
   The left side of the window displays in a hierarchy of folders for your monitored Db2 Automation Tool job profiles and the group profiles they contain. The job profiles are sorted into folders for each Db2 subsystem or data sharing group.
The right side of the window displays activity that has been collected for all objects, such as tablespaces and indexes, from the group profile that is selected in the left column.

Above the table, the following information is shown:

**Status**
The monitoring status of the Db2 subsystem(s) for the selected group.

**CQM subsystem**
The Db2 Query Monitor subsystem or data sharing group member.

**Expires at**
The date and time that reorganization recommendation monitoring for the selected group (of job profiles) expires. This value can be set or updated in Db2 Automation Tool.

Highlight a group profile to display the following in the table:
- The objects (tablespace or index) that are monitored
- Details about the last analysis that was triggered by Db2 Automation Tool.
- Details about the baseline performance window (if collected)
- Details about the comparison performance window (if collected)
- Details about the next performance window

2. In the left column, expand the folder structure and highlight the group profile of interest to display the following information in a table in the right side of the window:

**Database**
The Db2 database.

**Creator**
The object creator.

**Type**
The object type. Valid values are **X** (index) and **S** (tablespace).

**Name**
The table space or index.

**Active**
Indicates whether reorganization recommendation monitoring is active or not.

**Last reorganization recommendation result**
The columns in this section are updated by Db2 Automation Tool, they are not updated when you click the **Analyze** button. The information shown in these columns can help you to better understand the reorganization recommendations you receive from Db2 Automation Tool. For example, such information might help you to understand why Db2 Automation Tool did not recommend a reorganization for a particular table space or index.

**Recommendation**
The recommendation regarding whether a reorganization is needed. Valid values are:

- **Recommended**
  A reorganization is recommended.

- **Not recommended**
  A reorganization is not recommended.

- **Not enough info**
  There is insufficient information to make a recommendation.

- **Not analyzed**
  The selection was not analyzed.

- **No baseline window**
  No baseline window is available.

- **No comparison window**
  No comparison window is available.
No CAE Agent
The CAE Agent was not started when Db2 Automation Tool requested a reorganization recommendation.

Not Monitored Db2
The Query Monitor Subsystem was not started or monitoring of the Db2 subsystem was not activated when Db2 Automation Tool requested a reorganization recommendation.

Additional columns
Additional columns show the percent difference between the expected value and the total value for a metric. You can also view the threshold %, expected value, and total value by hovering your cursor over the table cell. The additional columns that display by default are CPU Time and Elapsed Time. If you override these default settings to use other metrics, the metrics you specify are shown instead.

Baseline performance window
Start
The starting date and time associated with the baseline performance window.

End
The ending date and time associated with the baseline performance window.

Intervals
The interval number.

Comparison performance window
Start
The starting date and time associated with the comparison performance window.

End
The ending date and time associated with the comparison performance window.

Intervals
The interval number.

Next performance window
Start
The starting date and time associated with the next performance window.

End
The ending date and time associated with the next performance window.

Paused
Db2 monitoring is paused and the following message is displayed at the top of the page: Db2 Subsystem ssid is not monitored by any CQM Subsystem. When Db2 monitoring is started, the Paused status is cleared and performance window analysis continues.

3. Buttons at the top of the window enable you to perform the following additional actions:

Thresholds
View the threshold %, absolute threshold, and low threshold % for each metric that is analyzed for reorganization recommendation. The metrics and thresholds used for reorganization recommendation analysis can be customized using the following parameters:

- com.rocketsoft.nm.qm.reorg.metrics – (CAE Server on Windows) Define this parameter in cqm.server.properties
- CQM_REORG_METRICS parameter (CAE Server on USS) Define this parameter in the STDENV DD of the CAE server started task CQMCAESV

Refresh
Refresh the list of Db2 Automation Tool job profiles (left side of window) and the information shown in the data table (right side of window) with the most recent information that is available in the CAE Server.
Stop
Stop monitoring for the selected job profile that was submitted by Db2 Automation Tool to Db2 Query Monitor.

Analyze
Analyze whether a reorganization is needed for a selected object (tablespace or index). When you click Analyze, Db2 Query Monitor immediately evaluates whether a reorganization is recommended or not. This does not affect the status displayed in the Last reorganization recommendation result column. Last Reorg recommendation result shows what was sent to Db2 Automation Tool during the last Db2 Automation Tool build.

Review
Review the selected activity in the activity browser. This allows you to view the baseline and comparison windows and compare metrics.

Results for the Analyze action
When you click Analyze for a selected group, the analysis result, the selected object name, and the reason for the result. Clicking the Analyze button does not affect the status in the Last Reorg Recommendation column.

Analysis Dialog
Not enough information to make REORG recommendation for profile.object. These options are available for reason:
- Reason: No baseline performance window.
- Reason: No comparison performance window.
- Reason: Retained values for all metrics are less than the threshold.

The following analysis results are possible (you can mouse-over the status for more details):

Recommended
A reorganization is recommended.

Not recommended
A reorganization is not recommended.

Not enough info
There is insufficient information to make a recommendation.

No baseline window
No baseline window is available.

No comparison window
No comparison window is available.

CAE Server administration
You can use Tools > CAE Server administration to view information about or reorganize the CAE Server alerts database. Reorganizing the CAE Server alerts database allows you to reduce the size of the database and release that space for use.

When you access CAE Server Administration for the first time, the Last Evaluation Time, Disk Usage, Unused Space, and Alert Count fields show no values.

To obtain the initial estimate of disk usage, unused space, and alert count, click Estimate.

During reorganization of the CAE Server alerts database, the CAE Server will stop alerts monitoring on all CAE Agents and all updates to the Alerts Browser. During reorganization you should not make any changes (such as removing alerts, annotating, and so on) in the Alerts Browser. All other features continue to work without restrictions.

The following information is shown on the CAE Server alerts database window:
**Last evaluation time**
The time when the information was last evaluated.

**Disk usage**
The amount of disk space the CAE Server alerts database consumes.

**Unused space**
The amount of disk space that will be freed after reorganization.

**Alert count**
The number of alerts that are present in the database.

**Estimate**
Updates the information (disk usage, unused space, and alert count).

**Reorganize**
Opens a dialog from which you can confirm and initiate a reorganization.
Chapter 23. Advanced CAE topics

The information in this section describes advanced CAE topics including non-standard port specification, CAE Agent address space management, and guidelines for setting alerts and exception thresholds.

Topics:
• “Db2 Query Monitor IP addresses” on page 425
• “Db2 Query Monitor ports” on page 426
• “File system locations for the CAE Server on USS” on page 431
• “CAE Agent address space management” on page 433
• “Security for cancel thread actions, host variable viewing, and SQL text viewing” on page 433
• “Considerations for the use of DHCP versus fixed IP addresses on the CAE Server” on page 433
• “Guidelines for setting thresholds for alerts and exceptions” on page 433
• “Contextual information and action configurations” on page 434

Db2 Query Monitor IP addresses

This topic describes the IP addresses used by Db2 Query Monitor.

CAE Agent Listener Addresses
A list of IP addresses or DNS names at which the CAE Agent listens for incoming connections from the CAE Server.

Default
0.0.0.0

CQMCPRMS parameter (CAE Agent)
LISTENER_ADDRESSES

CAE Server Listener Address
A list of IP addresses or DNS names at which the CAE Server listens for incoming connections from the CAE Agent.

Default
0.0.0.0

CQMCPRMS parameter (CAE Agent)
SERVER_ADDRESS

Backup CAE Server Listener Address
The IP address or DNS at which the Backup CAE Server listens for incoming connections from the CAE Agent.

Default
0.0.0.0

CQMCPRMS parameter (CAE Agent)
BACKUP_ADDRESS

Callback Address
The IP address that the CAE Server uses to respond to the CAE Agent when sending meta data to the query tuning client.

Default
0.0.0.0

CQMCPRMS parameter (CAE Agent)
CALLBACK_ADDRESS
Db2 Query Monitor uses numerous TCP/IP ports to send information between components. Although most installations of Db2 Query Monitor should use default ports, you can define custom ports if needed.

For information about defining custom ports, see:
- “Defining custom ports in cqm.server.properties (CAE Server on Windows)” on page 429
- “Defining custom ports in cqm_service_install.bat (CAE Server on Windows)” on page 430
- “Defining custom ports in CQMCAESV (CAE Server on USS)” on page 430
- “Defining custom ports in CQMCAEW (Backup CAE Server on USS)” on page 431
- “Defining custom ports in CQMCPMS (CAE Agent)” on page 431

![Figure 123. TCP/IP ports used by Db2 Query Monitor](image)

The following ports are used by the CAE Server (on Windows and USS), the CAE Agent, and the Query Monitor Subsystem:

**CAE Server Listener Port**

The port at which the CAE Server listens for incoming connections from the CAE Agent.

- **Default**: 3448
- `cqm.server.properties` parameter - CAE Server on Windows
  
  `com.rocketsoft.nm.qm.caeAgent.listenerPort`
- `CQMCAESV STDENV DD` parameter - CAE Server on USS
  
  `CQM_CAE_AGENT_LISTENER_PORT`
- `CQMCPMS` parameter - CAE Agent
  
  `SERVER_PORT`
- **Tools Customizer field**
  
  Server/Listener Port

**Backup CAE Server Listener Port**

The port at which the Backup CAE Server listens for incoming connections from the CAE Agent.
CAE Agent Listener Port Range

The port range used by the CAE Agent to accept communication requests from the CAE Server.

Default
None, must be specified by user

Tools Customizer fields
Listener Agent Port Low
Listener Agent Port High

Java Portal Ports (Java Local Portal Port and Java Remote Portal Port)

The ports that are used for initial connection by the Primary CAE Server, Watchdog, and Backup CAE Server. The Primary CAE Server, Watchdog, and Backup CAE Server can all be thought of as Java Agents. The Java Local Portal Port is the port that the Java Agent listens on. The Java Remote Portal Port is the port that the Java Agent attempts to connect to.

Default
3444

HTTPS Port

The port used by CAE Browser Client to obtain data from the CAE Server or Backup CAE Server.

Default
443
**ISPF Listener Port**
The port you want the CAE Agent to use when listening for incoming connections from the ISPF Client. The ISPF_LISTENER_PORT you specify must be available and cannot overlap with the ports you specify using the LISTENER_PORTS and SERVER_PORT parameters.

**Default**
None

**CQM CPRMS parameter - CAE Agent**
ISPF_LISTENER_PORT

**Tools Customizer field**
ISPF Listener Port

**JDBC Port**
The Java database connectivity port use by the CAE Server.

**Default**
1112

cqm_service_install.bat parameter - CAE Server on Windows
-jdbcPort
cqm.server.properties parameter - CAE Server on Windows
This parameter is not supported in cqm.server.properties at this time.

**CQMCAESV STDENV DD parameter - CAE Server on USS**
CQM_JDBC_PORT

**RMI Port Range**
The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication. The default RMI Port Range is a contiguous range of ports starting with 3445 and extending up to the number required, up to 3455.

**Default**
3445-3455
cqm.server.properties parameter - CAE Server on Windows
com.rocketsoft.denali.agents.rmiPortRange

**SMTP Port**
The port used by CAE Server to send email actions.

**Default**
25

**Setting in Configuration Browser**
Specify the port in the following CAE Browser Client option: Configuration > Actions > Create Email Action > Primary/Backup SMTP > SMTP Port

**TCP/IP ports for the CAE Server on Windows**

<table>
<thead>
<tr>
<th>Port</th>
<th>Parameter (defined in cqm.server.properties unless otherwise noted)</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAE Server Listener Port</td>
<td>com.rocketsoft.nm.qm.caeAgent.listenerPort</td>
<td>3448</td>
</tr>
<tr>
<td>Backup CAE Server Listener Port</td>
<td>com.rocketsoft.nm.qm.caeAgent.listenerPort</td>
<td>3448</td>
</tr>
<tr>
<td>Java Local Portal Port</td>
<td>com.rocketsoft.denali.agents.localPort</td>
<td>3444</td>
</tr>
<tr>
<td>Java Remote Portal Port</td>
<td>com.rocketsoft.denali.agents.remotePort</td>
<td>3444</td>
</tr>
</tbody>
</table>
Table 36. TCP/IP ports for the CAE Server on Windows (continued)

<table>
<thead>
<tr>
<th>Port</th>
<th>Parameter (defined in cqm.server.properties unless otherwise noted)</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMI Port Range</td>
<td>com.rocketsoft.denali.agents.rmiPortRange</td>
<td>3445-3455</td>
</tr>
<tr>
<td>JDBC Port</td>
<td>-jdbcPort (defined in cqm_service_install.bat)</td>
<td>1112</td>
</tr>
<tr>
<td>HTTPS Port</td>
<td>-httpsPort (defined in cqm_service_install.bat)</td>
<td>443</td>
</tr>
</tbody>
</table>

**TCP/IP ports for the CAE Server on USS**

Table 37. TCP/IP ports for the CAE Server on USS

<table>
<thead>
<tr>
<th>Port</th>
<th>Parameter (defined in CQMCAESV STDENV DD unless otherwise noted)</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAE Server Listener Port</td>
<td>CQM_CAE_AGENT_LISTENER_PORT</td>
<td>3448</td>
</tr>
<tr>
<td>Backup CAE Server Listener Port</td>
<td>CQM_CAE_AGENT_LISTENER_PORT (defined in CQMCAEWDD STDENV DD)</td>
<td>3448</td>
</tr>
<tr>
<td>HTTPS Port</td>
<td>CQM_HTTPS_PORT</td>
<td>443</td>
</tr>
<tr>
<td>Java Local Portal Port</td>
<td>CQM_LOCAL_PORTAL_PORT</td>
<td>3444</td>
</tr>
<tr>
<td>Java Remote Portal Port</td>
<td>CQM_REMOTE_PORTAL_PORT (defined in CQMCAEWDD STDENV DD)</td>
<td>3444</td>
</tr>
<tr>
<td>JDBC Port</td>
<td>CQM_JDBC_PORT</td>
<td>1112</td>
</tr>
<tr>
<td>RMI Port Range</td>
<td>CQM_RMI_PORT_RANGE</td>
<td>3445-3455</td>
</tr>
</tbody>
</table>

**TCP/IP ports for the CAE Agent**

Table 38. TCP/IP ports for the CAE Agent

<table>
<thead>
<tr>
<th>Port</th>
<th>Parameter (defined in CQMCPMRS)</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAE Server Listener Port</td>
<td>SERVER_PORT</td>
<td>3448</td>
</tr>
<tr>
<td>Backup CAE Server Listener Port</td>
<td>BACKUP_PORT</td>
<td>3448</td>
</tr>
<tr>
<td>CAE Agent Listener Port Range</td>
<td>LISTENER_PORTS</td>
<td>Required, no default</td>
</tr>
<tr>
<td>ISPF Listener Port</td>
<td>ISPF_LISTENER_PORT (corresponds to the ISPF Listener port field in Tools Customizer)</td>
<td>Required, no default</td>
</tr>
</tbody>
</table>

**Defining custom ports in cqm.server.properties (CAE Server on Windows)**

If you run the CAE Server on Windows, you can customize several ports by defining the appropriate parameters in the cqm.server.properties file.

**Procedure**

1. In the root folder of your CAE installation directory, edit cqm.server.properties.
2. Define any custom ports you want to add.

Table 39. Custom port parameters for use in cqm.server.properties - CAE Server on Windows

<table>
<thead>
<tr>
<th>Port</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAE Server Listener Port</td>
<td>com.rocketsoft.nm.qm.caeAgent.listenerPort</td>
</tr>
</tbody>
</table>
### Defining custom ports in cqm.service_install.bat (CAE Server on Windows)

If you run the CAE Server on Windows, you can customize several ports by defining the appropriate parameters in the `cqm_service_install.bat` file.

**Procedure**

1. In the `bin/` folder of your CAE installation directory, edit `cqm_service_install.bat`.
2. Edit the `serviceExtraDashDArgs` section to define the custom ports you want to add.

<table>
<thead>
<tr>
<th>Port</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTPS Port</td>
<td>-httpsPort</td>
</tr>
<tr>
<td>JDBC Port</td>
<td>-jdbcPort</td>
</tr>
</tbody>
</table>

3. Save `cqm_service_install.bat`.

### Defining custom ports in CQMCAESV (CAE Server on USS)

If you run the CAE Server on USS, you can customize several ports by defining the appropriate parameters in the `CQMCAESV` file.

**Procedure**

1. Edit the CAE Server started task `CQMCAESV`.
2. Define any custom ports you require in the STDENV DD.

<table>
<thead>
<tr>
<th>Port</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAE Server Listener Port</td>
<td>CQM_CAE_AGENT_LISTENER_PORT</td>
</tr>
<tr>
<td>RMI Port Range</td>
<td>CQM_RMI_PORT_RANGE</td>
</tr>
<tr>
<td>Java Local Portal Port</td>
<td>CQM_LOCAL_PORTAL_PORT</td>
</tr>
<tr>
<td>HTTPS Port</td>
<td>CQM_HTTPS_PORT</td>
</tr>
<tr>
<td>JDBC Port</td>
<td>CQM_JDBC_PORT</td>
</tr>
</tbody>
</table>

For more information, see “CAE Server parameters - CQMCAESV - USS” on page 542.

3. Save `CQMCAESV`.
Defining custom ports in CQMCAEWD (Backup CAE Server on USS)

If you run Db2 Query Monitor in a HAFT environment with the CAE Servers on USS and decide to use custom ports, you must customize the ports for the Backup CAE Server in the CQMCAEWD file.

Before you begin

When you customize port usage for the Backup CAE Server on USS in the CQMCAEWD file, be sure to also customize port usage for the Primary CAE Server on USS in the CQMCAESV file. For more information, see “Defining custom ports in CQMCAESV (CAE Server on USS)” on page 430.

Procedure

1. Edit the CQMCAEWD started task.
2. Define any custom ports you require in the STDENV DD.

| Table 42. Custom port parameters for use in CQMCAEWD - Backup CAE Server on USS |
|-----------------------------|-----------------------------|
| Port                        | Parameter                   |
| Backup CAE Server Listener Port | CQM_CAE_AGENT_LISTENER_PORT |
| Java Remote Portal Port      | CQM_REMOTE_PORT             |

For more information, see “CAE Server parameters - CQMCAESV - USS” on page 542.
3. Save CQMCAEWD.

Defining custom ports in CQMCPRMS (CAE Agent)

You can customize several ports by defining the appropriate parameters in the CAE Agent parameters file, CQMCPRMS.

Procedure

1. Edit the CAE Agent parameters file, CQMCPRMS, located in the Db2 Query Monitor control data set.
2. Define the ports you require.

| Table 43. Custom port parameters for use in CQMCPRMS - CAE Agent |
|-----------------------------|-----------------------------|
| Port                        | Parameter                   |
| Backup CAE Server Listener Port | BACKUP_PORT                |
| ISPF Listener Port          | ISPF_LISTENER_PORT          |
| CAE Agent Listener Port Range | LISTENER_PORTS             |
| CAE Server Listener Port    | SERVER_PORT                 |

For more information, see “CAE Agent parameters - CQMCPRMS” on page 538.
3. Save CQMCPRMS.

File system locations for the CAE Server on USS

The installation of the CAE Server involves data and components that reside in three different locations. These locations include:

- **Location 1**: The install directory
- **Location 2**: Contains the configuration and data files
- **Location 3**: Contains the log files
**Note:** Location 1 and Location 2 are required to be separate File System (FS) mount points. Location 3 can be a separate FS mount point or the log files can be written to SYSOUT. The default allocation is currently defined to create an HFS, but a ZFS could be used in its place.

| Table 44. Description of the three file systems (FS) required for the CAE Server on USS. |
|---------------------------------|---------------------------------|---------------------------------|
| **Location 1: Install directory** | **Location 2: Configuration and data files** | **Location 3: Log files (if using FS)*** |
| What does this location store? | The CAE Server executable and jar files. | The CAE Server configuration and data files. |
| Where do I specify the location in TCz? | In TCz, the **USS Binary File Path** field refers to the "/bin" folder inside your install directory. Where required, you must specify the following value in the **USS Binary File Path** field: 
\[ /install_dir/bin \]
where *install_dir* is the FS path of your install directory. | Specify the FS path in the **USS VAR_HOME Path** variable in TCz wherever it is required. |
| How is the location created? | This FS is allocated during installation (you do not need to manually allocate this FS). | This FS must be manually allocated. |
| With what permissions should the FS be mounted? | Mount the FS with read/write permissions during installation and maintenance. Mount the FS with read-only permissions when using product. | Mount the FS read/write permissions when using product. |
| What permissions should these files and directories have? | The directories and the files in the bin directory should all have read and execute permissions for the user ID of the CAE Server address space. All other files need at least read permission for that user ID. | The user ID of the CAE Server address space must have read, write, and execute permission for all directories, and must have at least read and write permissions for all files. All directories and files should be owned by the user ID of the CAE Server address space. |
| Where do I specify the location in CQMCAESV? | Replace all instances of "/u/username/cqm" with the FS directory that holds executable and jar files. | Replace "/configuration/location" in the CQM_VAR_HOME STDENV DD with the path to the configuration and data files FS directory you manually allocate. |

* *Select the **Create the USS CAE server for DB2 Query Monitor for z/OS** option and specify the FS path in the **USS LOG Path** variable*
Table 44. Description of the three file systems (FS) required for the CAE Server on USS. (continued)

| Should I allocate the directory to separate location? | Location 1: Install directory | Location 2: Configuration and data files | Location 3: Log files (if using FS) *
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, the executables and jar files should reside in their own FS.</td>
<td>Yes, the configuration and data files should reside in their own FS.</td>
<td>If using FS to store log files, the log files should reside in their own FS.</td>
<td>Ensure the target FS to which you are installing the new executables and jar files is empty.</td>
</tr>
<tr>
<td>Ensure the target FS to which you are installing the new executables and jar files is empty.</td>
<td>Ensure the target FS to which you are installing the new configuration and data files is empty.</td>
<td>Ensure the target FS to which you are installing the new log files is empty.</td>
<td>* This information applies when writing log files to an FS directory. If you choose instead to write logs to SYSOUT, refer to “Writing CAE Server log files to SYSOUT” on page 119 for more information.</td>
</tr>
</tbody>
</table>

CAE Agent address space management

The CAE Agent terminates normally if you stop it using the SDSF stop command (P). If the CAE Agent terminates abnormally while a CAE Server is running, a CAEAgentUnavailable alert will be issued on the CAE message board.

Security for cancel thread actions, host variable viewing, and SQL text viewing

CAE Browser Client actions such as cancel thread, host variable viewing, and SQL text viewing are protected by the RACF facility classes defined for the userid and password you use when logging in to the CAE Browser Client. Password verification to a given system is good for the life of the CAE Browser Client session.

Considerations for the use of DHCP versus fixed IP addresses on the CAE Server

It is recommended that you use a fixed IP address for the CAE Server whenever possible. If that is not possible, use the DNS name for the CQM_PORTAL_ADDRESS on the CAE Agent but be aware that there will be a loss of communication between the CAE Agent and the CAE Server between the time the CAE Server IP Address changes and the time that the DNS server used by the CAE Agent acquires the correct mapping.

Guidelines for setting thresholds for alerts and exceptions

When you create a monitoring profile include line, you can specify the conditions that when exceeded, cause the generation of an exception or an alert. These conditions include CPU time, elapsed time, getpages, SQL calls, and exception limit.

The purpose of alerts

The purpose of alerts is to make you (or an operator) aware of any unusual activity. There is some overhead that is associated with an alert. For this reason, thresholds should be set high enough to avoid excessive resource consumption by the CAE Agent and CAE Server.
Considerations for setting thresholds

When you set an alert or exception threshold, you should consider the following:

- Can your site's operators and DBAs respond to each individual alert or exception that is generated?
- Would your site's operators and DBAs want to receive an email for every alert that is generated (or would to emails be generated faster than they might want to receive them)?

If your site's operators and DBAs would not be able to respond to each individual alert or exception that is generated, or if they would not want to receive so many emails, then the alert threshold is set too low and should be raised.

Thresholds and workloads

The optimal thresholds you should use will also vary depending on the kinds of workloads your site experiences. For example, if an SQL section exceeds a threshold, would an operator at your site want to take the time to look at this SQL section and consider whether or not to cancel it? For example, would they want to consider alerts that exceed thresholds of > 5 seconds of CPU, or > 20 seconds elapsed?

Thresholds and SQLCODEs

When setting thresholds for SQLCODES, you should evaluate whether an error requires human intervention. For example, would an application developer or DBA actually take some action as a result of knowing that this individual SQL error occurred?

While the alert system can handle 5 alerts a second or more (per CAE Agent) for short periods, if you are averaging more than 5 alerts a minute in the CAE Server, the CAE Server will start to consume too much memory over the course of a day.

Situations that cause too many alerts

The most common reasons for your site experiencing too many alerts are:

- Not having a good list of SQL codes in SQL Codes excluded for Alerts. For example, many sites should exclude -803, since it is a common coding technique to insert first and update if necessary based on a -803.
- Setting alert thresholds too low for CPU, elapsed, getpages, and/or SQL calls. If you want to look at the activity after the fact, you can set thresholds to store the activity as an exception. Alerts are for immediate attention. The profiles facility in Db2 Query Monitor allows you to set different thresholds for different workloads. For example, 5 seconds elapsed may be cause for concern for a transactional workload, but not for a batch workload.

Contextual information and action configurations

By specifying contextual information in your action configurations, you can make your action behavior and content automatically adapt at execution time to the event and or domain element associated with the particular execution of the action.

You can specify this kind of contextual information in your action configurations by inserting Knowledge-Based Management Language (or KBML) expressions into the appropriate locations (such as email actions and WTO actions).

KBML is a powerful language that can be used in your action configurations. KBML provides you with a method of identifying and selecting information of interest and enables you to use that information in variety of ways (such as reporting information in an email action, an WTO action, or substituting in JCL).
**KBML expression structure**

The KBML syntax that is available and valid varies depending on the context in which it is to be defined.

**Note:** Identifiers and properties are case insensitive. Arguments to calls to `getAttribute()` are case sensitive. The valid arguments for an identifier can be found by opening an alert in the message board of the CAE and referring to the `Attributes` tab.

The following is a valid entry for the subject field of an email action configuration:

```
A ${event.type} has been ${trigger} on ${subject.db2ssid}
```

This might appear in someone's inbox as:

```
A GetPageCountExceededProblem has been acknowledged on R71C
```

The most common and most simple use of KBML in actions is to include the values of properties and universally available variables known collectively as identifiers within the action fields. These KBML expressions can take the following form:

```
${identifier.property}
```

where `identifier` is the identifier to which the KBML expression pertains and `property` is a specific property of that identifier. Properties of properties can be specified in an expression as follows:

```
${identifier.property.property}
```

Some examples of such KBML expressions are:

- `$subject.bestname`
- `$event.autoClear`
- `$device.address`
- `$event.domainElement.bestName`

KBML expressions can also accept methods and arguments using the following structure:

```
${event.getAttribute(string)}
```

where `string` is the argument on the method performed by the KBML expression.

Some examples of a KBML expression that includes a `getAttribute` method and argument are:

- `$event.getAttribute("CorrelationId")`
- `$event.getAttribute("REQUESTING_SITE_NAME")`
- `$event.getAttribute("CONNECTION_NAME")`

Advanced use of KBML enables you to specify conditional expressions that evaluate to different values based upon the value of identifiers. KBML expressions can be concatenated using if/then/else statements in the following manner:

```
${if expression1 then expression2 else expression3}
```

where `expression1`, `expression2`, and `expression3` are KBML expressions and `expression1` is an expression that returns true or false.
An example of an if/then/else statement is:

```sql
${if event is a SqlError then
  "NOTE: SQLSTATE and MessageTokens are for SqlError only"
  "event.getAttribute("SQLSTATE"):
  event.getAttribute("MessageTokens"):
else
  "event is not an SqlError"}
```

Also note in the example above, that escape sequences are used inside the KBML expressions to insert line breaks (\n) and to prevent certain characters intended for printing (for example, a double- quotation) from being interpreted as the end of the expression syntax (\"). KBML expressions can also incorporate string concatenation (+), (not equals) (!=), and (equals) (==).

You can sometimes just use an identifier directly when it has a simple value such as:

```sql
${trigger}
```

At other times when the identifier is an object, you can specify a property such as:

```sql
${event.type}
```

Sometimes the property of an object is another object in which case you can chain your dot notation as in:

```sql
${subject.db2dbms.ssid}
```

The properties defined for an identifier (if any) vary depending on the type of the identifier.

### Identifiers and properties for subject types

Since the KBML identifiers and properties pertain to the context in which they are defined, the CAE Browser Client displays pop-up windows of relevant variables as you type a KBML expression within CAE Browser Client fields.

This provides assistance as you construct a KBML expression and ensures that valid identifiers and properties are defined for the subject type selected. For example, if you choose a "Subject Type" of "Db2SqlStatement", then "subject" will be a Db2SqlStatement, and will have available all the properties associated with that type.

**Note:** The pop-up windows are displayed after you type the identifier followed by the period (.)

### Identifiers

The following are identifiers available for use in KBML expressions in actions.

- **event**
  - The event/alert that the action is acting upon. The type of the event is controlled by the choice of **Event Type**. This identifier is only valid if the **Event Type** of the action is not **none**.

- **subject**
  - The subject of the event/alert that the action is acting upon. This can be thought of as “the thing the alert is about”. The type of the subject is controlled by the choice of **Subject Type** in the action configuration panel.

- **currentDatetime**
  - The date and time that the action was executed (as distinct from the date and time that an alert was posted).

- **device**
  - The z/OS image on which the alert was generated, or on which the Db2Dbms was running.

- **domainName**
  - Always “DefaultDomain”.

---

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trigger
A string that indicates what triggered this action. If the action was executed via a ManagedEvent Response, then trigger will be one of: posted, acknowledged, cleared, priorityChanged, repetitionCountChanged, annotated, statusChanged. If the action was executed by a user via a custom-launch tool, then trigger will be "userAction". If the action was executed by an action schedule, then trigger will be the name of the action schedule prefixed with "schedule".

userName
The name of the user who initiated the action, if applicable (for example from a custom launch).

KBML types
A KBML type is the domain element against which an action can be executed.
The following are the main subject types of interest in defining scopes, actions, and responses in Query Monitor:

Db2SqlStatement
In the case of static SQL, a particular section, as identified by the DB2dbms/plan/program/program version/sectionNumber. In the case of dynamic sql, a select/insert/update/delete statement, identified by DB2Dbms/unique-sql-text. Both static and dynamic SQL are considered to be of type “Db2SqlStatement”.

DynamicDb2SqlStatement
A dynamic SQL statement

Db2Dbms
A DB2 Subsystem.

Db2ObjectUsage
The statistics for an object (index or table) collected as this object was used by a specific sql statement.

Device
The z/OS image on which this domain element is contained.
The following subject types also appear, but are less relevant to the contexts in question:

Dbms
Similar to Db2Dbms only less specific, and with fewer useful properties.

Domain
The whole data center.

DomainElement
Anything that can have an alert about it: an SQL statement, a table, an index, a z/OS image, a DB2 subsystem.

SelfElement
The Query Monitor application itself: the subject of “self” events such as “Configuration Changed Event” etc.

Software
Any kind of DomainElement that is not a Device.

Sql
Similar to Db2SqlStatement only less specific, and with fewer useful properties.

SqlStatement
Similar to Db2SqlStatement only less specific, and with fewer useful properties.

Properties
The list below shows the various KBML properties.

address
The “primary” IP address of the device, if any. Devices can have multiple IP addresses, in which case the value chosen as the “primary” IP address is somewhat arbitrary. For example, ${device.address} might produce a value such as 172.16.67.12.
• **Defined on KBML Type:** Device, Db2Dbms, Db2ObjectUsage, Db2SqlStatement, Dbms, Device, Domain, DomainElement, DynamicDb2SqlStatement, SelfElement, Software, Sql, SqlStatement

• **Type:** IPAddress
• **Identifier:** device, subject

**autoClear**
How long the alert will stay on the message board after its initial posting.

• **Defined on KBML Type:** Managed event
• **Type:** Number
• **Identifier:** event

**bestName**
DomainElements might have several different names, depending upon the type of DomainElement. "bestName" is based up the name that is considered to be the most identifying for that DomainElement while still attempting to be somewhat concise.

• **Defined on KBML Type:** Device, Db2Dbms, Db2ObjectUsage, Db2SqlStatement, Dbms, Device, Domain, DomainElement, DynamicDb2SqlStatement, SelfElement, Software, Sql, SqlStatement

• **Type:** String
• **Identifier:** subject

**collectionId**
The collection ID associated with the SQL statement.

• **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement

• **Type:** String
• **Identifier:** subject

**count**
The count or numerator of the rate.

• **Defined on KBML Type:** Rate
• **Type:** Number

**customName**
Not applicable to Query Monitor.

**datetime**
The initial time of the event, as a Date object.

• **Defined on KBML Type:** ManagedEvent

• **Type:** Date
• **Identifier:** event

**db2dbms**
The DB2 subsystem from which the alert was generated.

• **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement

• **Type:** Db2Dbms
• **Identifier:** subject

**db2Ssid**
The DB2 subsystem ID on which the alert for this SQL Statement was generated.

• **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement

• **Type:** String
• **Identifier:** subject

**dbms**
The DB2 subsystem from which the alert was generated.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement, SqlStatement
- **Type:** Dbms
- **Identifier:** subject

`definitionName`  
Not applicable to Query Monitor.

`displayName`  
Same as event.type.
- **Defined on KBML Type:** ManagedEvent
- **Type:** String
- **Identifier:** event

`dnsName`  
Not applicable to Query Monitor.

`domain`  
Not applicable to Query Monitor.

`domainElement`  
Any kind of ‘thing’ that can have an event about it: a Device, SqlStatement, Db2Dbms, Db2ObjectUsage.
- **Defined on KBML Type:** ManagedEvent
- **Type:** DomainElement
- **Identifier:** event

`escalationRate`  
The rate at which the event will increase in priority if left unacknowledged.
- **Type:** String
- **Identifier:** event

`id`  
The unique identifier of the alert. Can be used to build a URL to the message details.
- **Defined on KBML Type:** ManagedEvent
- **Type:** long
- **Identifier:** event

`ignoreEvent`  
Whether or not events of this type are to be ignored and never posted.
- **Defined on KBML Type:** ManagedEvent
- **Type:** boolean
- **Identifier:** event

`initialPriority`  
The initial priority of the alert when it was posted on the message board.
- **Type:** int
- **Identifier:** event

`isAcknowledged`  
Indicates whether or not the alert has been acknowledged.
- **Defined on KBML Type:** ManagedEvent
- **Type:** boolean
- **Identifier:** event
length
The number of characters in a String.
- **Type:** int
- **Identifier:** domainName, trigger, userName

markedToDelete
Not applicable to Query Monitor.

message
The message that appears on the message board for this alert.
- **Defined on KBML Type:** ManagedEvent
- **Type:** String
- **Identifier:** event

name
Not applicable to Query Monitor.

persist
Indicates whether this event, if not cleared, will be backed up on disk to be restored when the server restarts.
- **Type:** Boolean
- **Identifier:** event

plan
The plan under which this SQL statement was executed.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
- **Type:** String
- **Identifier:** subject

priority
The current priority of the alert.
- **Defined on KBML Type:** ManagedEvent
- **Type:** int
- **Identifier:** event

productName
Not applicable to Query Monitor.

productVersion
Not applicable to Query Monitor.

programName
If the SQL statement was bound in a package, the package name, otherwise the DBRM name.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
- **Type:** String
- **Identifier:** subject

programVersion
For static sql, the version of the program under which it was bound.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
- **Type:** String
- **Identifier:** subject

rate
The rate at which something happens: delta(count)/timePeriod.
- **Defined on KBML Type:** Event
• **Type:** int
  • **Identifier:** event

**recurrenceThreshold**
Number of times the alert must occur before it will be posted to the message board.
  • **Type:** int
  • **Identifier:** event

**repetitionCount**
Number of times the same kind of event has occurred for the same "thing".
  • **Defined on KBML Type:** ManagedEvent
  • **Type:** int
  • **Identifier:** event

**sectionNumber**
The section number with which the displayed activity is associated.
  • **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
  • **Type:** int
  • **Identifier:** subject

**serialNumber**
Not applicable to Query Monitor.

**sourceAddress**
Not applicable to Query Monitor.

**ssid**
The DB2 subsystem ID.
  • **Defined on KBML Type:** Db2Dbms
  • **Type:** String
  • **Identifier:** event

**statementNumber**
Not applicable to Query Monitor.

**status**
Not applicable to Query Monitor.

**subjectAddress**
Not applicable to Query Monitor.

**summary**
Same as event.message.
  • **Defined on KBML Type:** ManagedEvent
  • **Type:** String
  • **Identifier:** event

**supervised**
Not applicable to Query Monitor.

**timeperiod**
The time period over which the rate is calculated.
  • **Defined on KBML Type:** Rate
  • **Type:** TimePeriod
  • **Identifier:** event

**timestamp**
The initial time of the event, in milliseconds.
- **Defined on KBML Type:** ManagedEvent
  - **Type:** long
  - **Identifier:** event

**type**
The specific kind of event.
- **Defined on KBML Type:** ManagedEvent
  - **Type:** Object
  - **Identifier:** event

**uid**
The unique (within the server) ID for this DomainElement.
- **Defined on KBML Type:** Device, Db2Dbms, Db2ObjectUsage, Db2SqlStatement, Dbms, SelfElement, Software, Sql, SqlStatement, DynamicDb2SqlStatement
  - **Type:** long
  - **Identifier:** subject

**user**
The userid under which the SQL statement was run.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
  - **Type:** String
  - **Identifier:** subject

**winsName**
Not applicable to Query Monitor.

**workload**
The CQM collector profile workload whose threshold triggered the alert.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
  - **Type:** String
  - **Identifier:** subject

**wsName**
The workstation name.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
  - **Type:** String
  - **Identifier:** subject

**wsTran**
The workstation transaction ID.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
  - **Type:** String
  - **Identifier:** subject

**wsUser**
The workstation user.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
  - **Type:** String
  - **Identifier:** subject
Variables available for \$\{event\}. based on type of event

The list below shows the variables that are available for \$\{event\}. based on the type of event.

The type is shown in parenthesis with the variable description.

**Db2ObjectUsageProblem:**
The following variables are available for \$\{event\}. for Db2ObjectUsageProblem event types:

- **synchronousReadIoCount**
  (Number) Number of synchronous reads done on this object in this execution of this SQL statement.

- **synchronousWriteIoCount**
  (Number) Number of synchronous writes done on this object in this execution of this SQL statement.

- **asyncPagesRead**
  (Number) Number of pages read asynchronously on this object in this execution of this SQL statement.

- **totalGetpages**
  (Number) Total number of getpages performed on this object in this execution of this SQL statement.

**DelayProblem:**
The following variables are available for \$\{event\}. for DelayProblem event types:

- **totalDelayTime**
  (TimePeriod) Total of all kinds of delays: locks, IO, etc.

- **db2ElapsedTime**
  (TimePeriod) Time elapsed within DB2 during the execution of this SQL statement.

- **db2CpuTime**
  (TimePeriod) The accumulated total of all TCB and SRB CPU time the exceptional SQL activity spent while executing in DB2.

- **syncIoDelayTime**
  (TimePeriod) The accumulated elapsed wait time for I/O.

- **otherReadDelayTime**
  (TimePeriod) The accumulated wait time for read I/O.

- **otherWriteDelayTime**
  (TimePeriod) The accumulated wait time for write I/O.

- **lockLatchDelayTime**
  (TimePeriod) The accumulated lock and latch elapsed wait time for lock and latch suspensions.

- **drainLockDelayTime**
  (TimePeriod) The accumulated wait time for drain locks.

- **claimReleaseDelayTime**
  (TimePeriod) The accumulated wait time for claim releases.

- **pageLatchDelayTime**
  (TimePeriod) The accumulated wait time due to page latch contention.

- **totalGetpages**
  (TimePeriod) The number of getpages associated with the object.

- **synchronousReadIo**
  (TimePeriod) The number of synchronous read I/O for the object.

- **asyncPagesRead**
  (TimePeriod) The number of asynchronous pages read.

- **seqPrefetchRequests**
  (TimePeriod) The number of SEQ PREFETCH requested.
synchronousWriteIo
  (TimePeriod) The number of immediate (synchronous) write I/O.

listPrefetchRequests
  (TimePeriod) The number of LIST PREFETCH requested.

dynamicPrefetchRequests
  (TimePeriod) The number of DYNAMIC PREFETCH requested.

archiveLogQuiesceDelayTime
  (TimePeriod) The accumulated wait time for archive log quiesces.

archiveLogReadDelayTime
  (TimePeriod) The accumulated wait time for archive log reads.

servtaskSwitchDelayTime
  (TimePeriod) The accumulated wait time due to synchronous execution unit switch to DB2 services.

getPageCountExceededProblem
  The following variables are available for ${event. for GetPageCountExceededProblem event types:

  totalGetPages
    (Number) The number of getpages associated with the object.

lockLatchDelayProblem
  The following variables are available for ${event. for LockLatchDelayProblem event types:

  lockLatchDelayPercent
    (Percent) The percent of totalLock delay time due to lockLatchDelayTime:
    \[100 \times \frac{\text{lockLatchDelayTime}}{\text{totalLockDelayTime}}\]

lockRequestCountRateExceededProblem
  The following variables are available for ${event. for LockRequestCountRateExceededProblem event types:

  lockRequestsRate
    (Double) The number of lock requests divided by the elapsed time.

objectBufferPoolHitRatioProblem
  The following variables are available for ${event. for ObjectBufferPoolHitRatioProblem event types:

  objectHitRatio
    (Percent) The hit ratio for the object.

objectSynchronousIODelayProblem:
  The following variables are available for ${event. for ObjectSynchronousIODelayProblem event types:

  totalObjectIOCount
    (TimePeriod) The accumulated elapsed wait time for I/O.

sqlBufferpoolHitRatioProblem:
  The following variables are available for ${event. for SqlBufferpoolHitRatioProblem event types:

  hitRatio
    (Percent) The hit ratio.

sqlCpuProblem:
  The following variables are available for ${event. for SqlCpuProblem event types:

  db2CpuTime
    (TimePeriod) The accumulated total of all TCB and SRB CPU time spent while executing within DB2.

sqlCallCountExceededProblem:
  The following variables are available for ${event. for SqlCallCountExceededProblem event types:

  TotalSqlCalls
    (Number) The total number of individual SQL calls executed by DB2.
SqlElapsedTimeProblem:
The following variables are available for ${event. for SqlElapsedTimeProblem event types:

db2ElapsedTime
(TimePeriod) The accumulated elapsed time the exceptional SQL activity spent while executing in DB2.

SqlError:
The following variables are available for ${event. for SqlError event types:

HighestSqlCode
(Number) The SQL return code issued by DB2 associated with the exception.

TotalIODelayProblem:
The following variables are available for ${event. for TotalIODelayProblem event types:

totalIODelayTime
(TimePeriod) syncIoDelayTime + otherReadDelayTime + otherWriteDelayTime.

totalIODelayPercent
(Percent) 100*(totalIODelayTime/totalDelayTime)

TotalLockDelayProblem:
The following variables are available for ${event. for TotalLockDelayProblem event types:

totalLockDelayTime
(TimePeriod) lockLatchDelayTime + claimReleaseDelayTime + drainLockDelayTime + pageLatchDelayTime.

lockDelayPercent
(Percent) 100*(totalLockDelayTime/totalDelayTime)

KBML Functions
The following functions are available in actions.

formatTimestamp
Retrieves the timestamp as a UNIX time (number), patterns it as a string, and returns a formatted timestamp. The pattern is defined by the Java class SimpleDateFormat (the pattern definition can be found here https://docs.oracle.com/javase/8/docs/api/java/text/SimpleDateFormat.html). For example:

$ {formatTimestamp(event.lastUpdateTimestamp, "yyyy-MM-dd HH:mm:ss")}

getSqlText
Retrieves SQL text for both static and dynamic SQL. For Static SQL, a catalog query is performed; for dynamic SQL, the information is present in the event. Enables you to create a single action that works for both static and dynamic SQL and provides you the text in both cases. This enables you to avoid duplicate actions for dynamic and static SQL. For example:

${getSqlText(event)}

If the event is not the right kind to provide SQL text, the following message will be returned by the function:

No text: Cannot get SQL Text for events of type "{0}"

{0} will be substituted with the type of the event in question.

Note: For static text, the action does a catalog query but to avoid a flood of alerts (which could cause excessive workload for the CAE Agent and Server), only 10 static SQLTEXTS per minute for a given DB2 are acquired.

wordWrapSQLForBatch
Word wrap long text strings for use in submitting JCL. Will wrap at any non-identifier character. Identifier characters are defined as letters, digits, underscore, single quote, and double quote. If an
identifier is longer than 72 characters, the identifier will wrap with a character in the 72nd column. Takes a String as an argument, and returns a word-wrapped String. For example:

```java
wordWrapSQLForBatch(getSqlText(event))
```

**Usage tips**

The following usage tips apply to the use of contextual information in action configurations.

**Scope creation for static SQL**

To create a scope for a static SQL, you can use the AND condition. For example:

```sql
subject is in scope Db2SqlStatement AND subject is a Db2SqlStatement AND the subject is not in scope Db2DynamicSqlstatement
```

**Testing emails**

When testing emails, you can use **when an event is acknowledged** as a trigger when testing emails so you don't have to wait for the error condition to receive the email that you set up.

**Linking to CAE Actions Tab in Email body**

You can place a link in the body of your email text to direct readers to the CAE Actions tab. The format of such a link would be:

```java
messageDetailsURL(event)
```

**KBML source and resultant Email: Example 1**

In this example the source KBML is constructed to output attributes for events that occur. This is accomplished by specifying the method (getAttribute) and the various strings or arguments to fetch (such as CorrelationId, JOBNAME, and NETID). Two sample emails show the resultant information that would be sent in the case of an SqlCpuProblem event.type and an ApplicationCodingError event.type.

**Source KBML: Attributes for ${event.type}**

The following set of source KBML expressions will produce emails with information about the attributes for various argument strings.

```java
Subject: attributes for ${event.type} 
Message:
Attributes from events. Event type Db2SqlEvent.

event.getAttribute("CorrelationId"):

event.getAttribute("JOBNAME"):

event.getAttribute("SQL_TYPE"):

event.getAttribute("NETID"):

event.getAttribute("LUNAME"):

event.getAttribute("CURSOR_NAME"):

event.getAttribute("REQUESTING_SITE_NAME"):

event.getAttribute("WORKLOAD"):

${if event is a SqlError then
"NOTE: SQLSTATE and MessageTokens are for SqlError only" +
"event.getAttribute("SQLSTATE"):" + event.getAttribute("SQLSTATE") +
"event.getAttribute("MessageTokens"):" + event.getAttribute("MessageTokens")
else
"event is not an SqlError"}
```
**Resultant Email: SqlCpuProblem event.type**

The following email illustrates the type of email that might be sent based on the KBML source code above if an event.type SqlCpuProblem occurs.

From: CQM
To: Fred Jones
Cc: 
Subject: attributes for SqlCpuProblem
Attributes from events. Event type Db2SqlEvent.

```
event.getAttribute("CorrelationId"): db2jcccom.ro
event.getAttribute("JOBNAME"): JOBNAME1
event.getAttribute("SQL_TYPE"): OPEN
event.getAttribute("CONNECTION_NAME"): SERVER
event.getAttribute("NETID"): GA0101FE
event.getAttribute("LUNAME"): O23D
event.getAttribute("CURSOR_NAME"): SQL_CURLH200C2
event.getAttribute("REQUESTING_SITE_NAME"): nn.n.n.nnn
event.getAttribute("WORKLOAD"): DIST WORK
```

event is not an SqlError

*Figure 124. SqlCpuProblem Email*

**Resultant Email: ApplicationCodingError event.type**

The following email illustrates the type of email that might be sent based on the KBML source code above if an event.type ApplicationCodingError occurs.

From: CQM
To: Fred Jones
Cc: 
Subject: attributes for ApplicationCodingError
Attributes from events. Event type Db2SqlEvent.

```
event.getAttribute("CorrelationId"): db2jcccom.ro
event.getAttribute("JOBNAME"): JOBNAME1
event.getAttribute("SQL_TYPE"): OPEN
event.getAttribute("CONNECTION_NAME"): SERVER
event.getAttribute("NETID"): GA0101FE
event.getAttribute("LUNAME"): O23D
event.getAttribute("CURSOR_NAME"): SQL_CURLH200C2
event.getAttribute("REQUESTING_SITE_NAME"): 10.1.1.254
event.getAttribute("WORKLOAD"): DIST WORK
```

event is not an SqlError

*Figure 125. ApplicationCodingError Email*

**KBML source and resultant Email: Example 2**

In this example the source KBML is constructed to output identifiers and properties for events that occur. Two sample emails show the resultant information that would be sent in the case of an SqlCpuProblem event.type and an ApplicationCodingError event.type.

Notice that the else condition (shown in bold in the source KBML) enables the text 'No wsName set for this sql' to be printed out if appropriate (shown in bold in the second resultant email).

**Source KBML:** Identifiers and properties for $\{event.type\}$

The following set of source KBML expressions will produce emails with information about the attributes for various argument strings.

Subject: identifiers and properties for $\{event.type\}$

Message:

Subject:

```
subject.bestName: $\{subject.bestName\}
ssubject.collectionId: $\{subject.collectionId\}
```
subject.db2dbms.ssid: ${subject.db2dbms.ssid}
subject.db2Ssid: ${subject.db2Ssid}
subject.device.bestName: ${subject.device.bestName}
subject.plan: ${subject.plan}
subject.programName: ${subject.programName}
subject.programVersion: ${subject.programVersion}
subject.sectionNumber: ${subject.sectionNumber}
subject.user: ${subject.user}

${if subject.wsName != "" then
"subject.wsName: " + subject.wsName+
"\nssubject.wsTran: " + subject.wsTran+
"\nssubject.wsUser: " + subject.wsUser
else
"No wsName set for this sql"
}

Device: device.address: ${device.address}
device.bestName: ${device.bestName}

Event: event.autoClear: ${event.autoClear}
event.datetime: ${event.datetime}
event.displayName: ${event.displayName}
event.domainElement.bestName: ${event.domainElement.bestName}
event.isAcknowledged: ${event.isAcknowledged}
event.message: ${event.message}
event.priority: ${event.priority}
event.type: ${event.type}

Other identifiers currentDatetime: ${currentDatetime}
trigger: ${trigger}
subject.text: ${subject.text}

Resultant Email: subject wsName set
The following email illustrates the type of email that might be sent based on the KBML source code above if an event.type SqlCpuProblem occurs.

In this sample email, the subject.wsName is set and as a result the subject.wsName, subject.wsTran, and subject.wsUser information is output as shown in bold:

From: CQM
To: Fred Jones
Cc:
Subject: identifiers and properties for SqlCpuProblem
Subject:
subject.bestName: I81A:DISTSERV:SYSLH200::2::USERID:::::DIST
WORK:81.61.87.-96.18.-9.-67.-73.32.32
subject.collectionId: NULLID
subject.db2dbms.ssid: ssid
subject.db2Ssid: ssid
subject.device.bestName: ssid
subject.plan: DISTSERV
subject.programName: PROGRAM1
subject.programVersion: null
subject.sectionNumber: 2
subject.user: USERID
subject.wsName: userid
subject.wsTran: xxxx.yourcompany.xxxx.s
subject.wsUser: userid

Device:
device.address: nn.n.n.nnn
device.bestName: SS01

Event:
event.autoClear: 9 days
event.datetime: Wed MMM DD HH:MM:SS EST YYYY
event.displayName: Sql Cpu Problem
event.domainElement.bestName: I81A:DISTSERV:SYSLH200::2::USERID:::::DIST
WORK:81.61.87.-96.18.-9.-67.-73.32.32
event.isAcknowledged: true
event.message: The sql statement I81A:DISTSERV:SYSLH200::2::USERID:::::DIST
WORK:81.61.87.-96.18.-9.-67.-73.32.32 took 2447 milliseconds of CPU.
event.priority: 3
event.type: SqlCpuProblem

Other identifiers
currentDatetime: Wed MMM DD HH:MM:SS EST YYYY
trigger: acknowledged
subject.text:
SELECT CASE WHEN CHAR(DECIMAL(1 / 10, 2, 1)) = ' 0.0' THEN 1 WHEN CHAR(DECIMAL(1 / 10, 2, 1)) = ' 0,0' THEN 2 ELSE 3 END AS C1
FROM SYSIBM.SYSDUMMY1

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Resultant Email: no subject wsName set
The following email illustrates the type of email that might be sent based on the KBML source code above if an event.type ApplicationCodingError occurs.

In this sample email, the subject.wsName is not set and as a result the subject.wsName, subject.wsTran, and subject.wsUser information is not output and instead the text "No wsName set for this sql" is produced, as shown in bold:

From: CQM
To: Fred Jones
Cc:
Subject: identifiers and properties for ApplicationCodingError
ASubject:
subject.bestName:
I71A:DSNTEP2 :DSN@EP2L::1::USERID:::::TEP2:71.-43.-111.-61.90.-95.-118.76.-42.-30
subject.collectionId: DSNTEP2
subject.db2dbms.ssid: I71A
subject.db2Ssid: I71A
subject.device.bestName: QM01
subject.plan: DSNTEP2
subject.programName: DSN@EP2L
subject.programVersion: V7R1.A11712
subject.sectionNumber: 1
subject.user: USER01

No wsName set for this sql

Device:
device.address: nn.n.n.nnn
device.bestName: QM01

Event:
event.autoClear: 5 days
event.datetime: Tue Jan 23 14:00:51 EST 2007
event.displayName: Application Coding Error
event.domainElement.bestName:
I71A:DSNTEP2 :DSN@EP2L::1::USERID:::::TEP2:71.-43.-111.-61.90.-95.-118.76.-42.-30
event.isAcknowledged: true
event.message: A sql statement received SQL code -204, MessageTokens SYS
IBM.SYNSOTHERE
event.priority: 4
event.type: ApplicationCodingError


Backus-Naur Form (BNF) for KBML

The following details KBML grammar.

**topLevelExpression**

```plaintext
      : kbm1Expression EOF
  | appendExpression EOF
  ;
```

**kbmlExpression**

```plaintext
      : ifExpression
  ;
```

**appendExpression**

```plaintext
      : HASH LCURLY
        ( kbm1Expression ( COMMA kbm1Expression )* 
          | )
        RCURLY
  ;
```

**ifExpression**

```plaintext
      : "if" logical0rExpression "then" logical0rExpression "else" ifExpression
  | logical0rExpression
  ;
```
logicalOrExpression
:    logicalAndExpression ( "or" logicalAndExpression )*

;

logicalAndExpression
:    logicalNotExpression ( "and" logicalNotExpression )*

;

logicalNotExpression
:    "not" equalityExpression
|    equalityExpression

;

equalityExpression
:    relationalExpression
    (    ( NOT_EQUAL relationalExpression )
    |    ( EQUAL relationalExpression )
    )*

;

relationalExpression
:    shiftExpression
shiftExpression
  :  additiveExpression
      (  ( SL additiveExpression )
           |  ( SR additiveExpression )
      )*
    ;

additiveExpression
  :  multiplicativeExpression
      (  ( PLUS multiplicativeExpression )
           |  ( MINUS multiplicativeExpression )
      )*
    ;

multiplicativeExpression
  :  binaryOrExpression
( ( STAR binaryOrExpression )
| ( DIV binaryOrExpression )
| ( MOD binaryOrExpression )
)*
;

binaryOrExpression

: binaryXorExpression ( BOR binaryXorExpression )* 
;

binaryXorExpression

: binaryAndExpression ( BXOR binaryAndExpression )* 
;

binaryAndExpression

: predicateExpression ( BAND predicateExpression )* 
;

predicateExpression

: unaryExpression

( "is"
  ( "not"
  |
IDENT

  ( "of" unaryExpression

    | )

  )

  | ( "in"

    ( ( "scope" STRING_LITERAL )

      | ( "subnet" ipAddress DIV NUM_INT

      )

    )

  | unaryExpression

  )

  | ( "one" "of" expressionList )

  | "bound"

  | ( IDENT "of" unaryExpression )

  | unaryExpression

  )

  | "starts" "with" unaryExpression

  | "ends" "with" unaryExpression

  | "matches" unaryExpression

  | "dsnMatches" unaryExpression

  | "has" unaryExpression

  | }
unaryExpression

: quantificationExpression
| MINUS unaryExpression
| LNOT unaryExpression
| PLUS unaryExpression
| attributeExpression
|

;

ipAddress

: IP_ADDRESS
|

;

expressionList

: LPAREN kbmlExpression ( COMMA kbmlExpression )* RPAREN
|

;

quantificationExpression

: "some" IDENT

( IDENT
|
 )
attributeExpression

: primaryExpression ( ( DOT
|   ( SQUOTE
|     ( "s"
|     | ) )
| ) )

IDENT

( argList
| |
|
|
| )*;

primaryExpression

: constantExpression
| function
| LPAREN kbmlExpression RPAREN
;

argList
constantExpression

: NUM_INT

| NUM_LONG

| NUM_FLOAT

| IPADDRESS

| STRING_LITERAL

| "true"

| "false"

;

function

: ( "the"

| IDENT

( argList

| )

)

;

LPAREN RPAREN


expressionList

;

458 IBM Db2 Query Monitor for z/OS
Db2 index and table space reorganizations are frequently used to improve application performance, and real-time statistics can be useful in indicating whether a REORG is needed. However, there are times when real-time statistics might indicate that a REORG is needed, but the application is accessing data in a way that is not impacted by disorganized data. IBM Db2 Automation Tool for z/OS can work with Db2 Query Monitor to leverage the SQL performance data that Db2 Query Monitor collects on your application objects to determine if a reorganization is necessary. Using these products together helps your organization avoid unnecessary reorganizations, thereby reducing CPU cycles, memory use, disk space usage, and the impact on your applications.

In summary, implementing smarter reorganization recommendations involves the following steps:

1. Configure Db2 Automation Tool and Db2 Query Monitor for reorganization recommendations.
2. In Db2 Query Monitor, customize the settings for performance monitoring.
3. In Db2 Automation Tool:
   a. Define a performance window (one or more periods of time in which Db2 Query Monitor monitors object performance).
   b. Create a job profile that specifies a REORG TABLESPACE utility and an exception profile that contains the QUERY MONITOR REORG_OVERRIDE (in addition to other relevant exceptions) and
   c. Associate the job profile with a performance window.
   d. Build the job profile. After you build the job, Db2 Query Monitor begins monitoring the objects during the performance window time periods.
4. On subsequent builds of the job profile, you can review build messages that report whether Db2 Query Monitor recommends or does not recommend the reorganization, based on analysis of the performance data collected during a performance window. You can explore the data that was analyzed by using the Reorganization Recommendation Monitor in the Db2 Query Monitor CAE browser client.

Prerequisites

Using the smarter reorganization recommendation feature requires Db2 Automation Tool V4.3 and Db2 Query Monitor V3.3 with the corresponding APARs applied.

Product requirements

The following APARs must be applied to use smarter reorganization recommendations:

- Db2 Automation Tool V4.3: PI92498
- Db2 Query Monitor V3.3: PI92519
- If Db2 Autonomics Director V1.6 is installed, PI95671 is required for compatibility with Data Server Manager.

Before you begin

Before setting up smarter reorganization recommendations, ensure the following:

- Db2 Automation Tool is set up for reorganization recommendations. For more information, see the Db2 Automation Tool V4.3 documentation.
- Db2 Query Monitor is set up for reorganization recommendations as follows:
– The Db2 Query Monitor subsystem, CAE agent, and CAE server are installed and configured.
– AT-TLS and PAGENT must be configured to allow the Db2 Query Monitor certificate to be used by the Db2 Query Monitor CAE server. For more information, see "Customizing AT-TLS security for smarter reorganization recommendations" in the Db2 Automation Tool V4.3 documentation.
– The Db2 Query Monitor subsystem and CAE agent should run on the same LPAR on which the Db2 subsystem is located and for which recommendation is to be requested.
– You must run a bind job (generated using Tools Customizer or customized from SCQMSAMP member CQMBIND) to be able to use smarter reorganization recommendation.
– To access the reorganization recommendation monitor in the CAE browser client, you must have administrator authority to CAE components, which means that you must have UPDATE access to the CQM.CAE.ADMINISTRATOR RACF profile. For more information, see “Reviewing and setting proper authorizations” on page 55.

**How smarter reorganization recommendations work**

Db2 Automation Tool initiates smarter reorganization recommendations by providing the objects to be monitored and the timeframe that they are to be monitored to Db2 Query Monitor. Db2 Query Monitor collects performance data on queries that are run against those objects during that timeframe. Db2 Query Monitor then analyzes the data and provides information to Db2 Automation Tool as to whether or not a reorganization is recommended.

**How Db2 Automation Tool initiates object monitoring for reorganization recommendations**

The initial (setup) build of a Db2 Automation Tool job profile that specifies a REORG TABLESPACE utility, the QUERY PERFORMANCE REORG OVERRIDE exception, and at least one additional exception condition starts the interaction between Db2 Query Monitor and Db2 Automation Tool.

When the job profile is built, the following process is set into motion:

1. Db2 Automation Tool sends information about the objects and the time period to be monitored (the performance window) to Db2 Query Monitor. The setup build initiates reorganization recommendation monitoring during the specified time period, so that Db2 Query Monitor can later make recommendations as to whether or not the objects need to be reorganized. During performance windows, the CAE server analyzes data for the intervals to decide whether to keep or ignore the intervals (if they do not have sufficient data).

    **Note:** Reorganization recommendation monitoring does not affect Db2 Query Monitor SQL monitoring.

2. To start making recommendations, Db2 Query Monitor needs a baseline performance window. The baseline performance window is the first occurrence of the performance window after the last completed REORG for a table space and contains one or more Db2 Query Monitor intervals. Db2 Query Monitor checks to see when the last REORG was performed for an object and whether performance data has already been collected on the objects during the performance window that was passed in by Db2 Automation Tool.

   • If past intervals exist during which performance data was collected for the object and that precisely fit the time period, those past intervals are used to create the baseline performance window.
   • If the interval that contains the collected performance data does not precisely align with the requested time period, Db2 Query Monitor marks a larger period of collected intervals as the baseline performance window. For example, if you have four intervals of collected performance data:

     1 pm - 2 pm
     2 pm - 3 pm
     3 pm - 4 pm
     4 pm - 5 pm
and Db2 Automation Tool requests the performance window from 2:30 pm to 3:30 pm, Db2 Query Monitor saves two intervals as the baseline performance window:

2 pm - 3 pm
3 pm - 4 pm

In this case, the performance window (2:30 pm – 3:30 pm) overlaps these two Db2 Query Monitor intervals, which together include the full baseline performance window.

3. Reorganization recommendation monitoring is started.

How Db2 Query Monitor performs reorganization recommendation monitoring

At the beginning of each performance window, Db2 Query Monitor queries the Db2 system tables to see when the latest REORG TABLESPACE was performed for the object.

Db2 Query Monitor then determines the actions to take.

- If a REORG has been performed, no baseline performance window has been defined, and the data in the interval meets the thresholds, then Db2 Query Monitor defines the baseline performance window.
- If a REORG has been performed that is more recent than the start of the currently defined baseline performance window and the data in the interval meets the thresholds, then Db2 Query Monitor deletes the baseline performance window (and comparison performance window, if it exists) and creates a new baseline with data from the current performance window. This creates a new baseline performance window with the most up-to-date metrics.
- If Db2 Query Monitor cannot find information about the objects in the Db2 system tables, then Db2 Query Monitor deletes the baseline performance window (and the comparison performance window, if it exists) for the object.

Once the baseline performance window is established, at the beginning of the next performance window, Db2 Query Monitor creates a comparison performance window. Db2 Query Monitor saves data from the current performance window to the comparison performance window. When each successive performance window opens, Db2 Query Monitor continues to overwrite the comparison performance window with data from the current performance window, as long as the baseline is in place and the data in the interval meets the thresholds.

The baseline and comparison performance window metrics are used to make recommendations the next time that the job profile is built by Db2 Automation Tool.

Db2 Query Monitor retains the performance history files (a set of files that contain data about monitored objects on a per-interval basis) that are created during any intervals that fall within the baseline performance window and the comparison performance window. Consequently, a Db2 Query Monitor user might notice that, when using smarter reorganization recommendations, performance history files for prior intervals are kept or released in a manner that differs from the keep/release behavior that has been configured for normal (non-reorganization recommendation) processing.

For more information, see “Interval processing and reorganization recommendation” on page 463.

At the end of each performance window, the CAE server checks whether or not each pageset has enough statements to be saved as a baseline or comparison performance window. For example, the CAE server does not save a performance window if it contains no SQL statements. The CAE server executes the equivalent query to the one executed in the activity browser using the Pageset (CURRENT_PAGESET) > SQL drilldown. Therefore, if the job profile has n pagesets then the CAE server must make n such requests.

Additionally, at the end of a performance window, Db2 Query Monitor splits the interval. The CAE server cannot query an interval while it is being split, so the CAE server must wait for this process to complete. If, for example, it takes about 1 minute to split an interval, then the time the CAE server requires to process the end of a performance window is roughly equal to:

1 minute + (count-of-pagesets * time-to-check-one-pageset)
How the reorganization recommendation request is processed

Subsequent builds of the Db2 Automation Tool job profile initiate a request to Db2 Query Monitor to provide a reorganization recommendation.

The reorganization recommendation process between Db2 Automation Tool and Db2 Query Monitor is as follows:

1. Db2 Automation Tool first uses its own statistics to evaluate whether a REORG should be performed on the object.
2. If Db2 Automation Tool determines the REORG should be performed and the QUERY MONITOR REORG_OVERRIDE exception is selected (in Db2 Automation Tool), a request is sent to Db2 Query Monitor to make a recommendation.
3. Db2 Query Monitor compares the performance of queries from the baseline performance window with the performance of queries from the comparison performance window. Db2 Query Monitor compares the performance of queries from the baseline performance window with the performance of queries from the comparison performance window and uses threshold % (default values are 10% for CPU time or 20% for elapsed time).
   • If performance has degraded, then Db2 Query Monitor recommends the REORG.
   • If performance is the same, then Db2 Query Monitor does not recommend the REORG.
   • If baseline or comparison performance windows are not yet defined, then Db2 Query Monitor does not make any recommendations. In this case, for each triggered pageset, Db2 Query Monitor sends a message to Db2 Automation Tool that not enough information is available.

How Db2 Query Monitor uses metrics to make a reorganization recommendation

To make a reorganization recommendation, Db2 Query Monitor compares the performance of SQL statements that were run on the object during the baseline performance window against the performance of SQL statements that were run on the object during the comparison performance window.

The default metrics that are compared are elapsed time and Db2 CPU time. Using the baseline metrics, Db2 Query Monitor calculates the elapsed and Db2 CPU time per SQL call that would be expected in the comparison performance window if SQL performance has not degraded. Db2 Query Monitor compares it to actual elapsed and Db2 CPU times per SQL call that were recorded during the comparison performance window. If the difference is significant (greater than 10% for CPU time or greater than 20% for elapsed time), a REORG is recommended.

Since many statements are typically run on an object, for its calculations Db2 Query Monitor uses statements that have been run in both the baseline and comparison performance windows. If there are not enough statements that have been run in both windows to make a reliable recommendation (default value of low threshold % is 60% of the same statements that have been run in both performance windows), Db2 Query Monitor returns a message that not enough information is available.

The metrics that Db2 Query Monitor uses to make a reorganization recommendation can be customized in Db2 Query Monitor. For information, see “Customizing metrics and thresholds” on page 466.

How Db2 Query Monitor creates a baseline performance window

When Db2 Automation Tool performs a build with the PERFORMANCE_OVERRIDE exception option specified in the exception profile, Db2 Query Monitor evaluates intervals and creates a baseline performance window.

If a reorganization is not needed, then Db2 Query Monitor proceeds to create a baseline performance window as follows:
   • All intervals that are currently available in Db2 Query Monitor are analyzed to determine if they align with the performance window.
   • If there are intervals that align with the performance window, those intervals are used to create a baseline.
• If no intervals align with the performance window, then Db2 Query Monitor selects a longer period than the performance window.

• If there are no intervals that align with the performance window timestamps, then Db2 Query Monitor waits for the next performance window.

If a reorganization is needed (the **Reorg is needed** flag is Y), then Db2 Query Monitor proceeds as follows:

• Db2 Query Monitor does not create a baseline because the object might be in an inappropriate state, as indicated by the fact that Db2 Automation Tool recommends a reorganization. If Db2 Query Monitor were to create a baseline, then all subsequent reorganizations would be rejected due to the inappropriate baseline.

• Db2 Query Monitor waits for the next performance window to determine if a baseline can be created at that time. When the next performance window occurs, Db2 Query Monitor determines the most recent reorganization of the objects of interest. If a reorganization was made against the objects of interest, then Db2 Query Monitor analyzes the performance window. Otherwise, a baseline is not created and Db2 Query Monitor continues to wait for the next performance window.

### How Db2 Query Monitor clears or overrides a baseline performance window

At the beginning of a performance window, Db2 Query Monitor checks the system tables to determine when the latest reorganization was completed for the objects of interest.

• If the reorganization was completed after the baseline performance window start time, Db2 Query Monitor deletes the baseline performance window and creates a new one with data from current performance window. This overriding of the existing baseline performance window with a new one is done to ensure the use of the latest statistics.

• If Db2 Query Monitor does not find information about the objects in the system tables, it deletes the baseline for the objects.

The **CQM_REORG_METRICS** parameter is applied when Db2 Query Monitor receives information about the objects and the time period to be monitored (the performance window) from Db2 Automation Tool. The metrics that Db2 Query Monitor collects are stored in the reorganization history (knowledge/site/qm/reorg/history). Changes made to **CQM_REORG_METRICS** are not applied to previously collected metrics.

The metrics are later used to evaluate the baseline and performance windows for a reorganization profile, with the values that were in place when the profile was received from Db2 Automation Tool.

When a job profile is built, Db2 Automation Tool sends information about the objects and the time period to be monitored (the performance window) to Db2 Query Monitor.

### Interval processing and reorganization recommendation

Db2 Query Monitor interval performance history files might be deleted based on the values specified for the RETAIN parameter in **CQMPARMS**. The RETAIN parameter specifies the number of prior intervals that are to be retained on DASD after interval processing is complete.

For information about the RETAIN parameter, see “Query Monitor Subsystem parameters - **CQMPARMS**” on page 493.

For reorganization recommendation, the CAE server keeps the performance history files for any intervals that are needed for reorganization analysis. When the intervals are no longer needed for reorganization analysis, the performance history files are released. If the interval time period is different from the performance window time period, then the CAE server initiates interval processing at the start or end time of the performance window.

If the start or end of a performance window is aligned with the start or end of Db2 Query Monitor intervals, then the intervals are not split. For example, if Db2 Query Monitor is configured to snap intervals each hour, and the performance window starts and ends at the beginning of the hour (1:00, 2:00, 3:00, 4:00, ...), Db2 Query Monitor intervals are not split. If the performance window starts in the middle of a Db2 Query Monitor interval, for example, 12:30 till 13:30, then the intervals are split to accommodate this. In this situation, the Db2 Query Monitor intervals are split into the following intervals:

• 11:00 - 12:00
Overlapping performance windows and intervals

If there are overlapping performance windows within a Db2 Automation Tool reorganization recommendation job profile, the later performance window is ignored.

Performance windows consist of multiple intervals. For example, when you define a performance window for an Db2 Automation Tool job profile, you might define intervals such as:

- each working day from 12:00 till 13:00
- each working day from 12:30 till 13:30
- each working day from 15:00 till 16:00

In the example above, the second interval overlaps with the first interval (the second interval starts within the first interval). Therefore, the second interval will be ignored by the CAE server; the CAE server will collect performance windows for the first and third intervals:

- each working day from 12:00 till 13:00
- each working day from 15:00 till 16:00

To avoid difficulties verifying intervals, it is recommended that you do not specify complicated Db2 Automation Tool intervals such as the following:

- each Friday from 12:00 till 13:00
- each 31th day of month from 12:30 till 13:00

Complicated intervals, such as those listed above, overlap from time to time and can be problematic when analyzing performance windows for reorganization recommendation.

Reorganization recommendation and the Db2 Query Monitor offload process

If you are using the smarter reorganization recommendation feature and the Db2 Query Monitor offload process simultaneously, you should be aware that any interval splitting associated with reorganization recommendation might affect the intervals that are offloaded.

For example, if you run the offload once a day, and you specify a STARTING_INTERVAL(-1) and ENDING_INTERVAL(-25) with INTERVAL_UNITS(INTERVALS), you might expect to offload one day’s worth of intervals, or 24 intervals. But if reorganization recommendation adds a new interval during the day, there would be 26 intervals in that day. There might also be reasons for having more than 24 intervals in a day such as interval length, restarting the Db2 Query Monitor subsystem, or z/OS commands. Therefore, you should be aware of this when specifying the INTERVAL_UNITS(INTERVALS) parameter for your offload process.

Best practices for smarter reorganization recommendations

Review these best practices before using smarter reorganization recommendation.

Db2 Automation Tool best practices

When specifying a performance window in Db2 Automation Tool, be sure that the performance window you specify includes the time when you expect a workload of interest to run.

To avoid difficulties when verifying Db2 Query Monitor intervals, it is recommended that you do not specify complicated Db2 Automation Tool time periods in the performance window, such as the following:
• Each Friday from 12:00 till 13:00
• Each 31st day of month from 12:30 till 13:00

Complicated time periods, such as those listed above, overlap occasionally and can be problematic for Db2 Query Monitor when analyzing performance windows for reorganization recommendation.

Db2 Query Monitor best practices

We recommend that you set the MaxCollectionWindowLength parameter to be a whole integer multiple of the Db2 Query Monitor interval length (that is defined in CQMPARMS using the INTERVAL parameter). For example, if your INTERVAL parameter is 2 hours, we recommend a MaxCollectionWindowLength setting of 7200000 (2 hours) or 14400000 (4 hours). This ensures the intervals will divide evenly into the performance window. For more information, see “Customizing the maximum collection window length” on page 467.

When using smarter reorganization recommendation, we recommend that you specify INTERVAL_MIDNIGHT(Y) in your Db2 Query Monitor CQMPARMS file to align interval start times to midnight. For more information, see “Query Monitor Subsystem parameters - CQMPARMS” on page 493.

If you plan to use the Db2 Query Monitor offload process concurrently with the smarter reorganization recommendation feature, be sure to use INTERVAL_UNITS(DAYS). If you use INTERVAL_UNITS(INTERVALS), the interval splitting associated with reorganization recommendation processing might result in fewer intervals than expected being offloaded. Using INTERVAL_UNITS(DAYS) ensures all intervals are offloaded regardless of any extra intervals that are split for reorganization recommendation. For more information, see “Db2 offload parameters” on page 476.

Setting up, starting, and using smarter reorganization recommendations

Follow these steps to set up, start, and use reorganization recommendation monitoring.

About this task

A general description of the steps that are required to implement smarter reorganization recommendations follows. These steps assume that you already know how to create Db2 Automation Tool object, utility, exception and job profiles. Additional information is provided in topic links.

Procedure

1. Start the Db2 Query Monitor subsystem. For more information, see “Starting the Query Monitor Subsystem” on page 141.
2. In Db2 Query Monitor, specify the appropriate reorganization recommendation settings, either in a monitoring profile or in the Db2 Query Monitor subsystem parameter file, CQMPARMS. Configure the monitoring profile or CQMPARMS file to collect data about the objects and SQLText associated with the SQL workloads of interest for reorganization recommendation monitoring.
   For more information, see:
   • “Creating a monitoring profile” on page 302 - ISPF client
   • “Creating a monitoring profile” on page 406 - CAE browser client
   • “Query Monitor Subsystem parameters - CQMPARMS” on page 493
3. (Optional) Customize the metrics that Db2 Query Monitor will use for reorganization analysis. Perform this step if you want to change the default metrics that are used for reorganization analysis. For more information, see “Customizing metrics and thresholds” on page 466.
4. (Optional) If you need to ensure that your performance data does not consume too much space, customize the maximum collection window length as needed. For more information, see “Customizing the maximum collection window length” on page 467.
5. Activate the monitoring agent for the Db2 subsystem you want to monitor. You can activate the monitoring agent using the ISPF client or the CAE browser client. For more information, see
“Activating a monitoring agent” on page 287 - ISPF client or “Activating a monitoring agent” on page 415 - CAE browser client.

6. Start the CAE agent on the LPAR where the Db2 Query Monitor subsystem is running. For more information, see “Starting the CAE Agent” on page 141.

7. Start the CAE server. For more information, see “Starting the CAE Server” on page 142.

8. Verify that the CAE agent is connected to the CAE server. For more information, see “Verifying that the CAE Agent and the CAE Server are connected” on page 142.

9. In Db2 Automation Tool, create the required object, utility, and exception profiles. At a minimum, a REORG TABLESPACE must be included in the utility profile and the QUERY MONITOR REORG OVERRIDE exception must be specified in the exception profile. In addition to the REORG OVERRIDE exception, you must select at least one other exception to trigger smarter reorganization recommendations. It is recommended that you choose an exception that evaluates whether the objects in the job profile require reorganization (such as the real-time statistic exception DAYS_SINCE_LAST). For more information about utility profiles, exceptions, and job profiles, see the Db2 Automation Tool V4.3 documentation.

10. In Db2 Automation Tool, create a performance window. For more information, see "Creating and associating performance windows" in the Db2 Automation Tool V4.3 documentation.

11. In Db2 Automation Tool, combine the object, utility and exception profiles into a job profile. When defining the job profile, associate the performance window that you created with this job profile. You can also optionally associate the job profile with a maintenance window.

12. Run the Db2 Automation Tool build. This sets up the initial monitoring.

13. (Optional) Re-run the job profile build on a regular basis (such as weekly) to re-evaluate all reorganization recommendations.

14. (Optional) After you perform a Db2 Automation Tool build for reorganization recommendation, you can use the CAE browser client to view, analyze, and review performance windows that have been captured as potential candidates for reorganization recommendation or to stop reorganization recommendation monitoring. For more information, see “Using the Reorganization Recommendation Monitor” on page 420.

Results
The objects in the object profile are now monitored for smarter reorganization recommendations.

What to do next
On subsequent builds of the same Db2 Automation Tool job profile that requests a reorganization recommendation, review the messages that are returned from the build. The recommendation from Db2 Query Monitor is included in message CQMB662I. Additional CQMB messages may accompany this message that provide information about why a recommendation was or was not made.

If you want to stop reorganization recommendation monitoring for one or more job profiles (before the job profile is configured to end, as specified in the Db2 Automation Tool build), see "Stopping reorganization recommendation monitoring" in the Db2 Automation Tool V4.3 documentation.

Note: You can also stop reorganization recommendation monitoring using the CAE browser client. For more information, see “Using the Reorganization Recommendation Monitor” on page 420.

Customizing metrics and thresholds
You can customize the metrics and thresholds that Db2 Query Monitor uses for reorganization recommendation by specifying the appropriate parameter. Follow the instructions that apply to your installation of the CAE server (on Windows or on USS).

Procedure
1. If your CAE server is installed on windows:
a) In the root folder of your CAE installation directory, open the cqm.server.properties file for editing. If a cqm.server.properties does not exist, create one.

b) Add the com.rocketsoft.nm.qm.reorg.metrics parameter. For information about the com.rocketsoft.nm.qm.reorg.metrics parameter, see “CAE Server properties - cqm.server.properties - Windows” on page 549.

2. If your CAE server is installed on USS:
   a) Edit the CAE server started task (CQMCAESV).
   b) Add the CQM_REORG_METRICS parameter in the STDENV DD. For information about the CQM_REORG_METRICS parameter, see “CAE Server parameters - CQMCAESV - USS” on page 542.

**Customizing the maximum collection window length**

You can customize the maximum collection window length that Db2 Query Monitor uses for reorganization recommendation using the com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength parameter in cqm.server.properties.

**Procedure**

1. Open the cqm.server.properties file that is appropriate for your installation of the CAE server. If a cqm.server.properties does not exist, create one.
   - If your CAE server is installed on Windows, the cqm.server.properties file should be in the root folder of your CAE installation directory.
   - If your CAE server is installed on USS, the cqm.server.properties file should be in the CQM_VAR_HOME directory on USS.
2. Add the com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength parameter with the appropriate value for your reorganization recommendation goals. For information about the com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength parameter, see “CAE Server properties - cqm.server.properties - Windows” on page 549.
3. Save cqm.server.properties.

**Customizing the minimum interval length**

You can customize the minimum interval length that Db2 Query Monitor uses for reorganization recommendation using the com.rocketsoft.nm.qm.reorg.MinIntervalLength parameter in cqm.server.properties.

**Procedure**

1. Open the cqm.server.properties file that is appropriate for your installation of the CAE server. If a cqm.server.properties does not exist, create one.
   - If your CAE server is installed on Windows, the cqm.server.properties file should be in the root folder of your CAE installation directory.
   - If your CAE server is installed on USS, the cqm.server.properties file should be in the CQM_VAR_HOME directory on USS.
2. Add the com.rocketsoft.nm.qm.reorg.MinIntervalLength parameter with the appropriate value for your reorganization recommendation goals. For information about the com.rocketsoft.nm.qm.reorg.MinIntervalLength parameter, see “CAE Server properties - cqm.server.properties - Windows” on page 549.
3. Save cqm.server.properties.
Db2 Query Monitor enables you to load data from its Performance History Files to a set of Db2 tables while maintaining uniqueness of the data across z/OS systems, Db2 subsystems, and Query Monitor Subsystems.

After loading data from Db2 Query Monitor's Performance History Files to Db2 tables, you can then perform SQL queries and create reports. You can use this feature to:

- Offload selected Performance History Files into Db2 tables
- Select intervals for offloading by relative or specific interval or relative day
- Offload ranges of intervals or days
- Select the type of data to be offloaded

Topics:
- “Requirements for the Performance History Database” on page 469
- “Considerations for offloading of more than one interval per run” on page 470
- “About Db2 Query Monitor's Db2 tables” on page 470
- “Static SQL text” on page 474
- “Offload formats” on page 474
- “Components” on page 474
- “Configuring Db2 offload” on page 475
- “Db2 offload parameters” on page 476
- “Offloading data to Db2 tables” on page 487
- “Foreign keys for joining tables” on page 487
- “Compatibility of offloaded data” on page 488
- “Recovery of offload tables” on page 488
- “Performance History Database tables and column descriptions” on page 788
- “Loading data to accelerator tables (accelerator shadow tables or accelerator-only tables)” on page 489

Requirements for the Performance History Database

Verify that your system meets the following requirements before using the Performance History Database.

**DB2 requirements**

Db2 Query Monitor's Performance History Database requires Db2 Version 10 or later.

**Encoding requirements**

The tables in the Performance History Database are designed to be used in JOINs with other Performance History Database tables or with DB2 Catalog tables.

The tables in the Performance History Database do not have a defined codeset. The table spaces in the Performance History Database are defined in EBCDIC with the exception of the three text table spaces, which are defined in UNICODE.

**Note:**

- CQMDDL does not support ASCII encoding.
• The encoding scheme for the three text table spaces must be EBCDIC (not UNICODE) when using IBM Db2 Analytics Accelerator for z/OS.

Conversion services must be in place to convert between EBCDIC (CCSID 0500) and UNICODE (CCSID 1208). You must define a path from the CCSID of the collected SQL text to CCSID 1208. Db2 Query Monitor does not support the changing of encoding schemes in the supplied DDL files.

Other considerations

The TEXT_TIMESTAMP column in SYSTOOLS.CQM_SUMM_TEXT is reserved for internal use only.

Considerations for offloading of more than one interval per run

Db2 Query Monitor's offload process closes the Performance History File at the end of each interval offload. If you offload multiple intervals, Db2 Query Monitor closes the Performance History File and reopens it with extend between each interval.

If you are offloading more than one interval per run, it is recommended that you customize CQM@LDB2 and use a larger secondary quantity or omit the RLSE option.

About Db2 Query Monitor's Db2 tables

This topic describes Db2 Query Monitor's tables.

For a description of the columns in the Performance History Database, see “Performance History Database tables and column descriptions” on page 788.

Uniqueness of offloaded data

To ensure uniqueness of offloaded data for multiple Query Monitor Subsystems or multiple z/OS systems, the following are required:

• SMFID (SMFID)
• Query Monitor Subsystem ID (CQM_SUBSYSTEM)

To ensure uniqueness of offloaded data for a single z/OS system, the following is required:

• Db2 subsystem ID (DB2_SUBSYSTEM)

Db2 Query Monitor uses one interval record for each interval, regardless of the number of Db2 subsystems that are monitored. To ensure uniqueness, the offload program expands the interval record and generates an interval record for each interval by Db2 subsystem. For example, if Db2 Query Monitor monitors three DB2 subsystems during an interval, the offload creates three rows in the interval table even though only one record exists in the Performance History File.

Parent tables have definitions for the following columns:

• SMFID
• CQM_SUBSYSTEM
• DB2_SUBSYSTEM

Child tables lack the following columns:

• DB2_SUBSYSTEM

Table descriptions

SCQMSAMP member CQMINDEX identifies the columns in the child tables that relate them to their parent table.
**CQM_INTERVALS**
The CQM_INTERVALS table defines the start and end times of each interval. The CQM_INTERVALS table is related to all other tables and is at the top of the hierarchy.

The following columns in the CQM_INTERVALS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_VERSION
- CQM_VERSION

The CQM_INTERVALS table is the parent of the following tables:

- CQM_SUMM_METRICS
- CQM_EXCEPTIONS
- CQM_DB2_COMMANDS
- CQM_SQLCODES

**CQM_SUMM_METRICS**
The CQM_SUMM_METRICS table contains metrics collected by Db2 Query Monitor.

The following columns in the CQM_SUMM_METRICS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_SUBSYSTEM
- DB2_VERSION
- METRICS_TOKEN
- OBJECT_TOKEN

The CQM_SUMM_METRICS table is the parent of the CQM_SUMM* tables, which include:

**CQM_SUMM_OBJECTS**
The CQM_SUMM_OBJECTS table contains summary information about objects.

The following columns in the CQM_SUMM_OBJECTS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- METRICS_TOKEN
- DBID
- OBID
- PSID
- OBJECT_CREATOR
- OBJECT_NAME
- OBJECT_TOKEN

**CQM_SUMM_TEXT**
The CQM_SUMM_TEXT table contains summary information about SQL text.
The following columns in the CQM_SUMM_TEXT table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- TEXT_TOKEN

**CQM_EXCEPTIONS**

The CQM_EXCEPTIONS table holds information about exceptions, based on the active monitoring profile.

The following columns in the CQM_EXCEPTIONS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_SUBSYSTEM
- DB2_VERSION
- EXCEPTION_TOKEN

The CQM_EXCEPTIONS table is the parent of the CQM_EXCP* tables, which include:

**CQM_EXCP_CALLS**

The CQM_EXCP_CALLS table contains information about the exceptions statement detail for exceptions.

The following columns in the CQM_EXCP_CALLS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- EXCEPTION_TOKEN

**CQM_EXCP_HOSTV**

The CQM_EXCP_HOSTV table contains information about the host variables for exceptions.

The following columns in the CQM_EXCP_HOSTV table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- EXCEPTION_TOKEN

**CQM_EXCP_OBJS**

The CQM_EXCP_OBJS table contains information about objects for exceptions.

The following columns in the CQM_EXCP_OBJS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- EXCEPTION_TOKEN
CQM_EXCP_TEXT
The CQM_EXCP_TEXT table contains SQL text for exceptions.
The following columns in the CQM_EXCP_TEXT table are used to define a unique index:
  • SMFID
  • CQM_SUBSYSTEM
  • INTERVAL_NUMBER
  • INTERVAL_START
  • TEXT_TOKEN

CQM_DB2_COMMANDS
The CQM_DB2_COMMANDS table contains information about DB2 commands.
The set of values required to define a unique index for the CQM_DB2_COMMANDS table include:
  • SMFID
  • CQM_SUBSYSTEM
  • INTERVAL_NUMBER
  • INTERVAL_START
  • DB2_SUBSYSTEM
  • DB2_VERSION
  • COMMAND_TIMESTAMP
The CQM_DB2_COMMANDS table has no children.

CQM_SQLCODES
The CQM_SQLCODES table contains information about SQLCODES collected for a monitored Db2 subsystem.
The set of values required to define a unique index for the CQM_SQLCODES table include:
  • SMFID
  • CQM_SUBSYSTEM
  • INTERVAL_NUMBER
  • INTERVAL_START
  • DB2_SUBSYSTEM
  • DB2_VERSION
  • SQLCODE
The CQM_SQLCODES table is the parent of the CQM_SQLCODES* tables, which include:

CQM_SQLCODE_DET
The CQM_SQLCODE_DET table contains detailed information about SQLCODES.
The following columns in the CQM_SQLCODE_DET table are used to define a unique index:
  • SMFID
  • CQM_SUBSYSTEM
  • INTERVAL_NUMBER
  • INTERVAL_START
  • DB2_SUBSYSTEM
  • DB2_VERSION
  • SQLCODE

CQM_SQLCODE_TEXT
The CQM_SQLCODE_TEXT table contains information about the SQL text.
The following columns in the CQM_SQLCODE_TEXT table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- TEXT_TOKEN

**Static SQL text**

This topic provides information about how static SQL text is handled by Db2 Query Monitor. Static SQL is not duplicated to the Performance History Files. Static SQL text is stored in the DB2 System Catalog tables and can be retrieved from there with a SQL statement.

**Note:** Static SQL and it's associated metrics are offloaded, but Db2 Query Monitor never gathers the SQL text for the statement itself in any part of it's processing.

**Offload formats**

All data is in DB2 UNLOAD format with the exception of SQL text data except when the target is IBM Db2 Analytics Accelerator for z/OS. The IBM Db2 Analytics Accelerator for z/OS default offload format is LOAD format.

SQL text data is placed in files to be processed by the DSNUTILB program. The files that hold SQL text data are specified in CQM@LDB2 in the TEXTDATA, EXCPTEXT, and SQLCTEXT DD statements.

**Note:** All elapsed times and CPU times (defined in CQMDDL) are off-loaded in decimal format.

**Components**

The DB2 offload feature includes the following sample jobs, DDL, programs and other components.

**Sample DDL and jobs**

**CQMDDL**
SCQMSAMP library member CQMDDL contains the DDL to create the Performance History Database objects to which off-loaded Db2 Query Monitor Performance History Files are loaded.

**CQMDDLST**
Creates the Performance History Database objects for Db2 Query Monitor statement types and descriptions.

**CQMGRTB**
GRANT statements used to grant privileges to authorization IDs that access the DB2 tables used for off-loaded Db2 Query Monitor data.

**CQMCRDB**
DDL to create the CQMTOOLS database.

**CQMDROP**
Drops the CQMTOOLS database. Run this only if you want to re-create the Db2 Query Monitor objects.

**Note:** If you want to drop the CQMTOOLS database, you must uncomment the DROP DATABASE command in this member and comment out all of the DROP TABLESPACE commands. Before dropping the CQMTOOLS database, you should be aware that such action will affect other DB2 tools that use this database. Verify that dropping the CQMTOOLS database will not adversely affect any other DB2 tools at your site that you do not intend to affect by this action.
CQM@LDB2
Runs the CQM@WDB2 (the Db2 Query Monitor data offload program).

The CQM@LDB2 job is provided as an example. You must edited this job to suit your needs. In the example CQM@LDB2 job, the REPLACE STATISTICS parameter, which is passed to the DB2 LOAD utility, is run. You might want to use the RESUME parameter so the data is appended in the tables.

The offload process closes the file at the end of each interval offload. If you offload multiple intervals, the offload process closes the file and reopen it with extend between each interval. If you are offloading more than one interval per run, we recommend that you customize the CQM@LDB2 job with a larger secondary quantity or without the RLSE option.

CQM@LIDA
The IBM Db2 Analytics Accelerator for z/OS offload sample.

Programs

CQM@LSTM
Updates the statement type table. The inputs to the CQM@LSTM program are updated via the PTF maintenance stream as IBM adds additional SQL statement types.

Note: The CQM@LSTM program might have to be run again if IBM adds additional statement types to DB2.

CQM@WDB2
The Db2 Query Monitor data offload program. This program verifies that all ofDb2 Query Monitor's DB2 tables exist in the DB2 catalog with the proper columns names and types. The CQM@LSTM program verifies that the statement type table exists but does not perform verification of the columns within the statement type table. If a space error is encountered on any of the output data sets for the CQM@WDB2 program, a return code will be generated. Data will still be off-loaded for other data types regardless of the out-of-space condition.

Other components

CQMINDEX
Indexes for Db2 Query Monitor tables that is available to you to help optimize performance of the queries you run against the DB2 offload tables. Identifies the relationships between the offload tables and shows the sets of columns that together create unique indexes.

Note: Your site might want to define your tables and run some queries to identify performance optimization needs prior to using this set of indexes. You might want to then edit this member prior to execution to ensure the defined indexes are suited for your requirements.

CQMCOMM
Describes Db2 Query Monitor fields as comments in the DB2 catalog.

CQMLOADP
A DD statement within CQM@LDB2 and CQM@LSTM. The CQMLOADP DD refers to an instream data file that contains the parameters controlling the loading of Db2 Query Monitor data to DB2.

Configuring Db2 offload

Before you load Db2 Query Monitor data to Db2 for the first time, you must perform these configuration steps.

Procedure

1. Define the CQMTOOLS database.

   If your site currently does not have a CQMTOOLS database, tailor and run CQMCRDB if your site currently does not have a CQMTOOLS database. If your site already has a CQMTOOLS database defined, you do not have to tailor and run CQMCRDB.
2. Define the DB2 tables.
   After you have created the CQMTOOLS database (or verified that one already exists), tailor and run the CQMDDL member of the SCQMSAMP library. Follow the instructions provided in the member. Tailor and run SCQMSAMP library member CQMDDLST according to the instructions provided in the member.

3. (Optional) Define the indexes.
   You can optionally define indexes for the tables for optimization purposes. SCQMSAMP library member CQMINDEX provides sample DDL to define the indexes. Edit and run CQMINDEX according to the instructions provided in the member. The SCQMSAMP library member CQMINDEX is provided for informational purposes to give you a general idea of the key fields for each table. However, depending on the types of queries issued against these tables, you might find it necessary to modify these indexes to improve performance. This step can be performed at any time though it might prove resource costly.

4. Rebind the CQM plan.
   Tailor and run CQMBIND from the SCQMSAMP library, following the instructions provided within the member.

5. Grant privileges to authorization IDs.
   Run SCQMSAMP library member CQMGRTB to grant the appropriate privileges to authorization IDs that access Db2 Query Monitor’s Db2 tables.

6. Define the parameters.
   Tailor the parameters in the instream data file referenced by the CQMLOADP DD in SCQMSAMP member CQM@LDB2 as needed to meet your site's requirements. If you make changes to the table names or creator used in CQMDDL, you must also make corresponding changes to the parameters that are input to the CQM@WDB2 and CQM@LSTM programs.

### Db2 offload parameters

The process of loading Db2 Query Monitor data to Db2 uses parameters to define the intervals and data that are to be loaded to DB2 tables as well as whether or not existing data is deleted from Db2 tables prior to loading new data. These parameters are defined in an instream data file referenced by the CQMLOADP DD statement in CQM@LDB2.

**Interval selection**
   Interval selection is controlled by the STARTING_INTERVAL, ENDING_INTERVAL, and INTERVAL_UNITS parameters. These parameters specify the intervals that are to be loaded to Db2 tables.

**Data selection parameters**
   Data selection is controlled by the DATA parameter, which enables you to select specific data types that are to be loaded to Db2 tables, including summary metrics, summary objects, summary SQL text, exceptions, SQLCODEs, and Db2 commands.

**Replacing or retaining existing data in Db2 tables**
   The LOAD parameter controls whether or not existing data is deleted from Db2 tables prior to loading new data.

**Syntax**

When coding the parameters in the instream file referenced by the CQMLOADP DD statement in SCQMSAMP library member CQM@LDB2, note the following:

- Parameters must be coded in uppercase with the exception of the table names and creator names which can be in upper, lower or mixed-case.
- Code one parameter per line. Two or more parameter types cannot exist on the same line. For example the following is not permitted on the same line:

```
TBCREATOR(CQM) EXCEPTIONS_TBNAMES(EXCEPTIONS_001)
```
Data following the parameter specification on a line is treated as a comment. For example, in this line, “Load Resume” is treated as a comment:

```
LOAD(RESUME)   Load Resume
```

Data that exceeds the LRECL of the CQMLOADP DD can be continued on a subsequent line. An LRECL value of 80 requires that parameter data is between columns 1 and 72. All other LRECL values use all available columns.

Comments begin with /* and end with */ and can span multiple lines.

Parameters with multiple subparameters can be continued on subsequent lines. For example:

```
DATA(METRICS, Load Metrics Data
OBJECTS,   Load Object Data
SQLTEXT)   Load SQL Text
```

Parameters

These parameters are supported for the process of loading of Db2 Query Monitor data to Db2:

**CQM_SUBSYSTEM**

(Optional) The source Query Monitor Subsystem from which to offload data. This parameter is only valid for the CQM@WDB2 program. The Query Monitor Subsystem associated with the source Performance History Files does not need to be running to perform the offload. Either a relative interval range or a specific range of intervals can be offloaded. For a relative interval range, the -1 interval is considered to be the last written interval that is contained in the interval data set. If you want to load data from Db2 Query Monitor that is on another LPAR, use the INTERVAL_DSN parameter to specify the interval data set name from the source Query Monitor Subsystem.

Default

DBQM

Syntax

```
CQM_SUBSYSTEM(qmid)
```

qmid

The Query Monitor Subsystem from which you want to offload data.

Example

```
CQM_SUBSYSTEM(QM01)
```

**DATA**

(Optional) Indicates the data types that are to be loaded to Db2 tables.

Default

METRICS,DB2CMDS,SQLCODES,EXCEPTIONS,OBJEC\text{OBJECTS},SQLTEXT,INTERVALS

Syntax

```
DATA(datatype1,datatype2,datatype2...)
```

datatype
den

The data types that are to be loaded to Db2 tables. Data types include:

**METRICS**

Loads data that was unloaded from the METRDATA Performance History File (which contains summary level information related to SQL call execution).

**OBJECTS**

Loads data that was unloaded from the OBJSDATA Performance History File (which contains summary object level data).

**SQLTEXT**

Loads data that was unloaded from the TEXTDATA Performance History File (which contains information about summary level SQL text data).
EXCEPTIONS  
Loads data that was unloaded from the EXCPINDEX and EXCPDATA Performance History File (which contains information related to exception SQL calls, text, SQLCA, and host variables).

SQLCODES  
Loads data that was unloaded from the SQLCDATA Performance History File (which contains information about SQLCODES collected during the course of an interval).

DB2CMDS  
Loads data that was unloaded from the DB2CDATA Performance History File (which contains information about the execution of DB2 commands).

INTERVALS  
Loads data that was unloaded from the INTERVALS Performance History File (which contains information about Db2 Query Monitor’s intervals).

Example  
DATA(METRICS, DB2CMDS, SQLCODES, EXCEPTIONS, OBJECTS, SQLTEXT, INTERVALS)

DB2_COMMANDS_TBNAME  
(Optional) Overrides the default Db2 commands table name. This parameter is valid only for the CQM@WDB2 program.

Default  
CQM_DB2_COMMANDS

Syntax  
DB2_COMMANDS_TBNAME(tbname)

tbname  
The overriding table name for the Db2 commands table.

Example  
DB2_COMMANDS_TBNAME(CQM_DB2_CMD)

DB2_SUBSYSTEM  
(Optional) The target Db2 subsystem to which you want to offload Performance History Files.

If you use the DB2_SUBSYSTEM parameter, you must also specify the INTERVAL_DSN parameter to specify the interval data set name from the source Query Monitor Subsystem.

The Query Monitor Subsystem associated with the source Performance History Files does not need to be running to perform the offload. To perform an offload to an alternate Db2 subsystem on the same LPAR as the Query Monitor Subsystem, only the DB2_SUBSYSTEM parameter is required.

Either relative or a specific range of intervals can be offloaded. For a relative interval range, the -1 interval is consider to be the last written interval that is contained in the interval data set.

Default  
DSN

Syntax  
DB2_SUBSYSTEM(ssid)

ssid  
The Db2 subsystem ID where the Performance History Database is located. The Db2 subsystem ID you specify must be defined in the control data set specified by DB2PARMS.

Example  
DB2_SUBSYSTEM(SS01)

DEBUG  
(Optional) Turns on or off additional debugging. This parameter is for IBM internal use only. It is valid only for the CQM@WDB2 program.

Default  
N
Syntax

DEBUG(Y|N)

Y
Debugging is on.

N
Debugging is off.

Example
DEBUG(Y)

DISALLOW_DUPLICATE_INTERVAL
(Optional) Indicates whether or not to treat a -803 on the interval table as a fatal error and cause the offload to fail.

Default
N

Syntax
DISALLOW_DUPLICATE_INTERVAL(Y|N)

Y
Treats an SQLCODE -803 on the interval table as a fatal error and the offload fails. If you specify DISALLOW_DUPLICATE_INTERVAL(Y), you must delete any partial interval data that might have been loaded in an offload job and failed during an prior offload.

N
(Default) The offload ignores SQLCODE -803 on the interval table since it is assumed that the offload might have failed in a prior attempt.

Example
DISALLOW_DUPLICATE_INTERVAL(Y)

ENDING_INTERVAL
(Optional) The ending point (relative to the current interval, current day, or an absolute interval number) for the data that are to be loaded into Db2 tables.

Default
-1

Range
-99999 to 99999 (except 0)

Syntax
ENDING_INTERVAL(n)

n
Indicates the interval at which you want to stop loading data into Db2 tables.

• Both the STARTING_INTERVAL and ENDING_INERVAL must either be positive or negative, STARTING_INTERVAL and ENDING_INERVAL cannot have different sign.
• Specify negative numbers for relative processing based on the current interval.
• The ENDING_INTERVAL value must be less than or equal to the STARTING_INTERVAL value.

Example - INTERVAL_UNITS(DAYS), STARTING_INTERVAL(-1) ENDING_INTERVAL(-5)

Example - INTERVAL_UNITS(INTERVALS), STARTING_INTERVAL(100), ENDING_INTERVAL(10)

EXCEPTION_CALLS_TBNAME
(Optional) Overrides the default exception call level detail table name. This parameter is valid only for the CQM@WDB2 program.

Default
CQM_EXCP_CALLS
Syntax
EXCEPTION_CALLS_TBNAME(tbname)

**tbname**
The table name for the exception call-level detail table (the table that contains information related to exception SQL calls)

**Example**
EXCEPTION_CALLS_TBNAME(CQM_EXC_CALLS)

**EXCEPTION_HOSTV_TBNAME**
(Optional) Overrides the default exception host variable table name. This parameter is valid only for the CQM@WDB2 program.

**Default**
CQM_EXCP_HOSTV

Syntax
EXCEPTION_HOSTV_TBNAME(tbname)

**tbname**
The overriding table name for the exception host variable table (the table that contains information about host variables for exceptions). The host variable information resides in the EXCPDATA backstore data set.

**Example**
EXCEPTION_HOSTV_TBNAME(CQM_EXC_HOSTV)

**EXCEPTION_OBJS_TBNAME**
(Optional) Overrides the default exception objects table name. This parameter is valid only for the CQM@WDB2 program.

**Default**
CQM_EXCP_OBJS

Syntax
EXCEPTION_OBJS_TBNAME(tbname)

**tbname**
The overriding table name for the exception objects table (the table that contains information about object exceptions).

**Example**
EXCEPTION_OBJS_TBNAME(CQM_EXC_OBJS)

**EXCEPTION_TEXT_TBNAME**
(Optional) Overrides the default exception SQL text table name. This parameter is valid only for the CQM@WDB2 program.

**Default**
CQM_EXCP_TEXT

Syntax
EXCEPTION_TEXT_TBNAME(tbname)

**tbname**
The overriding table name for the exception SQL text table (the table that holds information about exceptional SQL text).

**Example**
EXCEPTION_TEXT_TBNAME(CQM_EXC_TEXT)

**EXCEPTIONS_TBNAME**
(Optional) Overrides the default exception table name. This parameter is valid only for the CQM@WDB2 program.

**Default**
CQM_EXCEPTIONS
Syntax
  EXCEPTIONS_TBNAME(tbname)

  *tbname*
  The overriding table name for the exception table.

Example
  EXCEPTIONS_TBNAME(CQM_EXCPTS)

**IDAA**
(Optional) Offloads data to accelerator tables, Db2 tables, or both. When this parameter is specified, the load file format is changed from UNLOAD to default format.

Default
  None

Syntax
  IDAA(mode,accelerator_name)

  *mode*  
  (Optional) Accelerator loader mode. Valid values for *mode* are:

  - **IDAA ONLY**
    Load into accelerator only.

  - **IDAA_DUAL**
    Load into both Db2 and accelerator.

  *accelerator_name*  
  (Required) The accelerator name.

Example
  IDAA(IDAA_ONLY,ACCEL01)

**INTERVAL_DSN**
(Optional) The interval data set name must be provided. This parameter is valid only for the CQM@WDB2 program. This parameter is required when trying to offload data from a Query Monitor Subsystem that is on a different LPAR than the one where the offload job is submitted or when monitoring is not started. This parameter is not required for normal offloads.

Default
  None

Syntax
  INTERVAL_DSN(interval_data_set_name)

  *interval_data_set_name*  
  The name for the interval data set of the Query Monitor Subsystem to be offloaded.

Example
  INTERVAL_DSN(CQM.INTERVAL)

**INTERVAL_TBNAME**
(Optional) Overrides the default intervals table name. This parameter is valid only for the CQM@WDB2 program.

Default
  CQM_INTERVALS

Syntax
  INTERVALS_TBNAME(tbname)

  *tbname*  
  The overriding table name for the intervals table.

Example
  INTERVALS_TBNAME(CQM_INTV)
**INTERVAL_UNITS**

(Optional) The method by which intervals are selected for offloading. The INTERVAL_UNITS parameter works with the STARTING_INTERVAL and ENDING_INTERVAL parameters to define the method and range of intervals to be offloaded. If you specify INTERVAL_UNIT(DAYS), Db2 Query Monitor only considers the interval start date/time (not the interval end date/time) when determining whether or not the interval is to be included in the offload. Thus, every interval that starts between the computed offload start date and offload end date is offloaded, regardless of when the intervals end.

**Default**

INTERVALS

**Syntax**

INTERVAL_UNITS(INTERVALS|DAYS)

**INTERVALS**

Offload all intervals within the specified range of intervals (defined by the STARTING_INTERVAL and ENDING_INTERVAL parameters).

**DAYS**

Offload all intervals that started within the specified range of days (defined by the STARTING_INTERVAL and ENDING_INTERVAL parameters).

**Example**

If INTERVAL_UNITS(DAYS) is specified with STARTING_INTERVAL(-1) and ENDING_INTERVAL(-1), this causes all intervals that have started between midnight of the previous day and midnight of the day before to be offloaded.

**LOAD**

(Required) Indicates whether or not existing data is deleted from Performance History Database prior to loading new data and whether or not statistics are collected during the Db2 LOAD.

**Default**

REPLACE

**Syntax**

LOAD(REPLACE|RESUME,STATISTICS)

**REPLACE**

Performs the LOADs in REPLACE mode.

**RESUME**

Performs the LOADs in RESUME mode.

**STATISTICS**

The STATISTICS clause is only specified when performing the Db2 LOAD in REPLACE mode. Adds the following load card to the Db2 Load Utility control file:

```
STATISTICS TABLE(ALL) INDEX(ALL)
```

This generates the statistics as described in the *Db2 Utilities Suite for z/OS Utility Guide and Reference* (SC18-7427). Index statistics are collected when any user-defined indexes have been added to the performance history schema.

**Example**

**LOAD(RESUME)**

By specifying LOAD(RESUME), the load cards are built as follows:

```
LOAD INDDN METRDATA FORMAT UNLOAD RESUME YES ENFORCE NO INTO TABLE "x"."yz"
LOG NO
```

The load sets the objects to copy pending, necessitating additional action by the user. NOCOPYPEND should be an accepted option for the LOAD parameter.

**METRICS_TBNAME**

(Optional) Overrides the default summary metrics table name. This parameter is valid only for the CQM@WDB2 program.
Default
CQM_SUMM_METRICS

Syntax
METRICS_TBNAME(tbname)

*tbname*
The overriding table name for the summary metrics table.

Example
METRICS_TBNAME(CQM_SUMM_METRICS)

NO_DATA_RC
(Optional) The user return code that is issued when an empty backstore interval condition occurs.

Default
08

Range
0 - 4095

Syntax
NO_DATA_RC(rc)

*rc*
The return code that is to be issued when an empty backstore interval condition occurs.

Example
NO_DATA_RC(12)

OBJECTS_TBNAME
(Optional) Overrides the default summary object table name. This parameter is valid only for the CQM@WDB2 program.

Default
CQM_SUMM_OBJECTS

Syntax
OBJECTS_TBNAME(tbname)

*tbname*
The overriding table name for the summary object table.

Example
OBJECTS_TBNAME(CQM_SUM_OBJS)

SQLCODE_DETAIL_TBNAME
(Optional) Overrides the default summary SQLCODE detail table name. This parameter is valid only for the CQM@WDB2 program.

Default
CQM_SQLCODE_DET

Syntax
SQLCODE_DETAIL_TBNAME(tbname)

*tbname*
The overriding table name for the summary SQLCODE table.

Example
SQLCODE_DETAIL_TBNAME(CQM_SQLC_DET)

SQLCODE_TEXT_TBNAME
(Optional) Overrides the default SQLCODE SQL text table name. This parameter is valid only for the CQM@WDB2 program.

Default
CQM_SQLCODE_TEXT

Syntax
SQLCODE_TEXT_TBNAME(tbname)
**tbname**

The overriding table name for the summary SQLCODE SQL text table.

**Example**

```
SQLCODE_TEXT_TBNAME(CQM_SQLC_TEXT)
```

**SQLCODES_TBNAME**

(Optional) Overrides the default summary SQLCODE table name. This parameter is valid only for the CQM@WDB2 program.

**Default**

CQM_SQLCODES

**Syntax**

```
SQLCODES_TBNAME(tbname)
```

**tbname**

The overriding table name for the summary SQLCODE SQL text table.

**Example**

```
SQLCODES_TBNAME(CQM_SQLC)
```

**SQLTEXT_TBNAME**

(Optional) Overrides the default summary SQL text table name. This parameter is valid only for the CQM@WDB2 program.

**Default**

CQM_SUMM_TEXT

**Syntax**

```
SQLTEXT_TBNAME(tbname)
```

**tbname**

The overriding table name for the summary SQL text table.

**Example**

```
SQLTEXT_TBNAME(CQM_SUMM_TXT)
```

**STARTING_INTERVAL**

(Optional) The starting point (relative to the current interval, current day, or an absolute interval number) for the data that are to be loaded into Db2 tables.

**Default**

-1

**Range**

-99999 to 99999 (except 0)

**Syntax**

```
STARTING_INTERVAL(n)
```

**n**

Indicates either the interval at which you want to start loading data into Db2 tables.

- Both the STARTING_INTERVAL and ENDING_INTERVAL must either be positive or negative, STARTING_INTERVAL and ENDING_INTERVAL cannot have different sign.
- Specify negative numbers for relative processing based on the current interval.
- The ENDING_INTERVAL value must be less than or equal to the STARTING_INTERVAL value.

**Example** - INTERVAL_UNITS(DAYS), ENDING_INTERVAL(-5)

```
STARTING_INTERVAL(-2)
```

**Example** - INTERVAL_UNITS(INTERVALS), ENDING_INTERVAL(10)

```
STARTING_INTERVAL(100)
```

**STATEMENT_TYPE_TBNAME**

(Optional) Overrides the default statement types table name. This parameter is valid only for the CQM@LSTM program.
**Syntax**

STATEMENT_TYPE_TBNAME(tbname)

*tbname*
The overriding table name for the statement types table.

**Example**

STATEMENT_TYPE_TBNAME(CQM_STMT_TYP)

**TBCREATOR**

(Optional) Overrides the default schema for the Db2 tables.

**Syntax**

TBCREATOR(creator)

*creator*
The 1 to 8 character schema name.

**Example**

TBCREATOR(SYST)

**Required DDNAMEs**

The following are required DDNAMEs.

**CQM@WDB2**

**CQMLOADP**

Input parameters to CQM@WDB2 program.

**CQMERROR DD**

This DD statement is required when the following error message is produced in the output of the offload job:

CQM2604E VSAM LOGIC ERROR VSAMRC=X'08' VSAMRS=X'002C' CQM#IVSM(***)

The offload writes the message SQL text not available to the CQMERROR file instead of issuing the following messages to the offload job log:

- CQM1153E RETURN CODE reason_code REASON CODE reason_code WAS ENCOUNTERED DURING TRANSLATION SOURCE CCSID ccsid TARGET CCSID ccsid INCORRECT DATA LOCATED IN DDNAME=CQMERROR
- CQM2604E VSAM LOGIC ERROR VSAMRC=X'08' VSAMRS=X'002C' CQM#IVSM(***)
- Other instances of message CQM2604E might be present. For example, CQM2604E VSAM LOGIC ERROR VSAMRC=X'08' VSAMRS=X'0010' CQM#IVSM(nnnnn)

If there are errors when unloading data from the interval VSAM data sets and the file CQMERROR is not empty, the return code 4 will be set. If the problem is in translation, the corresponding field is set to "N/A" in the output record and you must decide whether or not to load data with errors to the Performance History Files.

If data corruption occurs during offload, the preparation step finishes with return code 4, which prevents the calling of DSNUTIL. If the error is a field translation error, the resulting data set contains the value “N/A” for the problematic field.

Review the resulting data set manually based on the error file. Decide whether the data is acceptable for loading to Performance History Files. If the data is acceptable, restart the offload job from the step for DSNUTILB. You can automatically load all records without any manual steps by locating the step for DSNUTILB and changing:
COND=(0,NE)
to:
COND=(4,GT)
If you change COND=(0,NE) to COND=(4,GT), the loaded data might contain unexpected results.

When there is message to be written and the CQMERROR DD statement is not specified in the JCL, the offload sets the RC=04 and issues the following message:
CQM1006E CQMERROR DD STATEMENT MISSING

**DB2PARMS**
Db2 connection information. STEPLIB data, plan names. Supports connection to Db2 by the CQM@WDB2 program.

**INTVDATA**
Required only if DATA(INTERVALS) is specified in CQMLOADP, input to Db2 LOAD utility program.

**METRDATA**
Required only if DATA(METRICS) is specified in CQMLOADP, input to Db2 LOAD utility program.

**OBJSDATA**
Required only if DATA(OBJECTS) is specified in CQMLOADP, input to Db2 LOAD utility program.

**TEXTDATA**
Required only if DATA(SQLTEXT) is specified in CQMLOADP, input to Db2 LOAD utility program. Used to offload into accelerator tables (AOTs, accelerator-shadow).

**EXCPINDX**
Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to Db2 LOAD utility program.

**EXCPCALL**
Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to Db2 LOAD utility program.

**EXCPHSTV**
Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to Db2 LOAD utility program.

**EXCPOBJS**
Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to Db2 LOAD utility program.

**EXCPTEXT**
Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to Db2 LOAD utility program. Used to offload into accelerator tables (AOTs, accelerator-shadow).

**DB2CDATA**
Required only if DATA(DB2CMDS) is specified in CQMLOADP, input to Db2 LOAD utility program.

**SQLCDATA**
Required only if DATA(SQLCODES) is specified in CQMLOADP, input to Db2 LOAD utility program.

**SQLDDATA**
Required only if DATA(SQLCODES) is specified in CQMLOADP, input to Db2 LOAD utility program.

**SQLCTEXT**
Required only if DATA(SQLCODES) is specified in CQMLOADP, input to Db2 LOAD utility program. Used to offload into accelerator tables (AOTs, accelerator-shadow).

**LOADCARD**
Generated load cards for input to Db2 LOAD utility.

**SQLCCLOB**
Required only if DATA(SQLCODES) is specified in CQMLOADP, input to Db2 LOAD utility program. Used to offload into Db2 tables.
Offloading data to Db2 tables

Follow these steps to offload data from the Db2 Query Monitor Performance History Database and load it into Db2 tables.

Procedure

1. Load the statement type table.
   
   **Note:** This step only needs to be performed when loading Db2 Query Monitor data to Db2 for the first time or when SQL statement types have been added or removed. If you are loading Db2 Query Monitor data to Db2 for the first time or SQL statement types must be added to or removed from the statement type table (CQM_STMT_TYPES), you must tailor and run SCQMSAMP library member CQM@LSTM according to the instructions provided in the member.

2. Load the Db2 tables.
   
   a) Tailor SCQMSAMP library member CQM@LDB2 according to the instructions provided within the member.
   
   b) Run CQM@LDB2.

3. (Optional) Add table and column comments describing the Performance History Database into the system catalog. Tailor and run SCQMSAMP library member CQMCOMM according to the instructions provided in the member.

Foreign keys for joining tables

The following foreign keys should be used when joining tables.

When performing joins of the CQM_SUMM_METRICS and CQM_SUMM_TEXT tables, the primary keys for those tables are TEXT_TOKEN and TEXT_TOKEN respectively.

**Note:** The TEXT_TIMESTAMP column in CQM_SUMM_TEXT is reserved for internal use only.

```
--SELECT COUNT(*) FROM SYSTOOLS.CQM_SUMM_METRICS A,
 --     SYSTOOLS.CQM_SUMM_TEXT B
 --WHERE A.TEXT_TOKEN = B.TEXT_TOKEN ;
```

When performing joins of the CQM_EXCEPTIONS and CQM_EXCP_TEXT tables, the primary keys for those tables are EXCEPTION_TIMESTAMP and TEXT_TIMESTAMP respectively:

```
--SELECT COUNT(*) FROM SYSTOOLS.CQM_EXCEPTIONS A,
 --     SYSTOOLS.CQM_EXCP_TEXT B
 --WHERE A.EXCEPTION_TIMESTAMP = B.TEXT_TIMESTAMP;
```
CQM_SQLCODE_DET and CQM_SQLCODE_TEXT are joined with the SQLCODE_TIMESTAMP in the detail table and the TEXT_TIMESTAMP in the SQLCODE text table if the text token is not 0 (indicating dynamic text). If the text token is 0 (indicating static text), you can retrieve the text from the DB2 Catalog as follows:

```
--SELECT TEXT, SEQNO
-- FROM SYSIBM.SYSPACKSTMT
-- WHERE NAME = program
-- AND PLNAME = plan
-- AND SECTNO = section number
-- AND STMTNO = statement number;
```

**Note:**

1. The lower case values can be extracted from the exceptions table or the SQLCODE detail table.
2. If the text token is all X'FF', then OPTKEYS TEXT is not specified and Db2 Query Monitor will not store the dynamic text.

When performing joins of the CQM_EXCP_HOSTV and CQM_EXCEPTIONS tables, the primary keys for those tables are EXCEPTION_TOKEN and EXCEPTION_TOKEN respectively:

```
--SELECT COUNT(*) FROM SYSTOOLS.CQM_EXCP_HOSTV A,
--     SYSTOOLS.CQM_EXCEPTIONS B
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

When performing joins of the CQM_EXCP_CALLS and CQM_EXCEPTIONS tables, the primary keys for those tables are EXCEPTION_TOKEN and EXCEPTION_TOKEN respectively:

```
--SELECT * FROM SYSTOOLS.CQM_EXCP_CALLS A,
--     SYSTOOLS.CQM_EXCEPTIONS B
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

When performing joins of the CQM_EXCP_OBJS and CQM_EXCEPTIONS tables, the primary keys for those tables are EXCEPTION_TOKEN and EXCEPTION_TOKEN respectively:

```
--SELECT * FROM SYSTOOLS.CQM_EXCP_OBJS A,
--     SYSTOOLS.CQM_EXCEPTIONS B
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

When performing joins of the CQM_SUMM_METRICS and CQM_SUMM_OBJECTS tables, the primary keys for those tables are METRICS_TOKEN and METRICS_TOKEN respectively:

```
--SELECT * FROM SYSTOOLS.CQM_SUMM_METRICS A,
--     SYSTOOLS.CQM_SUMM_OBJECTS B
--WHERE A.METRICS_TOKEN = B.METRICS_TOKEN;
```

**Compatibility of offloaded data**

Db2 Query Monitor’s Performance History Database table CQM_EXCEPTIONS includes a column, CLIENT_ENDUSER, that is a 128-byte field that enables the data offloaded in that column (from Db2 Query Monitor) to be easily joined with data in IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS tables.

**Recovery of offload tables**

The Db2 Query Monitor Performance History Database uses standard SQL tables and should be recovered using your site’s standard recovery procedures.
You can load Db2 Query Monitor activity to IBM Db2 Analytics Accelerator for z/OS in order to bypass Db2, reduce cost, and reduce the time that is required to make data available.

**Requirements**

- IBM Db2 Analytics Accelerator for z/OS V4.1 PTF2 or V5.1
- IBM Db2 Analytics Accelerator for z/OS Loader V2.1
- Db2 APAR AI59910

**Limitations**

- Accelerator tables do not support the ALTER COLUMN clause. If columns are added to offload tables, new accelerator tables must be created.
- Batch reporting is not available for accelerator offload tables.

**Terminology**

**AOT tables and database**

Accelerator-only tables (AOTs) are tables that do not originate from Db2 base tables. Their data exists on the accelerator only. Queries and Data Manipulation Language (DML) statements against accelerator-only tables are always routed to the accelerator.

**Accelerator shadow tables and database**

An accelerator-shadow table is a table on the accelerator that is a copy of a Db2 table. The accelerator-shadow table contains all or a subset of the Db2 table columns. For example, columns with column types that are not supported by accelerator are omitted. After the table is defined on the accelerator, you can load data into that table by copying data from the original Db2 table to the corresponding table on the accelerator.

**Loading data to accelerator tables (accelerator shadow tables or accelerator-only tables)**

Follow these steps to load new data to new accelerator tables and leave old data in Db2 tables.

**Procedure**

1. **Create a performance history database that is compatible with accelerator.**
   Customize and run SCQMSAMP library member CQMIDAA according to the instructions in the member. CQMIDAA is an ISPF edit macro that is used to modify the CQMDDL member created by Tools Customizer, to make the DDL compatible with the accelerator.
   a) Copy SCQMSAMP library member CQMIDAA to a library included in the SYSPROC DD statement of your TSO user logon proc.
   b) Copy CQMDDL (either the CQMDDL member from SCQMSAMP or the CQMDDL member created by Tools Customizer) to a library where you plan to keep your customized DDL (the DDL you plan to use to create the new CQM DB2 tables).
   c) Edit your copy of CQMDDL.
   d) Invoke the CQMIDAA edit macro while editing the CQMDDL member.
   e) Execute the DDL using an appropriate SQL processing program (SPUFI, DSNTEP2, etc.).
2. Load your data to the performance history database and accelerator.

   **Note:** The first time the database is loaded, the accelerator tables are created automatically.

Customize and run SCQMSAMP library member CQM@LIDA as per the instructions in the member. This member replaces the CQM@LDB2 member generated by Tools Customizer. The first execution should use LOAD REPLACE. Subsequent load jobs use LOAD RESUME.

**SCQMSAMP members for loading data to accelerator tables**

The following SCQMSAMP members are utility jobs or scripts that perform accelerator operations in batch. These members are not created in Tools Customizer.

- **CQMIADD**
  A REXX program to define accelerator shadow tables. Before running CQMIADD, you must first have an existing Db2 table. This REXX program is used by the CQMIDAD1 and CQMIDAM1 scripts.

- **CQMIDAA**
  Modifies the Performance History Database to make it compatible with IBM Db2 Analytics Accelerator for z/OS.
  - When executed **without parameters**, the CQMIDAA DDL creates **accelerator shadow tables**.
  - When executed **with parameters**, the CQMIDAA DDL creates **accelerator-only tables**.

  To define accelerator-only tables, the macro requires the database name and Analytics Accelerator name.

  The edit macro modifies the Performance History Database in the following ways:
  - Removes all WITH DEFAULT clauses
  - Converts SQL statement text tables CQM_SUMM_TEXT, CQM_EXCP_TEXT, and CQM_SQLCODE_TEXT tables to the EBCDIC encoding
  - Changes the SQLTEXT column to VARCHAR(32000)
  - Changes the ROW_ID column to SMALLINT
  - Changes the buffer pool for the CQMMT1, CQMET1, and CQMST1 table spaces to BP32K
  - For accelerator-only tables, removes all CREATE TABLESPACE statements and add the IN ACCELERATOR clause to all tables

  The EBCDIC code page does not support all characters available in the Unicode code page. The conversion of the Unicode SQL Statement text collected from Db2 to EBCDIC might result in data loss. Dynamic SQL texts that are more than 32K are truncated if you load using the accelerator.

- **CQMIDAAL**
  Loads data from the Db2 Query Monitor V3.3 Performance History Database to the Db2 Query Monitor V3.3 accelerator shadow tables.

  **Note:** When migrating from V3.2 accelerator shadow tables to V3.3 accelerator shadow tables, run CQMMIDAA before you run CQMIDAAL.

- **CQMIDAD1**
  Drops accelerator shadow tables and database. Can be used any time you want to drop accelerator objects.

- **CQMIDAD2**
  Drops accelerator only tables and database. Can be used any time you want to drop accelerator only objects.

- **CQMIDAM1**
  Moves data from old accelerator schema to new accelerator schema (accelerator shadow or accelerator-only tables) as long as the number and sequence of columns in old and new are the same.

  Before running CQMIDAM1, make sure the new target database (#DBNEW#) and offload tables have been created using CQMDDL.
• If the target tables are accelerator-only tables, submit only the first step.
• If the target tables are accelerator shadow tables, submit the entire job. In this case, new accelerator shadow tables are loaded in ONLY mode (only accelerator tables are populated, Db2 tables remain empty).
• This job does not drop old tables. If you want to drop old tables and they are Db2 / accelerator-shadow tables, then use CQMIDAD1. If the tables are accelerator-only tables, use CQMIDAD2.

**CQMIDAM2**

Moves offloaded data from Db2 to accelerator.

**CQMIDEL**

A REXX program to drop accelerator shadow tables. This REXX program is used by the CQMIDAD1 and CQMIDAM1 scripts.

**CQMIENBL**

A REXX program to enable query acceleration for the accelerator shadow table by changing its state. This REXX program is used by the CQMIDAD1 and CQMIDAM1 scripts.

**CQMLDTAS**

A REXX program to load data from the source tables in Db2 into the corresponding accelerator shadow tables.

**CQMMIDAA**

Migrates data from Db2 Query Monitor V3.2 accelerator-only tables to Db2 Query Monitor V3.3 accelerator-only tables. When you run CQMMIDAA and then CQMIDAAL, migrates data from Db2 Query Monitor V3.2 accelerator shadow tables to Db2 Query Monitor V3.3 accelerator shadow tables.

**Note:** Before submitting CQMMIDAA, make sure that the V3.3 offload Db2 tables are empty.

---

**IBM Db2 Analytics Accelerator migration pathways**

The following IBM Db2 Analytics Accelerator migration pathways are supported for migrating data from V3.2 to V3.3.

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Scripts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V3.2 accelerator shadow tables</td>
<td>V3.3 accelerator shadow tables</td>
<td>CQMMIDAA, CQMIDAAL</td>
<td>You are upgrading from V3.2 to V3.3 and have offloaded your V3.2 data to accelerator. You want to offload to V3.3 accelerator tables and migrate your V3.2 accelerator data to V3.3.</td>
</tr>
<tr>
<td>V3.2 AOT</td>
<td>V3.3 AOT</td>
<td>CQMMIDAA</td>
<td>You are upgrading from V3.2 to V3.3 and have offloaded your V3.2 data to accelerator. You want to offload to V3.3 accelerator tables and migrate your V3.2 accelerator data to V3.3.</td>
</tr>
<tr>
<td>From</td>
<td>To</td>
<td>Scripts</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>----</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>Analytics Accelerator shadow tables with INTEGER columns (created Analytics Accelerator tables before PI83232)</td>
<td>Analytics Accelerator shadow tables with BIGINT columns (PI83232)</td>
<td>CQMIDAM1</td>
<td>Required after applying PI83232, if you have offloaded to accelerator before this enhancement.</td>
</tr>
<tr>
<td>Existing Db2 offload tables</td>
<td>Analytics Accelerator shadow tables</td>
<td>CQMIDAM2</td>
<td>Required if you intend to offload to Analytics Accelerator and want your old Db2 data to be migrated to Analytics Accelerator too.</td>
</tr>
</tbody>
</table>
Chapter 27. Db2 Query Monitor parameters

Db2 Query Monitor uses the parameters described in this section to control the behavior of the mainframe and CAE components.

Topics:
- “Query Monitor Subsystem parameters - CQMPARMS” on page 493
- “CAE Agent parameters - CQMCPARMS” on page 538
- “CAE Server parameters - CQMCAESV - USS” on page 542
- “CAE Server properties - cqm.server.properties - Windows” on page 549

Query Monitor Subsystem parameters - CQMPARMS

The CQMPARMS file contains the parameters that control the behavior of the Query Monitor Subsystem.

You must use a unique CQMPARMS file for each Query Monitor Subsystem. CQMPARMS must be a 80-byte sequential or partitioned data set that you allocate to the CQMPARMS DD.

The Db2 Query Monitor parameters file can be created either using TCz or by customizing SAMPLIB member CQMPARMS.

The parameters defined in CQMPARMS specify the Query Monitor Subsystem name, the monitored Db2 subsystems, the length of the recording interval, and other characteristics that control how Db2 Query Monitor functions.

ADETECT_ENABLED
Instructs Db2 Query Monitor whether or not to collect anomaly detection data.

Default value
N

Syntax
ADETECT_ENABLED(Y/N)

Example
ADETECT_ENABLED(Y)

ADETECT_MEMORY_LIMIT
Specifies the number of megabytes available for Db2 Query Monitor’s anomaly detection process.

Default value
2048

Range
512 - 32768

Syntax
ADETECT_MEMORY_LIMIT(n)

Example
ADETECT_MEMORY_LIMIT(1024)

ADETECT_MEMORY_PERSIST
Instructs Db2 Query Monitor whether or not to retain the memory for anomaly detection across restarts of the Db2 Query Monitor task. The memory will not persist across an IPL.

Default value
N

Syntax
ADETECT_MEMORY_PERSIST(Y/N)
ADETECT_MEMORY_PERSIST(Y)

ADETECT_MIN_COUNT_FOR_ANOMALY
Specifies the number of SQL statements to be seen for a given workload prior to Db2 Query Monitor detecting anomaly exceptions or alerts for the workload.

Default value
100

Syntax
ADETECT_MIN_COUNT_FOR_ANOMALY(n)

Range
1 - 9999999

Example
ADETECT_MIN_COUNT_FOR_ANOMALY(1000)

ALERT_LIMIT
(Optional) The maximum number of alerts that can be queued for the CAE Agent alert processor. When the alert limit has been reached, no more alerts are queued and all subsequent alerts are discarded.

The alert system is not designed to be a high-volume system. An alert is a condition that requires short-term attention. Alert criteria should not generate more than 3 alerts per second, at peak. As you increase the value specified for the ALERT_LIMIT parameter, the Query Monitor Subsystem requires greater amounts of storage for the additional alert data retained. The CAE Agent alert processor drains the queue of alerts at a rate of once every 5000 milliseconds. If you need to alter this rate, please contact IBM Software Support.

Default value
10

Syntax
ALERT_LIMIT(n)

n
The number of alerts that are to be queued for the alert processor.

Range
1 - 99999

Example
ALERT_LIMIT(350)

ALERT_OBJECTS_PER_ALERT
(Optional) The maximum number of objects per alert that are collected. This parameter enables you to control the amount of storage that is used when collecting alerts. Under most circumstances, the default value is appropriate. However, if your workloads average more than 8 objects per alert, this parameter can be adjusted to allow for that behavior.

Default
8

Syntax
ALERT_OBJECTS_PER_ALERT(nnnnn)

nnnnn
The maximum number of objects per alert that are collected.

Range
1 - 99999

Example
ALERT_OBJECTS_PER_ALERT(10)
**ALERT_HOSTV_PER_ALERT**
(Optional) The maximum number of host variables per alert that are collected. This parameter enables you to controls the amount of storage that is used when collecting alerts. Under normal circumstances, the default value is appropriate. However, if your workloads average more than 16 host variables per alert, then this parameter can be adjusted to allow for that behavior.

**Default**
16

**Syntax**
```
ALERT_HOSTV_PER_ALERT(nn
```

**nnnn**
The maximum number of host variables per alert that are collected.

**Range**
1 - 99999

**Example**
```
ALERT_HOSTV_PER_ALERT(18)
```

**AUTHID**
(Optional) The Db2 AUTHID that is used to establish a connection to Db2 during interval processing.

**Default**
Defaults to the user ID under which the started task will run.

**Syntax**
```
AUTHID(db2authid)
```

**db2authid**
The Db2 AUTHID that Db2 Query Monitor uses when establishing a connection to Db2 during interval processing.

**Note:**
- If you are using RACF on your Db2 system, the AUTHID must be defined to RACF.
- The specified AUTHID must be authorized by the resident security package, such as RACF, to perform the functions needed for all processes run by the Query Monitor Subsystem. These processes include connecting to each of the monitored Db2 subsystems and performing file update activities using the Db2 Query Monitor VSAM control file.
- The specified AUTHID must be a valid TSO user ID and not a RACF group name.
- Do not specify an AUTHID for this parameter that is defined in the RACF Started Procedures Table (ICHRIN03). The Started Procedures Table (ICHRIN03) associates the names of started procedures with specific RACF user IDs and group names.
- The specified AUTHID can contain a generic entry that assigns a user ID or group name to any started task that does not have a matching entry in the table. However, it is recommended that you use the STARTED class instead of the started procedures table.

**Example**
```
AUTHID(DB2USER)
```

**CATALOG_OBJECTS**
(Optional) Controls whether or not object statistics are collected for catalog objects. This parameter, when set to N, enables you to reduce dataspace storage consumption resulting from dynamic SQL prepare calls.

**Default**
Y

**Syntax**
```
CATALOG_OBJECTS(Y|N)
```

**Y**
( Default) Db2 Query Monitor collects object statistics for catalog objects.
Db2 Query Monitor does not collect statistics for catalog objects. This option enables you to reduce dataspace storage consumption resulting from dynamic SQL prepare calls.

Example

`CATALOG_OBJECTS(N)`

**COLLECT_DYNAMIC_SQL**
(Optional) Indicates whether or not statistics for dynamic SQL statements are collected by Db2 Query Monitor.

**Default**

Y

**Syntax**

`COLLECT_DYNAMIC_SQL(Y|N)`

Y

(Default) Db2 Query Monitor collects statistics for dynamic SQL statements.

N

Db2 Query Monitor does not collect statistics for dynamic SQL statements.

Example

`COLLECT_DYNAMIC_SQL(N)`

**COLLECT_STATIC_SQL**
(Optional) Indicates whether or not statistics for static SQL statements are collected by Db2 Query Monitor.

**Default**

Y

**Syntax**

`COLLECT_STATIC_SQL(Y|N)`

Y

(Default) Db2 Query Monitor collects statistics for static SQL statements.

N

Db2 Query Monitor does not collect statistics for static SQL statements.

Example

`COLLECT_STATIC_SQL(N)`

**CORRID_TRANSLATION**
(Optional) Specifies how the CORRNAME and CORRNUM values are parsed from the CORRID.

The following specifications are supported:

- Multiple specifications are allowed to specify translation for the different connection types.
- Multiple specifications for the same Db2 SSID and connection type will use the last specification.
- DEFAULT connection type will be used for translation of all unspecified connection types.

When OPTKEYS(CORRID) is specified both the CORRNAME and CORRNUM translations are performed. When OPTKEYS(CORRNAME) is specified only the CORRNAME translation is performed.

OMEGAMON uses the Db2 trace record DSNDQWHC to obtain the connection name (QWHCCN) to determine how to parse the correlation ID (QWHCCV).

**Default**

Refer to OMEGAMON documentation for the default parsing.

**Syntax**

`CORRID_TRANSLATION(db2_ssid, conntype_name, corrname_offset, corrname_length, corrnun_offset, corrnun_length)`

`db2_ssid`

The Db2 subsystem ID.
**conntype_name**
The connection type. If a connection type is not specified, the default translation is used. Must be one of the following: TSO, DB2CALL, DB2PRIVATE, RRSAF, CICS, IMS, DRDA, UTILITY, DEFAULT

**corrname_offset**
The CORRNAME offset. Valid values are between 01 and 12. Note that valid values less than 10 require a leading zero. The number of characters starting from **corrname_offset** summed with the **corrname_length** must not exceed 12. For example, if **corrname_length**=08 and **corrname_offset**=05, then bytes 05,06,07,08,09,10,11,12 are selected and this is valid (it is under 12 bytes).

**corrname_length**
The CORRNAME length. Valid values are between 01 and 08. Note that valid values less than 10 require a leading zero. The number of characters starting from **corrname_offset** summed with the **corrname_length** must not exceed 12. For example, if **corrname_length**=08 and **corrname_offset**=05, then bytes 05,06,07,08,09,10,11,12 are selected and this is valid (it is under 12 bytes).

**corrnum_offset**
The CORRNUM offset. Valid values are between 01 and 12. Note that valid values less than 10 require a leading zero. The number of characters starting from **corrnum_offset** summed with the **corrnum_length** must not exceed 12. For example, if **corrnum_length**=08 and **corrnum_offset**=05, then bytes 05,06,07,08,09,10,11,12 are selected and this is valid (it is under 12 bytes).

**corrnum_length**
The CORRNUM length. Valid values are between 01 and 08. Note that valid values less than 10 require a leading zero. The number of characters starting from **corrnum_offset** summed with the **corrnum_length** must not exceed 12. For example, if **corrnum_length**=08 and **corrnum_offset**=05, then bytes 05,06,07,08,09,10,11,12 are selected and this is valid (it is under 12 bytes).

**Example**
This example specifies the default translation:

```
CORRID_TRANSLATION(DSN,TSO,01,08,08,04,DB2CALL,01,08,08,04,
CICS,04,04,01,04,IMS,04,08,01,04,RRSAF,01,08,08,04)
```

**DATACLAS**
(Optional) The SMS data class that is used for allocation of the Performance History Files. This startup parameter might be overridden by the data class specifications for the individual Performance History Files.

**Note:** The Performance History Files must be defined with VSAM SHAREOPTIONS(3,3) to avoid the overhead of SHAREOPTIONS(2,x).

**Default**
Null

**Syntax**
DATACLAS(dataclass)

**dataclass**
The SMS data class used for the allocation of the Performance History Files.

**Example**
DATACLAS(VSHAR33)

**DATASET_FULL**
(Optional) Controls what to do when a Performance History File cannot be extended.

**Default**
IGNORE
Syntax

DATASET_FULL(IGNORE|ABORT)

IGNORE
(Default) Db2 Query Monitor ignores the error and records no further data to the failing Performance History File until the next interval.

ABORT
Db2 Query Monitor aborts when the Performance History File cannot be extended.

Example

DATASET_FULL(ABORT)

DB2_SQLCODE_DUPLICATES

(Optional) Limits the number of unique SQLCODE detail records that Db2 Query Monitor collects and reports for a Db2 subsystem. After the first \( n \) unique occurrences of any SQLCODE are collected and reported, no additional detail records are collected for the Db2 subsystem until either the end of the interval or the end of the window, defined by the DB2_SQLCODE_DUPLICATES_TIME parameter.

Note: The MAX_SQLCODES and MAX_SQLCODE_DETAIL parameters affect the collection of events by defining the maximum number of SQLCODES and DETAIL records that can be collected during the interval.

Default

0

Range

Integers in the range 0 - 99999

Syntax

DB2_SQLCODE_DUPLICATES(\( n \))

\( n \)
Collects and reports the first \( n \) occurrences of a unique SQLCODE detail record.

Example

DB2_SQLCODE_DUPLICATES(200)
Reports the first 200 occurrences of a unique SQLCODE detail record.

DB2_SQLCODE_DUPLICATES_TIME

(Optional) Specifies the time in minutes after which Db2 Query Monitor can resume SQLCODE collection (which is suspended when the DB2_SQLCODE_DUPLICATES limit is reached) for a Db2 subsystem. After the DB2_SQLCODE_DUPLICATES_TIME is reached, SQLCODE collection resumes when the next SQLCODE is encountered.

Default

0

Range

Integers in the range 0 - 99999

Syntax

DB2_SQLCODE_DUPLICATES_TIME(\( n \))

\( n \)
The number of minutes after which Db2 Query Monitor resumes SQLCODE collection for a Db2 subsystem.

Example

DB2_SQLCODE_DUPLICATES_TIME(60)
Db2 Query Monitor resumes SQLCODE collection again for a Db2 subsystem after 60 minutes has passed and the next SQLCODE has been encountered.

DB2CDATA_DATACLAS

(Optional) The SMS data class that is used for the allocation of the DB2CDATA Performance History File.
**Default**

If no value is specified for DB2CDATA_DATACLASS and a value has been specified for the DATACLASS parameter, DB2CDATA_DATACLASS defaults to the data class defined by the DATACLASS parameter.

**Syntax**

```
DB2CDATA_DATACLASS(dataclass)
```

**dataclass**

The SMS management class that is used for the allocation of the DB2CDATA Performance History Files.

**Example**

```
DB2CDATA_DATACLASS(DATACLAS)
```

**DB2CDATA_DSN**

(Required) The data set name that is used for the DB2CDATA Performance History File. The specified data set name can contain valid system symbols as well as the symbol &INTV (the &INTV symbolic resolves to the current interval number).

**Note:**

1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the DB2CDATA_DSN parameter. It is recommended that you use the date and time symbolic to ensure that the names for the Performance History Files generated by Db2 Query Monitor using the DB2CDATA_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes because the system appends .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

**Default**

None

**Syntax**

```
DB2CDATA_DSN(dsn)
```

**dsn**

The data set name mask for the DB2CDATA Performance History File.

**Example**

```
DB2CDATA_DSN(CQM.TEST.DB2CD.D&LYYMMDD..T&LHR.&LMIN..&INTV.)
```

**DB2CDATA_MGMTCLAS**

(Optional) The SMS management class that is used for the allocation of the DB2CDATA Performance History File.

**Default**

If no value is specified for DB2CDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, DB2CDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

**Syntax**

```
DB2CDATA_MGMTCLAS(mgtclass)
```

**mgtclass**

The SMS management class that is used for the allocation of the DB2CDATA Performance History File.

**Example**

```
DB2CDATA_MGMTCLAS(MGMTCLAS)
```

**DB2CDATA_PRIMARY**

(Optional) The primary space quantity that is used for the DB2CDATA Performance History File.
Syntax
DB2CDATA.Primary(n)

n
The primary space quantity that is used for the DB2CDATA Performance History File. Valid values of n are greater than or equal to 1.

Example
DB2CDATA.Primary(1)

DB2CDATA.Secondary
(Optional) The secondary space quantity that is used for the DB2CDATA Performance History File.

Syntax
DB2CDATA.Secondary(n)

n
The secondary space quantity that is used for the DB2CDATA Performance History File. Valid values of n are greater than or equal to 1.

Example
DB2CDATA.Secondary(0)

DB2CDATA.Space.Units
(Optional) The space units that are used for the allocation of the DB2CDATA Performance History File.

Syntax
DB2CDATA.Space.Units(unit)

unit
The space unit for allocation of the DB2CDATA Performance History File. Valid values are CYLS (cylinders) and TRKS (tracks).

Example
DB2CDATA.Space.Units(TRKS)

DB2CDATA.Storclas
(Optional) The DB2CDATA.Storclas parameter specifies the SMS storage class that is used for the DB2CDATA Performance History Files.

Syntax
DB2CDATA.Storclas(storclass)

storclass
The SMS storage class for allocation of the DB2CDATA Performance History Files.

Example
DB2CDATA.Storclas(STORCLAS)

DB2CDATA.Unitname
(Optional) An esoteric name, generic device type or a device address for the DB2CDATA Performance History Files.
Default
If no value is specified for DB2CDATA_UNITNAME and a value has been specified for the UNITNAME parameter, DB2CDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax
DB2CDATA_UNITNAME(unitname)

unitname
The unit name, generic device type, or device address for allocation of the DB2CDATA Performance History Files.

Example
DB2CDATA_UNITNAME(CQMDB2CDATA)

DB2CDATA_VOLUME
(Optional) The volume for the DB2CDATA Performance History Files.

Default
If no value is specified for DB2CDATA_VOLUME and a value has been specified for the VOLUME parameter, DB2CDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax
DB2CDATA_VOLUME(volume)

volume
The volume for allocation of the DB2CDATA Performance History Files.

Example
DB2CDATA_VOLUME(CQMDBV)

DEBUG
(Optional) The DEBUG parameter turns on debug mode and produces diagnostic messages (in the range CQM9000-CQM-9999) for use by IBM Software Support.

Default
N

Syntax
DEBUG(Y|N)

Example
DEBUG(Y)

EMPTY_INTERVALS
(Optional) Indicates whether Db2 Query Monitor will keep or remove empty interval performance history files and their corresponding interval records from CQMINTER data set.

Default
KEEP

Syntax
EMPTY_INTERVALS(KEEP|REMOVE)

Valid values
KEEP
Keeps empty interval performance history files and their corresponding interval records.

REMOVE
Deletes the empty interval performance history files and their corresponding interval records from the CQMINTER dataset.

Note: When EMPTY_INTERVALS(REMOVE) and the RETAIN parameter are specified together, Db2 Query Monitor retains n number of intervals as instructed to by the RETAIN parameter. However if any of the retained intervals are empty, they will be deleted.

Example
EMPTY_INTERVALS(REMOVE)
**EXCEPTION_CALLS_PER_EXCEPT_AVG**
(Optional) The average number of calls per exception that are to be expected.

**Default**
3

**Range**
2-64

**Syntax**

```
EXCEPTION_CALLS_PER_EXCEPT_AVG(n)
```

\( n \)

An integer between 2 and 64 (default 64).

**Example**

```
EXCEPTION_CALLS_PER_EXCEPT_AVG(64)
```

**EXCEPTION_CALLS_PER_EXCEPT_MAX**
(Optional) The maximum ownership count for exception calls during the interval.

**Default**
64

**Range**
16-64

**Syntax**

```
EXCEPTION_CALLS_PER_EXCEPT_MAX(n)
```

\( n \)

The maximum ownership count for exception calls during the interval.

**Example**

```
EXCEPTION_CALLS_PER_EXCEPT_MAX(16)
```

**EXCEPTION_OBJECTS_PER_EXCEPT_AVG**
(Optional) The average number of objects per exception that are to be expected.

**Default**
17

**Range**
8-1024

**Syntax**

```
EXCEPTION_OBJECTS_PER_EXCEPT_AVG(n)
```

\( n \)

The average number of objects per exception that are to be expected.

**Example**

```
EXCEPTION_OBJECTS_PER_EXCEPT_AVG(8)
```

**EXCEPTION_OBJECTS_PER_EXCEPT_MAX**
(Optional) The maximum ownership count for exception objects during an interval.

**Default**
768

**Range**
256-8192

**Syntax**

```
EXCEPTION_OBJECTS_PER_EXCEPT_MAX(n)
```

\( n \)

The maximum ownership count for exception objects during an interval.

**Example**

```
EXCEPTION_OBJECTS_PER_EXCEPT_MAX(256)
```
**EXCEPTION_SPACE_SIZE**
(Optional) The maximum amount of storage, in megabytes, available for storing exceptions during an interval.

**Default**
128

**Range**
64-1024

**Syntax**
EXCEPTION_SPACE_SIZE(n)

n
The number of megabytes available for storing exceptions during an interval.

**Example**
EXCEPTION_SPACE_SIZE(1024)

**EXCPDATA_DATAACLAS**
(Optional) The SMS data class for the EXCPDATA Performance History Files.

**Default**
If no value is specified for EXCPDATA_DATAACLAS and a value has been specified for the DATACLAS parameter, DB2CDATA_DATAACLAS defaults to the data class defined by the DATACLAS parameter.

**Syntax**
EXCPDATA_DATAACLAS(dataclass)

dataclass
The SMS management class for allocation of the EXCPDATA Performance History Files.

**Example**
EXCPDATA_DATAACLAS(DATACLAS)

**EXCPDATA_DSN**
(Required) The data set name for the EXCPDATA Performance History File. The EXCPDATA data set contains information related to exception SQL calls, text, SQLCA, and host variables. The data set name might contain valid system symbolics and also include the Db2 Query Monitor symbol &INTV (the &INTV symbolic resolves to the current interval number).

**Notes:**
1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the EXCPDATA_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the Performance History File names that are generated by Db2 Query Monitor using the EXCPDATA_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

**Default**
None

**Syntax**
EXCPDATA_DSN(dsn)

dsn
The data set name mask for the EXCPDATA Performance History File.

**Example**
EXCPDATA_DSN(CQM.TEST.EDATA.D&LYYMMDD..T&LHR.&LMIN..&INTV.)
**EXCPDATA_MGMTCLAS**
(Optional) The SMS management class for the EXCPDATA Performance History Files.

**Default**
If no value is specified for EXCPDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, EXCPDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

**Syntax**
```plaintext
EXCPDATA_MGMTCLAS(managementclass)
```

*managementclass*
The SMS management class for allocation of the EXCPDATA Performance History Files.

**Example**
EXCPDATA_MGMTCLAS(MGMTCLAS)

**EXCPDATA_PRIMARY**
(Optional) The primary space quantity for the EXCPDATA Performance History File.

**Default**
5

**Syntax**
```plaintext
EXCPDATA_PRIMARY(n)
```

*n* The primary space quantity for the EXCPDATA Performance History File. Valid values of *n* are greater than or equal to 1.

**Example**
EXCPDATA_PRIMARY(1)

**EXCPDATA_SECONDARY**
(Optional) The secondary space quantity for the EXCPDATA Performance History File.

**Default**
2

**Syntax**
```plaintext
EXCPDATA_SECONDARY(n)
```

*n* The secondary space quantity for the EXCPDATA Performance History File. Valid values of *n* are greater than or equal to 1.

**Example**
EXCPDATA_SECONDARY(1)

**EXCPDATA_SPACE_UNITS**
(Optional) The space units (CYLS or TRKS) for allocation of the EXCPDATA Performance History File.

**Default**
CYLS

**Syntax**
```plaintext
EXCPDATA_SPACE_UNITS(unit)
```

*unit* The space unit for allocation of the EXCPDATA Performance History File. Valid values are CYLS or TRKS.

**Example**
EXCPDATA_SPACE_UNITS(CYLS)

**EXCPDATA_STORCLAS**
(Optional) The SMS storage class for the EXCPDATA Performance History Files.
**Default**
If no value is specified for EXCPDATA_STORCLAS and a value has been specified for the STORCLAS parameter, EXCPDATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

**Syntax**
```
EXCPDATA_STORCLAS(storageclass)
```

`storageclass`
The SMS storage class for allocation of the EXCPDATA Performance History Files.

**Example**
```c
EXCPDATA_STORCLAS(STORCLAS)
```

**EXCPDATA_UNITNAME**
(Optional) The esoteric name, generic device type or a device address for the EXCPDATA Performance History Files.

**Default**
If no value is specified for EXCPDATA_UNITNAME and a value has been specified for the UNITNAME parameter, EXCPDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

**Syntax**
```
EXCPDATA_UNITNAME(unitname)
```

`unitname`
The unit name, generic device type, or device address for allocation of the EXCPDATA Performance History Files.

**Example**
```c
EXCPDATA_UNITNAME(CQMEXCPDATA)
```

**EXCPDATA_VOLUME**
(Optional) The volume for the EXCPDATA Performance History Files.

**Default**
If no value is specified for EXCPDATA_VOLUME and a value has been specified for the VOLUME parameter, EXCPDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

**Syntax**
```
EXCPDATA_VOLUME(volume)
```

`volume`
The volume for allocation of the EXCPDATA Performance History Files.

**Example**
```c
EXCPDATA_VOLUME(CQMEDV)
```

**EXCPHSTV_DATACLAS**
(Optional) The SMS data class for the EXCPHSTV Performance History Files.

**Default**
If no value is specified for EXCPHSTV_DATACLAS and a value has been specified for the DATACLAS parameter, EXCPHSTV_DATACLAS defaults to the data class defined by the DATACLAS parameter.

**Syntax**
```
EXCPHSTV_DATACLAS(dataclass)
```

`dataclass`
The SMS data class for allocation of the EXCPHSTV Performance History Files.

**Example**
```c
EXCPHSTV_DATACLAS(DATACLAS)
```

**EXCPHSTV_DSN**
(Required) The data set name for the EXCPHSTV Performance History File. The EXCPHSTV data set contains information related to exception hostv variables and exception SQL text. The data set name...
might contain valid system symbolics and also include the Db2 Query Monitor symbol &INTV (the &INTV symbolic resolves to the current interval number).

**Notes:**

1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the EXCPHSTV_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the Performance History File names that are generated by Db2 Query Monitor using the EXCPHSTV_DSN parameter are unique.

2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.

3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

**Default**

None

**Syntax**

EXCPHSTV_DSN(dsn)

*dsn*

The data set name mask for the EXCPHSTV Performance History File.

**Example**

EXCPHSTV_DSN(CQM.TEST.EDATA.D&LYYMMDD..T&LHR.&LMIN..&INTV.)

EXCPHSTV_MGMTCLAS

(Optional) The SMS management class for the EXCPHSTV Performance History Files.

**Default**

If no value is specified for EXCPHSTV_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, EXCPHSTV_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

**Syntax**

EXCPHSTV_MGMTCLAS(managementclass)

*managementclass*

The SMS management class for allocation of the EXCPHSTV Performance History Files.

**Example**

EXCPHSTV_MGMTCLAS(MGMTCLAS)

EXCPHSTV_PRIMARY

(Optional) The primary space quantity for the EXCPHSTV Performance History File.

**Default**

5

**Syntax**

EXCPHSTV_PRIMARY(n)

*n*

The primary space quantity for the EXCPHSTV Performance History File. Valid values of n are greater than or equal to 1.

**Example**

EXCPHSTV_PRIMARY(1)

EXCPHSTV_SECONDARY

(Optional) The secondary space quantity for the EXCPHSTV Performance History File.

**Default**

2
Syntax
EXCPHSTV_SECONDARY(n)

\( n \)
The secondary space quantity for the EXCPHSTV Performance History File. Valid values of \( n \) are greater than or equal to 1.

Example
EXCPHSTV_SECONDARY(1)

**EXCPHSTV_SPACE_UNITS**
(Optional) The space units (CYLS or TRKS) for allocation of the EXCPHSTV Performance History File.

Default
CYLS

Syntax
EXCPHSTV_SPACE_UNITS(unit)

\( unit \)
The space unit for allocation of the EXCPHSTV Performance History File. Valid values are CYLS or TRKS.

Example
EXCPHSTV_SPACE_UNITS(CYLS)

**EXCPHSTV_STORCLAS**
(Optional) The SMS storage class for the EXCPHSTV Performance History Files.

Default
If no value is specified for EXCPHSTV_STORCLAS and a value has been specified for the STORCLAS parameter, EXCPHSTV_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax
EXCPHSTV_STORCLAS(storageclass)

\( storageclass \)
The SMS storage class for allocation of the EXCPHSTV Performance History Files.

Example
EXCPHSTV_STORCLAS(STORCLAS)

**EXCPHSTV_UNITNAME**
(Optional) The esoteric name, generic device type or a device address for the EXCPHSTV Performance History Files.

Default
If no value is specified for EXCPHSTV_UNITNAME and a value has been specified for the UNITNAME parameter, EXCPHSTV_UNITNAME defaults to the data class defined by the UNITNAME parameter.

Syntax
EXCPHSTV_UNITNAME(unitname)

\( unitname \)
The unit name, generic device type, or device address for allocation of the EXCPHSTV Performance History Files.

Example
EXCPHSTV_UNITNAME(CQMEXCPDATA)

**EXCPHSTV_VOLUME**
(Optional) The volume for the EXCPHSTV Performance History Files.

Default
If no value is specified for EXCPHSTV_VOLUME and a value has been specified for the VOLUME parameter, EXCPHSTV_VOLUME defaults to the volume defined by the VOLUME parameter.
Syntax

EXCPHSTV_VOLUME(volume)

volume

The volume for allocation of the EXCPHSTV Performance History Files.

Example

EXCPHSTV_VOLUME(CQMVOLUM)

EXCPINDX_DATACLAS

(Optional) The SMS data class for the EXCPINDX Performance History Files.

Default

If no value is specified for EXCPINDX_DATACLAS and a value has been specified for the DATACLAS parameter, EXCPINDX_DATACLAS defaults to the data class defined by the DATACLAS parameter.

Syntax

EXCPINDX_DATACLAS(dataclass)

dataclass

The SMS data class for allocation of the EXCPINDX Performance History Files.

Example

EXCPINDX_DATACLAS(DATACLAS)

EXCPINDX_DSN

(Required) The data set name for the EXCPINDX Performance History File. The EXCPINDX data set contains information related to statement-level exceptions. The data set name might contain valid system symbols and may also include the Db2 Query Monitor-specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the EXCPINDX_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the Performance History File names that are generated by Db2 Query Monitor using the EXCPINDX_DSN parameter are unique.

2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will appends .DATA and .INDEX to the end of the VSAM data and index components.

3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

Syntax

EXCPINDX_DSN(dsn)

dsn

The data set name mask for the EXCPINDX Performance History File.

Example

EXCPINDX_DSN(CQM.TEST.EINDX.D&LYYMMDD..T&LHR.&LMIN..&INTV.)

EXCPINDX_MGMTCLAS

(Optional) The SMS management class for the EXCPINDX Performance History Files.

Default

If no value is specified for EXCPINDX_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, EXCPINDX_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.
Syntax
EXCPINDEX_MGMTCLAS(\texttt{managementclass})

\texttt{managementclass}
The SMS management class for allocation of the EXCPINDEX Performance History Files.

Example
EXCPINDEX_MGMTCLAS(MGMTCLAS)

EXCPINDEX_PRIMARY
(Optional) The primary space quantity for the EXCPINDEX Performance History File.

Default
5

Syntax
EXCPINDEX_PRIMARY(\texttt{n})

\texttt{n}
The primary space quantity for the EXCPINDEX Performance History File. Valid values of \texttt{n} are greater than or equal to 1.

Example
EXCPINDEX_PRIMARY(5)

EXCPINDEX_SECONDARY
(Optional) The secondary space quantity for the EXCPINDEX Performance History File.

Default
2

Syntax
EXCPINDEX_SECONDARY(\texttt{n})

\texttt{n}
The secondary space quantity for the EXCPINDEX Performance History File. Valid values of \texttt{n} are greater than or equal to 1.

Example
EXCPINDEX_SECONDARY(3)

EXCPINDEX_SPACE_UNITS
(Optional) The space units (CYLS or TRKS) for allocation of the EXCPINDEX Performance History File.

Default
CYLS

Syntax
EXCPINDEX_SPACE_UNITS(\texttt{unit})

\texttt{unit}
The space unit for allocation of the EXCPINDEX Performance History File. Valid values are CYLS or TRKS.

Example
EXCPINDEX_SPACE_UNITS(CYLS)

EXCPINDEX_STORCLAS
(Optional) The SMS storage class for the EXCPINDEX Performance History Files.

Default
If no value is specified for EXCPINDEX_STORCLAS and a value has been specified for the \texttt{STORCLAS} parameter, EXCPINDEX_STORCLAS defaults to the storage class defined by the \texttt{STORCLAS} parameter.

Syntax
EXCPINDEX_STORCLAS(\texttt{storageclass})

\texttt{storageclass}
The SMS storage class for allocation of the EXCPINDEX Performance History Files.
Example
EXCPINDX_STORCLAS(STORCLAS)

**EXCPINDX_UNITNAME**
(Optional) An esoteric name, generic device type, or device address for the EXCPINDX Performance History Files.

**Default**
If no value is specified for EXCPINDX_UNITNAME and a value has been specified for the UNITNAME parameter, EXCPINDX_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

**Syntax**
```
EXCPINDX_UNITNAME(unitname)
```

*unitname*
The unit name, generic device type, or device address for allocation of the EXCPINDX Performance History Files.

Example
EXCPINDX_UNITNAME(CQMEXCPINDX)

**EXCPINDX_VOLUME**
(Optional) The volume for the EXCPINDX Performance History Files.

**Default**
If no value is specified for EXCPINDX_VOLUME and a value has been specified for the VOLUME parameter, EXCPINDX_VOLUME defaults to the volume defined by the VOLUME parameter.

**Syntax**
```
EXCPINDX_VOLUME(volume)
```

*volume*
The volume for allocation of the EXCPINDX Performance History Files.

Example
EXCPINDX_VOLUME(CQMEXV)

**EXCPTEXT_DATACLAS**
(Optional) The SMS data class for the EXCPTEXT Performance History Files.

**Default**
If no value is specified for EXCPTEXT_DATACLAS and a value has been specified for the DATACLAS parameter, EXCPTEXT_DATACLAS defaults to the data class defined by the DATACLAS parameter.

**Syntax**
```
EXCPTEXT_DATACLAS(dataclass)
```

*dataclass*
The SMS data class for allocation of the EXCPTEXT Performance History Files.

Example
EXCPTEXT_DATACLAS(DATACLAS)

**EXCPTEXT_DSN**
(Required) The data set name for the EXCPTEXT Performance History File. The EXCPTEXT data set contains information related to exception hostv variables and exception SQL text. The data set name might contain valid system symbolics and also include the Db2 Query Monitor-specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

**Notes:**
1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the EXCPTEXT_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the Performance History File names that are generated by Db2 Query Monitor using the EXCPTEXT_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.

3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

**Default**
None

**Syntax**

EXCPTEXT_DSN(dsn)

**dsn**
The data set name mask for the EXCPTEXT Performance History File.

**Example**

EXCPTEXT_DSN(CQM.TEST.EDATA.D&LYYMMDD..T&LHR..&LMIN..&INTV.)

**EXCPTEXT_MGMTCLAS**
(Optional) The SMS management class for the EXCPTEXT Performance History Files.

**Default**
If no value is specified for EXCPTEXT_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, EXCPTEXT_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

**Syntax**

EXCPTEXT_MGMTCLAS(managementclass)

**managementclass**
The SMS management class for allocation of the EXCPTEXT Performance History Files.

**Example**

EXCPTEXT_MGMTCLAS(MGMTCLAS)

**EXCPTEXT_PRIMARY**
(Optional) The primary space quantity for the EXCPTEXT Performance History File.

**Default**
5

**Syntax**

EXCPTEXT_PRIMARY(n)

**n**
The primary space quantity for the EXCPTEXT Performance History File. Valid values of n are greater than or equal to 1.

**Example**

EXCPTEXT_PRIMARY(6)

**EXCPTEXT_SECONDARY**
(Optional) The secondary space quantity for the EXCPTEXT Performance History File.

**Default**
2

**Syntax**

EXCPTEXT_SECONDARY(n)

**n**
The secondary space quantity for the EXCPTEXT Performance History File. Valid values of n are greater than or equal to 1.

**Example**

EXCPTEXT_SECONDARY(3)
EXCPTEXT_SPACE_UNITS
(Optional) The space units (CYLS or TRKS) for allocation of the EXCPTEXT Performance History File.

Default
CYLS

Syntax
EXCPTEXT_SPACE_UNITS(unit)

unit
The space unit for allocation of the EXCPTEXT Performance History File. Valid values are CYLS or TRKS.

Example
EXCPTEXT_SPACE_UNITS(CYLS)

EXCPTEXT_STORCLAS
(Optional) The SMS data class for the EXCPTEXT Performance History Files.

Default
If no value is specified for EXCPHSTV_STORCLAS and a value has been specified for the STORCLAS parameter, EXCPTEXT_STORCLAS defaults to the data class defined by the STORCLAS parameter.

Syntax
EXCPTEXT_STORCLAS(storageclass)

storageclass
The SMS storage class for allocation of the EXCPTEXT Performance History Files.

Example
EXCPTEXT_STORCLAS(STORCLAS)

EXCPTEXT_UNITNAME
(Optional) An esoteric name, generic device type or a device address for Db2 Query Monitor's EXCPTEXT Performance History Files.

Default
If no value is specified for EXCPTEXT_UNITNAME and a value has been specified for the UNITNAME parameter, EXCPTEXT_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax
EXCPHSTV_UNITNAME(unitname)

unitname
The unit name, generic device type, or device address for allocation of the EXCPTEXT Performance History Files.

Example
EXCPTEXT_UNITNAME(CQMEXCPDATA)

EXCPTEXT_VOLUME
(Optional) The volume for the EXCPTEXT Performance History Files.

Default
If no value is specified for EXCPTEXT_VOLUME and a value has been specified for the VOLUME parameter, EXCPTEXT_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax
EXCPTEXT_VOLUME(volume)

volume
The volume for allocation of Db2 Query Monitor's EXCPTEXT Performance History Files.

Example
EXCPTEXT_VOLUME(CQMTVOLU)
FORCE
(Optional) Forces the installation of a monitoring agent. If you use this parameter, any return codes from any failure reported in message CQM2002E are overridden.

Default
N

Syntax
FORCE(Y|N)
Valid values are:

Y
Forces the installation of a monitoring agent.

CAUTION: Do not specify FORCE(Y) unless instructed to do so by IBM Software Support.

N
(Default) Does not force the installation of a monitoring agent.

Example
FORCE(Y)

HOSTVAR_LIMIT
(Optional) Designates the amount of storage to be allocated for host variable collection per event.

Note:
• If you are using InfoSphere Guardium S-TAP for Db2 on z/OS, InfoSphere Optim Workload Replay S-TAP on Db2 on z/OS, and Db2 Query Monitor to simultaneously monitor the same Db2 subsystem, all products must have matching HOSTVAR_LIMIT settings to avoid receiving a mismatch error.
• If error message CQM1203I is encountered, with RC=0008, RSN=003F, increase the HOSTVAR_LIMIT setting to accommodate the collection of host variables for the monitored workload.

Default
1500

Range
1-9999

Syntax
HOSTVAR_LIMIT(n)

n
An integer between 1 - 9999.

Example
HOSTVAR_LIMIT(1000)

INFLIGHT
(Optional) Determines whether or not Db2 Query Monitor displays long running SQL calls executing in Db2 before they complete.

Default

Syntax
INFLIGHT(Y|N)
Valid values are:

Y
(Default) Long running SQL calls executing within Db2 are displayed before they complete. If you specify INFLIGHT(Y), you can use the DISABLE_INFLIGHT dynamic configuration change commands to disable inflight processing.
Long running SQL calls executing within Db2 are not displayed before they complete. If you specify INFLIGHT(N), you can use the ENABLE_INFLIGHT dynamic configuration change commands to enable inflight processing.

**Example**

```
INFLIGHT(Y)
```

**INTERVAL**

(Optional) The length of time that Db2 Query Monitor holds SQL performance data in memory before writing it to Performance History Files.

**Default**

720

**Range**

1-99999

**Syntax**

```
INTERVAL(length)
```

**length**

The length of the recording interval in minutes. The length of the recording interval can range from 1 to 99999 minutes.

**Example**

```
INTERVAL(20)
```

**INTERVAL_MIDNIGHT**

(Optional) Aligns interval start times to midnight. If an interval of eight hours is specified and Db2 Query Monitor is started at 2 a.m., the first interval will end at 8 a.m. then the next interval will end at 4 p.m. and the final interval of the day will end at approximately midnight (the calculated time may differ from midnight by a few seconds, for example, 23:59:58 instead of 00:00:00). For example if a 5 hour interval is specified the interval end times will be at approximately 5 a.m., 10 a.m. 3 p.m., 8 p.m. (the calculated times may differ from the exact hour by a few seconds, for example 4:59:58, 9:59:58, 14:59:58, 19:59:58) then the cycle continues. The interval cutting occurs relative to midnight only after the Query Monitor Subsystem is restarted.

**Default**

N

**Syntax**

```
INTERVAL_MIDNIGHT(Y|N)
```

Valid values are:

- **Y**
  - Aligns interval start times to midnight.

- **N**
  - (Default) Does not align interval start times to midnight.

**Example**

```
INTERVAL_MIDNIGHT(Y)
```

**ISM_CONSTRAINT_AGE**

Determines the amount of time that must pass after a storage constraint occurrence before the constraint event is considered to be relieved.

**Default**

300

**Range**

1 - 60000

**Syntax**

```
ISM_CONSTRAINT_AGE(n)
```
An integer between 1 - 60000. The units for $n$ are in .01 seconds (hundredths of seconds).

Example
ISM_CONSTRAINT_AGE(600)

**ISM_ERROR_BLOCKS**
(Optional) The number of ISM error blocks that are allocated when Db2 Query Monitor initializes. If this value is too low, message CQM1219W might be issued. ISM error blocks are used to communicate a storage constraint event from somewhere in the product to the task that issues storage constraint messages. If you run out of ISM error blocks, it means that the storage constraint message will not be issued. However, an abend table entry will be created to document this event. It is important to realize that this is most likely a temporary situation and it does not impact overall performance.

Default
256

Range
16 - 8192

Syntax
ISM_ERROR_BLOCKS($n$)

$n$
The number of ISM error blocks that are allocated when Db2 Query Monitor initializes.

Example
ISM_ERROR_BLOCKS(16)

**ISM_ERROR_DETAIL**
(Optional) Controls whether CQM1203I and CQM1204I messages are issued to provide detailed information for ISM storage constraints.

Note: This setting can be overridden at runtime with the `/f cqmstc,ISMERROREDetail` command.

Default
Y

Syntax
ISM_ERROR_DETAIL(Y|N)

Valid values are:

Y
(DefaultValue) CQM1203I and CQM1204I are issued to provide detailed information for ISM storage constraints. This is the recommended setting for the ISM_ERROR_DETAIL parameter.

N
CQM1203I and CQM1204I are not issued for ISM storage constraints.

Example
ISM_ERROR_DETAIL(N)

**ISM_ERROR_MSG_BLOCKS**
(Optional) The number of ISM error message blocks that are allocated when Db2 Query Monitor initializes. If this value is too low, duplicate ISM error messages might be issued for the same space and reason instead of incrementing the occurrence count. ISM error message blocks are used by the task that issues storage constraint messages to:

- Consolidate similar storage constraint events to eliminate duplicate messaging for the same condition, and
- Track storage constraint events so that the Storage Constraint Relieved situation can be detected and messaged.

If Db2 Query Monitor runs out of ISM error message blocks, consolidation might not occur and duplicate messages for similar storage constraint events might be generated in the log.
ISM_ERROR_MSG_BLOCKS(n)

n  The number of ISM error message blocks that are allocated when Db2 Query Monitor initializes.

Example
ISM_ERROR_MSG_BLOCKS(16)

LOOP_DISABLE_AGENT
(Optional) Controls whether the monitoring agent should be automatically disabled in cases where a potential in-collector loop has been detected. Disabling the monitoring agent might be desirable in these cases to preserve the availability and responsiveness of the monitored Db2 subsystem or z/OS operating system.

Default value
Y

Syntax
LOOP_DISABLEAGENT(Y|N)

Y  The monitoring agent will be disabled after any in-collector loop has been detected.

N  (Default) The monitoring agent will not be automatically disabled as a result of a loop detection.

Example
LOOP_DISABLE_AGENT(Y)

LOOP_DUMPS
(Optional) Controls the maximum number of SVCDUMPs that can be taken by the loop detection process. A value of zero (0) disables SVCDUMPs from being taken by the loop detection process. Dumps taken are not subject to DAE suppression. For more information, refer to the LOOP_TIME_LIMIT and LOOP_DISABLE_AGENT parameters.

Default value
5

Syntax
LOOP_DUMPS(n)

n  The maximum number of dumps that can be captured that result from loop detection.

Range
0 - 99999999

Example
LOOP_DUMPS(0)

LOOP_TIME_LIMIT
(Optional) Controls the maximum amount of in-collector elapsed time that a unit of work can take before the collection process is terminated for the unit of work. A value of (0) disables loop detection processing.

Default value
5

Syntax
LOOP_TIME_LIMIT(n)
The elapsed time limit, in seconds, that a unit of work can take before it is terminated.

**Range**
0 - 99999999

**Example**
LOOP _TIME_LIMIT(0)

**MASTER_PROCNAME**
(Required) The Support Services Address Space that is used by an installation of Db2 Query Monitor, InfoSphere Optim Workload Replay S-TAP, InfoSphere Guardium S-TAP. The MASTER_PROCNAME must be specified for each product that uses the IBM Db2 Data Access Common Collector for z/OS. When the same MASTER_PROCNAME value is specified among product installations, this causes the product installations to use the same Support Services Address Space.

If you are running two versions of Db2 Query Monitor, you must specify different values for the MASTER_PROCNAME parameters for each version.

For more information, see “Support Services Address Space” on page 7.

**Default**
None. You must provide a value for MASTER_PROCNAME, it may not be omitted. The MASTER_PROCNAME must not be the same as Db2 Query Monitor procedure name.

**Syntax**
MASTER_PROCNAME(procname)

**procname**
The procedure name for the Support Services Address Space. Valid values are character, 8-byte.

**Example**
MASTER_PROCNAME(CQMMASTR)

**MAX_SQLCODES**
(Optional) The maximum number of unique SQLCODES for which performance data is collected. The limit defined by the MAX_SQLCODES parameter applies to a given interval, not the entire time the IBM Db2 Data Access Common Collector for z/OS is running.

**Default**
0

**Range**
0-99999

**Syntax**
MAX_SQLCODES(n)

**n**
The maximum number of unique SQLCODES for which performance data is collected. If MAX_SQLCODES is set to 0 (the default), SQLCODE collection and display is disabled.

**Example**
MAX_SQLCODES(100)

**MAX_SQLCODE_DETAIL**
(Optional) The maximum number of times detailed information for each occurrence of an SQLCODE is collected. This parameter helps you to prevent flooding of the Performance History Files with SQLCODE events.

**Notes:**
- An asterisk (*) displays in the **Occurrences** column on the Db2 QM SQL Code Summary panel when the MAX_SQLCODE_DETAIL value is exceeded.
- If you want to track a high level of SQLCODE detail, consider tracking the work in exceptions.
• The MAX_SQLCODE_DETAIL limit applies to a given interval, not the entire time the IBM Db2 Data Access Common Collector for z/OS is running.

Default
0
Range
0-99999
Syntax
MAX_SQLCODE_DETAIL(n)

n
The maximum number of times detailed information for each occurrence of an SQLCODE is collected. If MAX_SQLCODE_DETAIL is set to 0 (the default) SQLCODE detail collection and display is disabled.

Example
MAX_SQLCODE_DETAIL(10)

MAXIMUM_ALLOCATIONS
(Optional) The maximum amount of global shared memory that can be allocated by Db2 Query Monitor for internal Integrated Storage Manager spaces.

Default
2048
Range
512-9999999
Syntax
MAXIMUM_ALLOCATIONS(n)

n
The maximum amount of global shared memory that can be allocated by Db2 Query Monitor for internal Integrated Storage Manager spaces, in megabytes. The value you specified for the SMEM_SIZE parameter must be 3 times greater than that specified for the MAXIMUM_ALLOCATIONS parameter.

Example
MAXIMUM_ALLOCATIONS(4096)

METRDATA_DATACLA(S
(Optional) The SMS data class for the METRDATA Performance History Files.

Default
If no value is specified for METRDATA_DATACLA(S and a value has been specified for the DATACLA(S parameter, METRDATA_DATACLA(S defaults to the data class defined by the DATACLA(S parameter.

Syntax
METRDATA_DATACLA(S(dataclass)

dataclass
The SMS management class for allocation of the METRDATA Performance History Files.

Example
METRDATA_DATACLA(S(DATACLA(S)

METRDATA_DSN
(Required) The data set name for the METRDATA Performance History File. The METRDATA data set contains summary level information related to SQL call execution. The METRDATA data set is written at interval expiration. The data set name might contain valid system symbols and may also include the Db2 Query Monitor symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:
1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the METRDATA_DSN parameter. We
also recommend that you use the date and time symbolics to ensure that the Performance History File names that are generated by Db2 Query Monitor using the METRDATA_DSN parameter are unique.

2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.

3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

**Default**

None

**Syntax**

```plaintext
METRDATA_DSN(dsn)
```

*dsn*
The data set name mask for the METRDATA Performance History File.

**Example**

```plaintext
METRDATA_DSN(CQM.TEST.METRD.D&LYYMMDD..T&LHR.&LMIN..&INTV.)
```

**METRDATA_MGMTCLAS**

(Optional) The SMS management class for Db2 Query Monitor's METRDATA Performance History Files.

**Default**

If no value is specified for METRDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, METRDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

**Syntax**

```plaintext
METRDATA_MGMTCLAS(managementclass)
```

*managementclass*
The SMS management class for allocation of Db2 Query Monitor's METRDATA Performance History Files.

**Example**

```plaintext
METRDATA_MGMTCLAS(MGMTCLAS)
```

**METRDATA_PRIMARY**

(Optional) The primary space quantity for the METRDATA Performance History File.

**Default**

5

**Syntax**

```plaintext
METRDATA_PRIMARY(n)
```

*n*  
The primary space quantity for the METRDATA Performance History File. Valid values of n are greater than or equal to 1.

**Example**

```plaintext
METRDATA_PRIMARY(5)
```

**METRDATA_SECONDARY**

(Optional) The secondary space quantity for the METRDATA Performance History File.

**Default**

2

**Syntax**

```plaintext
METRDATA_SECONDARY(n)
```
**n**
The secondary space quantity for the METRDATA Performance History File. Valid values of *n* are greater than or equal to 1.

**Example**
METRDATA_SECONDARY(3)

**METRDATA_SPACE_UNITS**
(Optional) The space units that are used for the allocation of the METRDATA Performance History File.

**Default**
CYLS

**Syntax**
METRDATA_SPACE_UNITS(*unit*)

*unit*
The space unit for allocation of the METRDATA Performance History File. Valid values are CYLS or TRKS.

**Example**
METRDATA_SPACE_UNITS(TRKS)

**METRDATA_STORCLAS**
(Optional) The SMS storage class for the METRDATA Performance History Files.

**Default**
If no value is specified for METRDATA_STORCLAS and a value has been specified for the STORCLAS parameter, METRDATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

**Syntax**
METRDATA_STORCLAS(*storageclass*)

*storageclass*
The SMS storage class for allocation of the METRDATA Performance History Files.

**Example**
METRDATA_STORCLAS(STORCLAS)

**METRDATA_UNITNAME**
(Optional) An esoteric name, generic device type or a device address for the METRDATA Performance History Files.

**Default**
If no value is specified for METRDATA_UNITNAME and a value has been specified for the UNITNAME parameter, METRDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

**Syntax**
METRDATA_UNITNAME(*unitname*)

*unitname*
The unit name, generic device type, or device address for allocation of the METRDATA Performance History Files.

**Example**
METRDATA_UNITNAME(CQMMTRDATA)

**METRDATA_VOLUME**
(Optional) The volume for the METRDATA Performance History Files.

**Default**
If no value is specified for METRDATA_VOLUME and a value has been specified for the VOLUME parameter, METRDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

**Syntax**
METRDATA_VOLUME(*volume*)
volume
The volume for the METRDATA Performance History Files.

Example
METRDATA_VOLUME(CQMMEV)

MGMTCLAS
(Optional) The MGMTCLAS parameter defines the SMS management class for allocation of Db2 Query Monitor’s Performance History Files. This parameter might be overridden by the management class specifications for the individual Performance History Files.

Default
This parameter defaults to null. If this parameter is null, Db2 Query Monitor does not use this parameter when making allocations for the Performance History Files.

Syntax
MGMTCLAS(mgmtclass)

mgmtclass
The SMS management class for allocation of Db2 Query Monitor’s Performance History Files.

Example
MGMTCLAS(DB2)

MONITOR
(Optional) Identifies the DB2 subsystems that are monitored upon invocation of the Db2 Query Monitor started task. This parameter also optionally lists the corresponding monitoring profiles used to monitor those Db2 subsystems. If a Db2 subsystem is listed without a monitoring profile, Db2 Query Monitor collects summary data only. The first Db2 subsystem listed must be the Db2 subsystem where Db2 Query Monitor executes.

Syntax
MONITOR(ss01, profilea, ss02, profileb, ... ssnn, profilex)

ss01, ss02, ... ssnn
The DB2 subsystem IDs of the Db2 subsystems to be monitored.

profilea, profileb, ... profilex
The optional monitoring profile names associated with the monitoring of each Db2 subsystem. A monitoring profile name must not begin with spaces or numerics, must not contain imbedded spaces, and must not contain characters other than "A-Z", "0-9", "#", "$", or "@". If a monitoring profile contains invalid characters, it will be ignored. For example, MONITOR (SS01,PROF!,SS02,PROF,SS03) will be treated the same as MONITOR (SS01,,SS02,PROF,SS03) due to the presence of the invalid character ("!") in “PROF!”).

Example
MONITOR(SS01,SS01PROF,SS02,SS02PROF)

OBJECTS
(Optional) Controls the collection of statistics for all objects. This parameter enables you to control the size of the Db2 Query Monitor data spaces. This parameter affects all DB2 subsystems monitored by the IBM Db2 Data Access Common Collector for z/OS.

Default
Y
**Syntax**

```
OBJECTS(Y|N)
```

Valid values are:

- **Y** (Default) Statistics are gathered for objects. If you specify OBJECTS(Y), you can use the DISABLE_OBJECTS dynamic configuration change commands to disable object statistics collection.

- **N** No statistics are gathered for objects. If you specify OBJECTS(N) and you attempt to issue the ENABLE_OBJECTS dynamic configuration change commands to enable object statistics collection, it will be ignored.

**Example**

```
OBJECTS(N)
```

**OBJSDATA_DATACLAS**

(Optional) The OBJSDATA_DATACLAS parameter specifies an SMS data class for the OBJSDATA Performance History Files.

**Default**

If no value is specified for OBJSDATA_DATACLAS and a value has been specified for the DATACLAS parameter, OBJSDATA_DATACLAS defaults to the data class defined by the DATACLAS parameter.

**Syntax**

```
OBJSDATA_DATACLAS(dataclass)
```

`dataclass`

The SMS management class for allocation of the OBJSDATA Performance History Files.

**Example**

```
OBJSDATA_DATACLAS(DATACLAS)
```

**OBJSDATA_DSN**

(Required) The data set name for the OBJSDATA Performance History File. The OBJSDATA dataset contains summary object level data. The OBJSDATA data set is written at interval expiration. The data set name might contain valid system symbols and may also include the Db2 Query Monitor specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

**Notes:**

1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the OBJSDATA_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the Performance History File names that are generated by Db2 Query Monitor using the OBJSDATA_DSN parameter are unique.

2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.

3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

**Default**

None

**Syntax**

```
OBJSDATA_DSN(dsn)
```

`dsn`

The data set name mask for the OBJSDATA Performance History File.
Example
OBJSDATA_DSN(CQM.TEST.OBJSD.D&LYYMMDD..T&LHR.&LMIN..&INTV.)

OBJSDATA_MGMTCLAS
(Optional) The SMS management class for the OBJSDATA Performance History Files.

Default
If no value is specified for OBJSDATA_MGMTCLAS and a value has been specified for the
MGMTCLAS parameter, OBJSDATA_MGMTCLAS defaults to the storage class defined by the
MGMTCLAS parameter.

Syntax
OBJSDATA_MGMTCLAS(managementclass)

managementclass
The SMS management class for allocation of Db2 Query Monitor's OBJSDATA Performance
History Files.

Example
OBJSDATA_MGMTCLAS(MGMTCLAS)

OBJSDATA_PRIMARY
(Optional) The primary space quantity for the OBJSDATA Performance History File.

Default
5

Syntax
OBJSDATA_PRIMARY(n)

n
The primary space quantity for the OBJSDATA Performance History File. Valid values of n are
greater than or equal to 1.

Example
OBJSDATA_PRIMARY(5)

OBJSDATA_SECONDARY
(Optional) The secondary space quantity for the OBJSDATA Performance History File.

Default
2

Syntax
OBJSDATA_SECONDARY(n)

n
The secondary space quantity for the OBJSDATA Performance History File. Valid values of n are
greater than or equal to 1.

Example
OBJSDATA_SECONDARY(3)

OBJSDATA_SPACE_UNITS
(Optional) The space units that are used for the allocation of the OBJSDATA Performance History File.

Default
CYLS

Syntax
OBJSDATA_SPACE_UNITS(unit)

unit
The space units for allocation of the OBJSDATA Performance History File. Valid values are
CYLS or TRKS.

Example
OBJSDATA_SPACE_UNITS(TRKS)
OBJSDATA_STORCLAS
(Optional) The SMS storage class for the OBJSDATA Performance History Files.

Default
If no value is specified for OBJSDATA_STORCLAS and a value has been specified for the
STORCLAS parameter, OBJSDATA_STORCLAS defaults to the storage class defined by the
STORCLAS parameter.

Syntax
OBJSDATA_STORCLAS(storageclass)

storageclass
The SMS storage class for allocation of the OBJSDATA Performance History Files.

Example
OBJSDATA_STORCLAS(STORCLAS)

OBJSDATA_UNITNAME
(Optional) An esoteric name, generic device type or a device address for Db2 Query Monitor's
OBJSDATA Performance History Files.

Default
If no value is specified for OBJSDATA_UNITNAME and a value has been specified for the
UNITNAME parameter, OBJSDATA_UNITNAME defaults to the unit name defined by the
UNITNAME parameter.

Syntax
OBJSDATA_UNITNAME(unitname)

unitname
The unit name, generic device type, or device address for allocation of the OBJSDATA
Performance History Files.

Example
OBJSDATA_UNITNAME(CQMMTRDATA)

OBJSDATA_VOLUME
(Optional) The volume for Db2 Query Monitor's OBJSDATA Performance History Files.

Default
If no value is specified for OBJSDATA_VOLUME and a value has been specified for the VOLUME
parameter, OBJSDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax
OBJSDATA_VOLUME(volume)

volume
The volume for allocation of the OBJSDATA Performance History Files.

Example
OBJSDATA_VOLUME(CQMJOBV)

OPTKEYS

Description
(Optional) The OPTKEYS parameter specifies the level of granularity for summary buckets. You
can set up monitoring profile lines to override OPTKEYS settings in CQMPARMS for individual
OPTKEYS.

For example, if you specify OPTKEYS(TEXT), Db2 Query Monitor will collect information down to
the level of the individual SQL text statement. If you specify OPTKEYS(TEXT, AUTHIDS), Db2
Query Monitor will collect information down to the level of the individual SQL text statement and
to the level of the individual DB2 authorization ID.

The specification of the OPTKEYS parameter in the CQMPARMS data set is optional. If OPTKEYS is
not specified, Db2 Query Monitor collects the following information about query activity: DB2
subsystem, plan name, program name, section number, statement number, statement type,
collection ID, consistency token. Specifying OPTKEYS values enables the collection of additional information about query activity to help determine the origin of query activity and problems.

As you specify more OPTKEYS values, Db2 Query Monitor requires greater amounts of storage for the additional bucketing.

Default
None

Syntax
OPTKEYS(option1,option2,...)

Where option1,option2,... are those values that specify the level of granularity for which Db2 Query Monitor collects information. Valid values are:

**AUTHIDS**
The AUTHIDS parameter reduces collected information down to the level of individual Db2 authorization IDs.

**CALLS**
The CALLS parameter reduces collected information down to the level of the individual SQL calls. If the CALLS option is not specified in the OPTKEYS parameter, the statement number and description can contain N/A in the operational summaries.

**CONNNAME**
The CONNNAME parameter reduces collected information down to the level of the individual Db2 connection name.

**CONNTYPE**
The CONNTYPE parameter reduces collected information down to the level of the individual Db2 connection type.

**CORRID**
The CORRID parameter reduces collected information down to the level of the individual correlation ID. When OPTKEYS CORRNAME is specified both the CORRNAME and CORRNUMBER translations are performed.

**Note:** OPTKEYS(CORRNAME) and OPTKEYS(CORRID) are mutually exclusive. If OPTKEYS(CORRID) is used, the regular CORRID is collected, if OPTKEYS(CORRNAME) is used, the field is filled in according to the TSO/CAF/RRSAF/CICS/IMS descriptions above.

**CORRNAME**
The CORRNAME parameter directs Db2 Query Monitor to move only certain subsets of bytes from the originating correlation ID to the target summary record during the collection process. When OPTKEYS CORRNAME is specified only the CORRNAME translation is performed.

These subsets of bytes vary depending on the type of connection to Db2 (for example, TSO, BATCH, RRSAF, CICS, IMS, etc.). The bytes that will be moved for the various connection types are shown below (the remaining right-most bytes will be space padded with EBCDIC blanks):

- **TSO, CAF, RRSAF** - Bytes 1-8 of the originating correlation ID.
- **CICS** - Bytes 5-8 of the correlation ID (Transaction ID).
- **IMS** - Bytes 5-8 of the correlation ID (IMS PST#).

**Note:** OPTKEYS(CORRNAME) and OPTKEYS(CORRID) are mutually exclusive. If OPTKEYS(CORRID) is used, the regular CORRID is collected, if OPTKEYS(CORRNAME) is used, the field is filled in according to the TSO/CAF/RRSAF/CICS/IMS descriptions above.

**CORRNUM**
The CORRNUM parameter reduces collected information down to the level of the individual correlation number.

**JOBNAME**
The JOBNAME parameter reduces collected information down to the level of the individual z/OS batch jobname.
PARALLEL
The PARALLEL parameter reduces collected information down to the level of individual queries that are formulated using Db2 query parallelism.

PTEXT
The PTEXT parameter strips literals and multiple blanks from summary text. Literals are replaced by the indicator "&". Multiple whitespace characters, including blank (X'20'), tab (X'09'), line feed (X'0A'), form feed (X'0C'), and carriage return (X'0D') are reduced to a single blank. Literals included after an SQL "IS IN" clause will be stripped and replaced by the & indicator. This allows SQL text that differs by only literal values to be summarized together. OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

SCHEMA
The SCHEMA parameter reduces collected information down to the level of the individual Db2 Special Register Current SCHEMA value.

SP
The SP parameter reduces collected information down to the level of the individual stored procedure value.

TEXT
The TEXT parameter reduces collected information down to the level of the unique piece of SQL text. OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

WSNAME
The WSNAME parameter reduces collected information down to the level of the individual workstation name.

WSTRAN
The WSTRAN parameter reduces collected information down to the level of the individual workstation transaction.

WSUSER
The WSUSER parameter reduces collected information down to the level of the individual workstation user ID.

Example
OPTKEYS(TEXT,AUTHIDS)

PARALLEL
(Optional) Controls the collection of statistics for parallel activity.

Default
Y

Syntax
PARALLEL(Y|N)

Valid values are:

Y
(Default) Statistics are gathered for parallel activity. If you specify PARALLEL(Y), you can use the DISABLE_PARALLEL dynamic configuration change commands to disable parallel activity statistics collection.

N
No statistics are gathered for parallel activity. If you specify PARALLEL(N) and you attempt to issue the ENABLE_PARALLEL dynamic configuration change commands to enable parallel activity statistics collection, it will be ignored.

Example
PARALLEL(N)

QM_GROUP
(Optional) The name of group to which this Query Monitor Subsystem belongs. All Query Monitor Subsystems in this group will coordinate the setting of INTERVAL and INTERVAL_MIDNIGHT parameter values.
When QM_GROUP is specified, INTERVAL_MIDNIGHT(Y) is the default and a warning message will be issued if INTERVAL_MIDNIGHT(N) is specified.

**Note:** INTERVAL_MIDNIGHT(Y) is the recommended setting when QM_GROUP is specified.

When a Query Monitor Subsystem connects to a group, the INTERVAL and INTERVAL_MIDNIGHT parameters should be consistent across all Query Monitor Subsystems connected to that group. The first Query Monitor Subsystem to start and connect to the group will establish the INTERVAL and INTERVAL_MIDNIGHT values to be used for all systems that will connect to that group.

The INTERVAL and INTERVAL_MIDNIGHT values for other Query Monitor Subsystems that connect will be overridden by the values established by the first Query Monitor Subsystem to connect to the group.

If a Query Monitor Subsystem connects to the group and has different values for INTERVAL and INTERVAL_MIDNIGHT a warning message will be issued.

**Default**
None

**Syntax**

QM_GROUP(groupname)

**groupname**
The name (8-byte, character) of the group to which the Query Monitor Subsystem belongs.

**Example**

QM_GROUP(QMGRO001)

**RETAIN**
The number of prior intervals that are to be retained on DASD after interval processing is complete.

**Notes:**
1. As you specify higher values for the RETAIN parameter, the Query Monitor Subsystem requires greater amounts of storage for the additional intervals retained on DASD.
2. The RETAIN parameter indicates the number of completed intervals to retain on DASD.
3. You can use the DB2 offload process to keep data that has been collected beyond the retention period specified by the RETAIN parameter.

**Default**
6

**Range**
2-99999

**Syntax**

RETAIN(n)

**n**
The number of prior intervals to be retained on DASD after interval processing is complete.

**Example**

RETAIN(12)

**SHUTDOWN_DIAGNOSTICS**
(Optional) Diagnostics information can be written as WTO messages at shutdown. The diagnostics information contains maintenance levels and additional information used by IBM Software Support for diagnostics purposes.

**Default value**
N

**Syntax**

SHUTDOWN_DIAGNOSTICS(Y|N)

**Y**
Diagnostic WTO messages will be issued at shutdown.
(Default) No diagnostic WTO messages will be issued at shutdown.

Example

SHUTDOWN_DIAGNOSTICS(Y)

**SMEM_SIZE**

(Optional) The maximum amount global shared memory (in gigabytes) that will be allocated by Db2 Query Monitor for all purposes.

**Default**

4

**Range**

3-32

**Syntax**

`SMEM_SIZE(n)`

`n`

The maximum amount global shared memory, in gigabytes. The value you specified for the **SMEM_SIZE** parameter must be 3 times greater than that specified for the **MAXIMUM_ALLOCATIONS** parameter.

Example

`SMEM_SIZE(8)`

**SQLCDATA_DATACLAS**

(Optional) The SMS data class for the SQLCDATA Performance History Files.

**Default**

If no value is specified for SQLCDATA_DATACLAS and a value has been specified for the **DATACLAS** parameter, SQLCDATA_DATACLAS defaults to the data class defined by the **DATACLAS** parameter.

**Syntax**

`SQLCDATA_DATACLAS(dataclass)`

`dataclass`

The SMS management class for allocation of the SQLCDATA Performance History Files.

Example

`SQLCDATA_DATACLAS(DATACLAS)`

**SQLCDATA_DSN**

(Required) The data set name for the SQLCDATA Performance History File. The SQLCDATA data set contains information about SQLCODES collected during the course of an interval. Summary level - SQLCODE data is recorded at interval expiration. Detail level - SQLCODE data is recorded as the interval progresses. The data set name might contain valid system symbols and may also include the Db2 Query Monitor specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

**Notes:**

1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the **SQLCDATA_DSN** parameter. We also recommend that you use the date and time symbolic to ensure that the Performance History File names that are generated by Query Monitor using the **SQLCDATA_DSN** parameter are unique.

2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.

3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.
Default
None

Syntax
SQLCDATA_DSN(<dsn>)

<dsn>
The data set name mask for the SQLCDATA Performance History File.

Example
SQLCDATA_DSN(CQM.TEST.SQLCD.D&LYYMMDD..T&LHR.&LMIN..&INTV.)

SQLCDATA_MGMTCLAS
(Optional) The SMS management class for the SQLCDATA Performance History Files.

Default
If no value is specified for SQLCDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, SQLCDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax
SQLCDATA_MGMTCLAS(<managementclass>)

<managementclass>
The SMS management class for allocation of the SQLCDATA Performance History Files.

Example
SQLCDATA_MGMTCLAS(MGMTCLAS)

SQLCDATA_PRIMARY
(Optional) The primary space quantity for the SQLCDATA Performance History File.

Default
5

Syntax
SQLCDATA_PRIMARY(<n>)

<n>
The primary space quantity for the SQLCDATA Performance History File. Valid values of <n> are greater than or equal to 1.

Example
SQLCDATA_PRIMARY(5)

SQLCDATA_SECONDARY
(Optional) The secondary space quantity for the SQLCDATA Performance History File.

Default
2

Syntax
SQLCDATA_SECONDARY(<n>)

<n>
The secondary space quantity for the SQLCDATA Performance History File. Valid values of <n> are greater than or equal to 1.

Example
SQLCDATA_SECONDARY(3)

SQLCDATA_SPACE_UNITS
(Optional) The space units that are used for the allocation of the SQLCDATA Performance History File.

Default
CYLS

Syntax
SQLCDATA_SPACE_UNITS(<unit>)

Example
SQLCDATA_SPACE_UNITS(CYLS)
**unit**
The space unit for allocation of the SQLCDATA Performance History File. Valid values are CYLS or TRKS.

**Example**
```
SQLCDATA_SPACE_UNITS(TRKS)
```

**SQLCDATA_STORCLAS**
(Optional) The SMS storage class for Db2 Query Monitor's SQLCDATA Performance History Files.

**Default**
If no value is specified for SQLCDATA_STORCLAS and a value has been specified for the MGMTCLAS parameter, SQLCDATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

**Syntax**
```
SQLCDATA_STORCLAS(storageclass)
```

**storageclass**
The SMS storage class for allocation of Db2 Query Monitor's SQLCDATA Performance History Files.

**Example**
```
SQLCDATA_STORCLAS(STORCLAS)
```

**SQLCDATA_UNITNAME**
(Optional) An esoteric name, generic device type or a device address for the SQLCDATA Performance History Files.

**Default**
If no value is specified for SQLCDATA_UNITNAME and a value has been specified for the UNITNAME parameter, SQLCDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

**Syntax**
```
SQLCDATA_UNITNAME(unitname)
```

**unitname**
The unit name, generic device type, or device address for allocation of the SQLCDATA Performance History Files.

**Example**
```
SQLCDATA_UNITNAME(CQMSQLCDATA)
```

**SQLCDATA_VOLUME**
(Optional) The volume for the SQLCDATA Performance History Files.

**Default**
If no value is specified for SQLCDATA_VOLUME and a value has been specified for the VOLUME parameter, SQLCDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

**Syntax**
```
SQLCDATA_VOLUME(volume)
```

**volume**
The volume for allocation of the SQLCDATA Performance History Files.

**Example**
```
SQLCDATA_VOLUME(CQMSQV)
```

**STARTUP_DIAGNOSTICS**
(Optional) Diagnostics information can be written as WTO messages at startup. The diagnostics information contains maintenance levels and additional information used by IBM Software Support for diagnostics purposes.

**Default value**
```
N
```
Syntax

SHUTDOWN_DIAGNOSTICS(Y/N)

Y
Diagnostic WTO messages will be issued at startup.

N
(Default) No diagnostic WTO messages will be issued at startup.

Example

STARTUP_DIAGNOSTICS(Y)

STORCLAS
(Optional) The SMS storage class for allocation of the Performance History Files. This startup parameter might be overridden by the storage class specifications for the individual Performance History Files.

Default
This parameter defaults to null. If this parameter is null, Db2 Query Monitor does not use this parameter when making allocations for the Performance History Files.

Syntax

STORCLAS(storageclass)

storageclass

Example

STORCLAS(DB2TEMP)

SUBSYS
(Optional) The Query Monitor Subsystem name. The Query Monitor Subsystem name does not need to correspond to a DB2 subsystem nor an MVS operating system name.

Default
DBQM

Syntax

SUBSYS(qmid)

qmid
The 1-4 character Query Monitor Subsystem name.

Note: The Query Monitor Subsystem ID must be unique across the sysplex. A Query Monitor Subsystem must be running on each LPAR that has a DB2 subsystem to be monitored. Therefore when choosing a Query Monitor Subsystem name, be sure it will not conflict with another Query Monitor Subsystem on the sysplex.

Example

SUBSYS(DBQM)

SUMMARY_VARIATION
Instructs Db2 Query Monitor whether or not to collect standard deviation data in its summary metrics collection for workloads.

Default value
N

Syntax

SUMMARY_VARIATION(Y/N)

Example

SUMMARY_VARIATION(Y)

TEMP_UNITNAME
(Optional) The unit name, generic device type, or device address for the allocation of Db2 Query Monitor's temporary work files.

Default
SYSALLDA
Syntax
TEMP_UNITNAME(unitname)

unitname
The unit name, generic device type, or device address for allocation of Db2 Query Monitor's
temporary work files.

Example
TEMP_UNITNAME(TMPUNIT)

TEMP_VOLUME
(Optional) The volume that is used for the allocation of Db2 Query Monitor's temporary work files.

Default
If no value is specified for TEMP_VOLUME, Db2 Query Monitor allocates work files to the united defined by TEMP_UNITNAME.

Syntax
TEMP_VOLUME(volume)

unitname
The volume that is used for allocation of Db2 Query Monitor's temporary work files.

Example
TEMP_VOLUME(TMPVOL)

TEXTDATA_DATACLAS
(Optional) The SMS data class for the TEXTDATA Performance History Files.

Default
If no value is specified for TEXTDATA_DATACLAS and a value has been specified for the
DATACLAS parameter, TEXTDATA_DATACLAS defaults to the data class defined by the DATACLAS parameter.

Syntax
TEXTDATA_DATACLAS(dataclass)

dataclass
The SMS management class for allocation of the TEXTDATA Performance History Files.

Example
TEXTDATA_DATACLAS(DATACLAS)

TEXTDATA_DSN
(Required) The data set name for the TEXTDATA Performance History File. The TEXTDATA data set contains summary level SQL text data. This data set is written as SQL text is being captured for
OPTKEYS(TEXT) during the course of an interval. The data set name might contain valid system symbols and may also include the Db2 Query Monitor specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:
1. To ensure that the Performance History File name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the TEXTDATA_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the Performance History File names that are generated by Query Monitor using the TEXTDATA_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will appends .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default
None
Syntax
TEXTDATA_DSN(dsn)

dsn
The data set name mask for the TEXTDATA Performance History File.

Example
TEXTDATA_DSN(CQM.TEST.TEXTD&LYYMMDD..T&LHR.&LMIN..&INTV.)

TEXTDATA_MGMTCLAS
(Optional) The SMS management class for the TEXTDATA Performance History Files.

Default
If no value is specified for TEXTDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, TEXTDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax
TEXTDATA_MGMTCLAS(managementclass)

managementclass
The SMS management class for allocation of the TEXTDATA Performance History Files.

Example
TEXTDATA_MGMTCLAS(MGMTCLAS)

TEXTDATA_PRIMARY
(Optional) The primary space quantity for the TEXTDATA Performance History File.

Default
5

Syntax
TEXTDATA_PRIMARY(n)

n
The primary space quantity for the TEXTDATA Performance History File. Valid values of n are greater than or equal to 1.

Example
TEXTDATA_PRIMARY(5)

TEXTDATA_SECONDARY
(Optional) The secondary space quantity for the TEXTDATA Performance History File.

Default
2

Syntax
TEXTDATA_SECONDARY(n)

n
The secondary space quantity for the TEXTDATA Performance History File. Valid values of n are greater than or equal to 1.

Example
TEXTDATA_SECONDARY(3)

TEXTDATA_SPACE_UNITS
(Optional) The space units that are used for the allocation of the TEXTDATA Performance History File.

Default
CYLS

Syntax
TEXTDATA_SPACE_UNITS(unit)

unit
The space units for allocation of the TEXTDATA Performance History File. Valid values are CYLS or TRKS.
Example
TEXTDATA_SPACE_UNITS(TRKS)

TEXTDATA_STORCLAS
(Optional) The SMS storage class for the TEXTDATA Performance History Files.

Default
If no value is specified for TEXTDATA_STORCLAS and a value has been specified for the STORCLAS parameter, TEXTDATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax
TEXTDATA_STORCLAS(storageclass)

storageclass
The SMS storage class for allocation of the TEXTDATA Performance History Files.

Example
TEXTDATA_STORCLAS(STORCLAS)

TEXTDATA_UNITNAME
(Optional) An esoteric name, generic device type or a device address for the TEXTDATA Performance History Files.

Default
If no value is specified for TEXTDATA_UNITNAME and a value has been specified for the UNITNAME parameter, TEXTDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax
TEXTDATA_UNITNAME(unitname)

unitname
The unit name, generic device type, or device address for allocation of the TEXTDATA Performance History Files.

Example
TEXTDATA_UNITNAME(CQMTEXTDATA)

TEXTDATA_VOLUME
(Optional) The volume for the TEXTDATA Performance History Files.

Default
If no value is specified for TEXTDATA_VOLUME and a value has been specified for the VOLUME parameter, TEXTDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax
TEXTDATA_VOLUME(volume)

volume
The volume for allocation of the TEXTDATA Performance History Files.

Example
TEXTDATA_VOLUME(CQMTEV)

THREAD_SQLCODE_DUPLICATES
(Optional) Limits the number of unique SQLCODE detail records that Db2 Query Monitor collects and reports for a thread. After the first n unique occurrences of any SQLCODE are collected and reported, no additional detail records are collected for a thread until either the end of the interval or the end of the window defined by the THREAD_SQLCODE_DUPLICATES_TIME parameter.

Note:
- The MAX_SQLCODES and MAX_SQLCODE_DETAIL parameters affect the collection of events by defining the maximum number of SQLCODES and DETAIL records that can be collected during the interval.
- One detail record is collected for the first occurrence of every SQLCODE even if the THREAD_SQLCODE_DUPLICATES limit is exceeded.

**Default**
0

**Range**
Integers in the range 0 - 99999

**Syntax**
```
THREAD_SQLCODE_DUPLICATES(n)
```

- Collects and reports the first \( n \) occurrences of a unique SQLCODE detail record.

**Example**
```
THREAD_SQLCODE_DUPLICATES(20)
```
Collects and reports the first 20 occurrences of a unique SQLCODE detail record.

**THREAD_SQLCODE_DUPLICATES_TIME**
(Optional) Specifies the time in minutes after which Db2 Query Monitor can resume SQLCODE collection for a thread, suspended when the THREAD_SQLCODE_DUPLICATES limit was reached. Collection resumes when the next SQLCODE is encountered.

**Default**
1440

**Range**
Integers in the range 0 - 99999

**Syntax**
```
THREAD_SQLCODE_DUPLICATES_TIME(n)
```

- \( n \) The number of minutes after which Db2 Query Monitor resumes SQLCODE collection for a Db2 subsystem.

**Example**
```
THREAD_SQLCODE_DUPLICATES_TIME(10)
```
Db2 Query Monitor resumes SQLCODE collection for a thread after 10 minutes has passed and the next SQLCODE has been encountered.

**UNITNAME**
(Optional) An esoteric name, generic device type or a device address for the Performance History Files.

**Default**
This parameter defaults to null. If this parameter is null, Db2 Query Monitor does not use this parameter when making allocations for the Performance History Files.

**Syntax**
```
UNITNAME(unitname)
```

- `unitname` The unit name, generic device type, or device address for allocation of the Performance History Files.

**Example**
```
UNITNAME(SYSALLDA)
```

**VOLUME**
(Optional) The volume for the Performance History Files.

**Default**
This parameter defaults to null. If this parameter is null, Db2 Query Monitor does not use this parameter when making allocations for the Performance History Files.
Syntax
VOLUME(volume)

volume
The volume for allocation of the Performance History Files.

Example
VOLUME(CQMVL)

Recommendations for CQMPARMS
Review the following recommendations for CQMPARMS.

CQMPARMS DD requirements
Db2 Query Monitor's parameters are defined in an 80-byte sequential or partitioned data set that you must allocate to the CQMPARMS DD.

When coding the parameter file, note the following:

- The end of any parameter is denoted by a close parenthesis ')'. The absence of a close parenthesis on any non-commented line indicates that the parameter is to be continued. To continue it, simply start in column 1 on the next line (the continuation line must start in column 1).
- A continuation is limited to 360 characters. The leading and trailing blanks on each line are not counted towards that limit so you can specify approximately 40 DB2 and profile pairs.
- Use a hyphen to continue the parameter file after the end of an individual parameter.
- Do not place characters in columns 73 through 80
- Do not code line numbers
- Comments may appear anywhere after a hyphen
- The valid character set for CQMPARMS is EBCDIC
- Underlines indicate the minimum acceptable abbreviation for each keyword
- Variables are shown in italicized lower-case type
- Keyword options are separated by vertical lines, |

The following example shows the MONITOR parameter continued over three lines. Note that there is not a continuation character "-" at the end of the first and second lines. The first and second lines end without a close parenthesis anywhere before column 72. The second and third lines continue in column 1 and the third line ends with a hyphen "-" after the close parenthesis, indicating the parameter file continues:

```
MONITOR (DB21,PROFILE1,DB22,PROFILE2,
DB23,PROFILE3,DB24,PROFILE4,
DB25,PROFILE5) -
```

Data set name guidelines for CQMPARMS
Data set names in CQMPARMS must not resolve to lengths of greater than 38 bytes since the system appends ".DATA" and ".INDEX" to the end of VSAM data and index components.

Additionally, data set names might contain valid system symbols and may also include the Db2 Query Monitor-specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Thus, when specifying data set names for Db2 Query Monitor's Performance History Files (using parameters such as DB2CDATA_DSN, EXCPDATA_DSN, EXCPINDEX_DSN, METRDATA_DSN, OBJSDATA_DSN, SQLCDATA_DSN, TEXTDATA_DSN), the maximum length allowed for the resolved data set name is 38 characters. This maximum length allows for the addition of the node ".INDEX" or ".DATA" which brings the name to the maximum allowed 44 characters for a data set name.

For example, in CQMPARMS if you specify the following:

```
EXCPDATA_DSN(RTEST.X61.EDATA.D&LYYMMDD..T&LHR.&LMIN..&INTV.) -
```
The resulting data set name resolves to:

```
RTEST.X61.EDATA.D040823.T1049.I00583
```

where:

- `.D&LYYMMDD.` resolved to "D" + the local date of allocation (7 bytes)
- `.T&LHR.` resolved to "." + "T" + the hour of day (4 bytes)
- `&LMIN.` resolved to the minute after the hour (2 bytes)
- `&.INTV.` resolved to "." + "I" + next allocated Db2 Query Monitor interval number (7 Bytes)

Because this is a VSAM data set, an object with the valid name

```
RTEST.X61.EDATA.D040823.T1049.I00583.DATA
```

is created. You should perform similar checks to ensure that all data set names you specify will resolve to a valid length.

**Note:** SCQMSAMP member CQMPARMS uses the local date (&LYYMMDD) for data set naming conventions.

**Non-SMS allocation of Performance History Files**

Db2 Query Monitor's STORCLASS, DATACLAS, MGMTCLAS, and VOLUME parameters (including DB2CDATA_VOLUME, EXCPDATA_VOLUME, EXCPINDEX_VOLUME, METRDATA_VOLUME, OBJSDATA_VOLUME, SQLCDATA_VOLUME, TEXTDATA_VOLUME, and VOLUME) enable a site to make use of non-SMS managed volumes with Db2 Query Monitor's Performance History Files.

The specification of values for the parameters listed above (as well as the data set naming parameters, DB2CDATA_DSN, EXCPDATA_DSN, EXCPINDEX_DSN, METRDATA_DSN, OBJSDATA_DSN, SQLCDATA_DSN, and TEXTDATA_DSN) does not override SMS nor does it override the behavior of a site's ACS routines in the handling of data set requests. Therefore, the use of these parameters and their behavior is influenced both by the settings coded in CQMPARMS as well as by an installation's SMS configuration.

**Notes:**

1. When using these new parameters, please note that the STORCLAS, MGMTCLAS, and DATACLAS parameters must be commented out or they will override the volume specifications for the individual Performance History Files.
2. Db2 Query Monitor does not attempt to look anywhere else for storage other than the specified volume in the volume parameters.
3. No informational message is generated if the DATACLAS, STORCLAS, MGMTCLAS parameters are not commented out.
4. In the absence of SMS-management of the Performance History File allocations and if no volume-specific parameters are specified in the CQMPARMS file, the Performance History Files will be allocated on storage volumes, as determined by the operating system, provided space is available.

**Parameter specification errors**

The following non Db2 Query Monitor messages may occur when an invalid value is left in any of the parameters (including DB2CDATA_VOLUME, EXCPDATA_VOLUME, EXCPINDEX_VOLUME, METRDATA_VOLUME, OBJSDATA_VOLUME, SQLCDATA_VOLUME, TEXTDATA_VOLUME, and VOLUME).

If these message occur, Db2 Query Monitor stops the startup process and terminates:

- IKJ56231I DATA SET <data set name> NOT ALLOCATED, IKJ56231I TEXT UNIT X'0010' CONTAINS INVALID PARAMETER
- IKJ56248I DATA SET <data set name> NOT ALLOCATED, REQUESTED AS NEW BUT CURRENTLY ALLOCATED
- IKJ56883I type NOT operation, REQUEST CANCELED
- IKJ56893I type_name NOT operation (Allocation, LACS, and/or Storage Management Subsystem messages are displayed)
Note: One possible reason for the generation of these messages is the use of duplicate variables in parameters used to define data set names.

The following message is issued by the started task if there is a problem allocating the data set:

CQM2601E ALLOCATION FAILED FOR VSAM DATASET <data set name>
RETCODE=<return code> REASON=<reason code>

When this message occurs, Db2 Query Monitor will stop the start-up process and terminate. Refer to MVS Programming Authorized Assembler Services Guide (SA22-7608-07) for information about return and reason codes. Error messages CQM2100E, CQM2101E, and CQM2110E will be issued if the parameters or their values are incorrectly defined.

Reduced object details for prepare SQL calls
When Db2 Query Monitor collects object details for a site that runs a large number of dynamic SQL statements, the number of catalog objects that are tracked by Db2 Query Monitor may grow quite large.

For instance, numerous catalog objects are accessed during the bind (prepare) process for a dynamic SQL statement. Since Db2 Query Monitor collects statistics on those objects, a large number of objects are tracked when numerous dynamic SQL statements execute. This results in the increased consumption of dataspace storage per interval.

Db2 Query Monitor enables you to turn off the collection of catalog object statistics and thus reduce dataspace storage consumption resulting from dynamic SQL prepare calls by specifying a value of N for the CATALOG_OBJECTS startup parameter.

Detecting a loop in an application
You can use Db2 Query Monitor to detect a loop within an application that is running on a thread or a Db2 subsystem.

Procedure
• To detect a loop within an application running on a thread:
  a) Add the THREAD_SQLCODE_DUPLICATES(n) parameter to CQMPARMS, where n is the number of occurrences of a duplicate SQLCODE that Db2 Query Monitor reports for a thread.
  b) Add the THREAD_SQLCODE_DUPLICATES_TIME(n) parameter to CQMPARMS, where n is the number of minutes after which you want Db2 Query Monitor to restart duplicate SQLCODE detection for a thread and can detect SQLCODE loops that might occur at different time points within an interval.
• To detect a loop within an application running on a Db2 subsystem:
  a) Add the DB2_SQLCODE_DUPLICATES(n) parameter to CQMPARMS, where n is the number of occurrences of a duplicate SQLCODE that Db2 Query Monitor reports for a Db2 subsystem.
  b) Add the DB2_SQLCODE_DUPLICATES_TIME(n) parameter to CQMPARMS, where n is the number of minutes after which you want Db2 Query Monitor to restart duplicate SQLCODE detection for a Db2 subsystem and can detect SQLCODE loops that might occur at different time points within an interval.

What to do next
For more information, see “Query Monitor Subsystem parameters - CQMPARMS” on page 493.

CAE Agent parameters - CQMCPRMS

The parameters defined in CQMCPRMS can be used to control the behavior of the CAE Agent.

The CAE Agent started task JCL, highlevel.SQMSAMP member CQMCAE, contains a CQMCPRMS DD statement that points to the CQMCPRMS file, which contains the CAE Agent parameters.
The CQMCPRMS file must be placed in the Db2 Query Monitor control data set. If you change the name of the CQMCPRMS, you must modify the CQMCPRMS DD in the CAE Agent started task to point to the correct parameter file.

**AGENT_NAME**
(Optional) The CAE Agent name.

Default
CQMCAE

Syntax
AGENT_NAME(name)

name
The name of the CAE Agent.

Example
AGENT_NAME(CQMCAEXX)

Also referred to as
Agent name

**BACKUP_ADDRESS**
(Optional) The IP address or DNS at which the Backup CAE Server listens for incoming connections from the CAE Agent.

Default
0.0.0.0

Syntax
BACKUP_ADDRESS(address)

address
The IP address or DNS name of the Backup CAE Server.

Example
BACKUP_ADDRESS(192.0.2.0)

Also referred to as
Backup CAE Server Listener Address

**BACKUP_PORT**
(Optional) The port at which the Backup CAE Server listens for incoming connections from the CAE Agent.

Default
3448

Syntax
BACKUP_PORT(port)

port
The port number at which the Backup CAE Server is accepting connections from the CAE Agent.

Example
BACKUP_PORT(53006)

Also referred to as
Backup CAE Server Listener Port

**CALLBACK_ADDRESS**
(Optional) The IP address that the CAE Server uses to respond to the CAE Agent when sending meta data to the query tuning client.

Default
0.0.0.0

Syntax
CALLBACK_ADDRESS(address)
**address**
The IP address that the CAE Server uses to respond to the CAE Agent when sending meta data to the query tuning client.

**Example**
CALLBACK_ADDRESS(192.0.2.0)

**Also referred to as**
Callback Address

**CQM_CAE_RACF_LOGGING**
(Optional) Controls which ICH messages are printed to the system log by the CAE Agent when a user lacks the necessary permissions to access a Db2 Query Monitor resource.

**Default**
FINER

**Syntax**
CQM_CAE_RACF_LOGGING(msg_type)

**msg_type**
The ICH message type printed in the system log. Valid values are:

- **NONE**
  No ICH messages are printed in the system log.

- **FINE**
  ICH messages are printed in the system log when:
  - The user enters the wrong password in the CAE Browser Client.

- **FINER**
  ICH messages are printed in the system log when any of the following situations occur:
  - The user enters the wrong password in the CAE Browser Client.
  - The user does not belong to required RACF group for accessing some data. For example, CQM.SQLTEXT.* for viewing SQL text or CQM.HOSTV.* for viewing host variables.

- **FINEST**
  ICH messages are printed in the system log when any of the following situations occur:
  - The user enters the wrong password in the CAE Browser Client.
  - The user does not belong to required RACF group for accessing some data. For example, CQM.SQLTEXT.* for viewing SQL text or CQM.HOSTV.* for viewing host variables.
  - An authentication error occurs when the user logs in to the CAE Browser Client (during log in, the CAE Server makes several RACF checks to define the user’s role).

**Example**
CQM_CAE_RACF_LOGGING(FINEST)

**ISPF_LISTENER_PORT**

ISPF_LISTENER_PORT REQUIRED The port you want the CAE Agent to use when listening for incoming connections from the ISPF client. The ISPF_LISTENER_PORT you specify must be available and cannot overlap with the ports you specify using the LISTENER_PORTS and SERVER_PORT parameters.

**Default**
None

**Syntax**
ISPF_LISTENER_PORT(port)

**port**
The port used by the CAE Agent to accept communication requests from the ISPF client.

**Example**
ISPF_LISTENER_PORT(60005)
Also referred to as
ISPf Listener Port

LISTENER_ADDRESSES
(Optional) A list of IP addresses or DNS names at which the CAE Agent listens for incoming connections from the CAE Server.

Default
0.0.0.0

Note: This value enables the CAE Agent to listen at all IP addresses defined for the z/OS image on which the CAE Agent is running.

Syntax
LISTENER_ADDRESSES(address,address2,address1)

address
The IP addresses or DNS names (comma-separated) at which the CAE Agent listens for incoming connections from the CAE Server.

Example
LISTENER_ADDRESSES(SRVR01.XYZ.COM,SRVR02.XYZ.COM)

Also referred to as
CAE Agent Listener Addresses

LISTENER_PORTS
(Required) The port range used by the CAE Agent to accept communication requests from the CAE Server.

Default
53000-53005

Syntax
LISTENER_PORTS(port1-port2)

port1-port2
The port range used by the CAE Agent to accept communication requests from the CAE Server.

Example
LISTENER_PORTS(60000-60004)

Also referred to as
CAE Agent Listener Port Range

Usage recommendations

• If you allow only one listener port, you will not be able to restart the CAE Agent until at least 2 minutes after the previous CAE Agent address space was terminated (even if terminated normally using /P).

• A port range of at least 2 but preferably 5 ports is recommended. For example, LISTENER_PORTS(60000-60004).

MIXED_CASE_PASSWORDS
(Optional) Indicates whether or not mixed-case passwords are accepted.

Default
N

Syntax
MIXED_CASE_PASSWORDS(Y|N)

N
(Default) Mixed-case passwords are not required; users can enter passwords in any case and passwords will be upper-cased.
Mixed-case passwords are required. If passwords are specified without the correct case, they will not be accepted. Do not specify \texttt{Y} if your security system does not use mixed-case passwords.

**Example**

\texttt{MIXED\_CASE\_PASSWORDS(Y)}

**SERVER\_ADDRESS**

(Required) A list of IP addresses or DNS names at which the CAE Server listens for incoming connections from the CAE Agent.

**Default**

0.0.0.0

**Syntax**

\texttt{SERVER\_ADDRESS(address)}

\texttt{address}

A list of IP addresses or DNS names at which the CAE Server listens for incoming connections from the CAE Agent.

**Example**

\texttt{SERVER\_ADDRESS(SRVR01.COMPANYNAME.COM)}

**Also referred to as**

CAE Server Listener Address

**SERVER\_POLL\_PERIOD**

(Optional) The CAE Server poll period, in seconds. When the CAE Agent is not connected to a CAE Server, it will attempt to connect by polling the CAE Server (defined by the \texttt{SERVER\_ADDRESS} parameter) at the specified CAE Server Listener Port (defined by the \texttt{SERVER\_PORT} parameter) at a frequency defined by the \texttt{SERVER\_POLL\_PERIOD} parameter.

**Default**

10

**Syntax**

\texttt{SERVER\_POLL\_PERIOD(n)}

**Example**

\texttt{SERVER\_POLL\_PERIOD(20)}

**SERVER\_PORT**

(Optional) The port at which the CAE Server listens for incoming connections from the CAE Agent.

**Default**

3448

**Syntax**

\texttt{SERVER\_PORT(port\_number)}

**Example**

\texttt{SERVER\_PORT(53006)}

**Also referred to as**

CAE Server Listener Port

---

**CAE Server parameters - CQMCAESV - USS**

The parameters for USS installations of the CAE Server and are defined in the CAE Server started task \texttt{CQMCAESV}.

The following provides an example of \texttt{CQMCAESV}, with a \texttt{REGION} set to 800M and several parameters specified for the \texttt{STDEVN DD}:

```plaintext
//SERVER    EXEC PGM=BPXBATCH,REGION=800M,TIME=NOLIMIT,
            PARM='SH /u/username/cqm/bin/start_cae_server'
```
PARM='SH /u/username/cqm/bin/start_cae_server -shutdown'

//STDDOUT DD PATH='/var/cqm/logs/cae_server.log',
   PATHOPTS=(OWRONLY, OCREAT, OAPPEND),
   PATHMODE=(SIRWXU, SIRWXG, SIRWXO)

//STDENV DD *
CQM_VAR_HOME=/configuration/location
CQM_JAVA=/usr/lpp/java/IBM/8.0_64
CQM_LOGS=/var/cqm/logs
CQM_HEAP=500
CQM_JDBC_PORT=1112

Note: Be sure there are no spaces at the beginning of any of the lines in the STDENV DD. If any spaces are present at the beginning of a line, the specified parameter is ignored.

CQM_CAE_AGENT_LISTENER_PORT
(Optional) The port at which the CAE Server listens for incoming connections from the CAE Agent.

Default
3448

Syntax
CQM_CAE_AGENT_LISTENER_PORT=port

port
The port number.

Example
CQM_CAE_AGENT_LISTENER_PORT=3450

Also referred to as
cae_listener_port

CQM_CAE_CEE_RUNOPTS
(Optional) Overrides LE runtime options for the Java virtual machine and avoids unexpected CAE Server termination that might occur when using non-default Java virtual machine options. For more information see https://www.ibm.com/support/knowledgecenter/en/SSLTBW_2.2.0/com.ibm.zos.v2r2.ceea300/rtoch1.htm

Default
If this parameter is not specified, the CAE Server uses the Java virtual machine LE runtime options that are defined on the LPAR.

Syntax
CQM_CAE_CEE_RUNOPTS

Example
CQM_CEE_RUNOPTS=ERRCOUNT(0),TRAP(ON,SPIE)

CQM_CAE_KEYSTORE_TYPE
(Optional) The type of both the truststore and keystore. The truststore and keystore types cannot be different.

Default
JKS

Syntax
CQM_CAE_KEYSTORE_TYPE=type

type
Valid values for type include:

JKS (or JAVA)
(Default) The defaultKeystore.jks file is used for the keystore and truststore.

Note: If you specify JKS (or JAVA), do not specify the CQM_CAE_TRUSTSTORE and CQM_CAE_KEYSTORE parameters.

RACF (JCERACFKS or SAF)
Certificates and keys are stored in SAF. If you specify RACF or one of its aliases, you must also specify the CQM_CAE_TRUSTSTORE and CQM_CAE_KEYSTORE parameters.
CCA (ICSF, RACFCCA or JCECCARACFKS)
Certificates are stored in SAF and the associated key data is stored in ICSF. If you specify CCA (or one if its aliases) you must also specify the CQM_CAE_TRUSTSTORE and CQM_CAE_KEYSTORE parameters.

**Note:** The values shown above in parentheses are aliases for the first value. For example, if CQM_CAE_KEYSTORE_TYPE=JAVA is specified it is synonymous to CQM_CAE_KEYSTORE_TYPE=JKS.

**CQM_CAE_LOCAL_ADDRESS**
(Optional) Specifies the IP address of the host where the CAE Server is running. The CAE Server determines its local address automatically. However in some environments, a fully qualified domain name for the CAE Server might point to more than one physical host. In such a situation, the CQM_CAE_LOCAL_ADDRESS parameter can be used to specify the CAE Server local host address.

**Default**
None. If this parameter is not specified, the CAE Server determines its local address automatically.

**Syntax**
CQM_CAE_LOCAL_ADDRESS=ip_address

**Example**
CQM_CAE_LOCAL_ADDRESS=10.10.10.10

**CQM_CAE_TRUSTSTORE**
(Optional) The location of the truststore. The key ring must be set up for the user ID under which the CAE Server will be run. This parameter should only be specified if the CQM_CAE_KEYSTORE_TYPE is either RACF or CCA (or their synonyms). Do not specify this parameter if CQM_CAE_KEYSTORE_TYPE=JKS (or its synonym) is specified.

**Default**
None

**Syntax**
CQM_CAE_TRUSTSTORE=safkeyring://ringname

**Example**
CQM_CAE_TRUSTSTORE=safkeyring://ringname

**ringname**
The name of the SAF keyring that contains the trusted certificate.

**CQM_EXPIRED_FAILOVER_WAIT_TIME**
(Optional) How long in seconds the Watchdog waits after communication with the Primary CAE Server has been lost before it starts the Backup CAE Server. Set this parameter to the number of seconds it usually takes for the Backup CAE Server to restart after a power failure or explicit shutdown or restart.

**Default**
0

**Syntax**
CQM_EXPIRED_FAILOVER_WAIT_TIME=n

**Example**
CQM_EXPIRED_FAILOVER_WAIT_TIME=10

**CQM_HEAP**
(Optional) The amount of memory in MB that the Java virtual machine heap can use.

**Note:**
- It is recommended that your USS environment includes the following setting: _BPX_SHAREAS=NO.
- The value you specify for REGION must be at least 300 MB more than the value you specify for CQM_HEAP.
**CQM_HEAP**

(Optional) The amount of memory in MB that the Java virtual machine heap can use.

**Default**

500

**Syntax**

```plaintext
CQM_HEAP=n
```

`n`

The amount of memory in MB that the Java virtual machine heap can use.

**Example**

```plaintext
CQM_HEAP=550
```

**CQM_HTTPS_PORT**

(Optional) The HTTPS Port on the CAE Server to which the CAE Browser Client connects.

**Default**

443

**Syntax**

```plaintext
CQM_HTTPS_PORT=(port)
```

`port`

The HTTPS Port on the CAE Server that the CAE Browser Client connects to.

**Example**

```plaintext
CQM_HTTPS_PORT=8443
```

**Also referred to as**

HTTPS Port

**CQM_INITIAL_FAILOVER_WAIT_TIME**

(Optional) The time (in seconds) that the Watchdog waits after it starts to receive a response from the Primary CAE Server. If no response is received within this time period, the Watchdog starts a Backup CAE Server.

**Default**

18000

**Syntax**

```plaintext
CQM_INITIAL_FAILOVER_WAIT_TIME=n
```

`n`

The number of seconds the Watchdog waits after it starts to receive a response from the Primary CAE Server before starting a Backup CAE Server.

**Example**

```plaintext
CQM_INITIAL_FAILOVER_WAIT_TIME=20000
```

**CQM_JAVA**

(Optional) The location of Java.

**Default**

```
/user/lpp/java/IBM/J8.0_64
```

**Syntax**

```plaintext
CQM_JAVA=path
```

`path`

The path of the Java installation.

**Example**

```plaintext
CQM_JAVA=/user/lpp/jv/IBM/J8.0_64
```

**CQM_JDBC_PORT**

(Optional) The Java Database Connectivity port used by the CAE Server.

**Default**

1112

**Syntax**

```plaintext
CQM_JDBC_PORT=port
```

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**port**
The Java Database Connectivity port used by the CAE Server.

**Example**

```
CQM_JDBC_PORT=1114
```

**Also referred to as**

JDBC Port

**CQM_LOCAL_PORTAL_PORT**
(Optional) The port at which the Java Agent listens.

**Note:**

- If you change the Java Local Portal Port of the CAE Server, the Java Remote Portal Port of the Backup CAE Server and the Watchdog must changed to match that value too.
- When specifying the Java Local Portal Port and Java Remote Portal Port, make sure they are not within the RMI Port Range, which by default is 3445-3455. If you specify a Java Local Portal Port within the RMI Port Range, there is a chance of a conflict.
- The port 3444 has been registered with IANA for use by Db2 Query Monitor. With the exception of IBM Tivoli Storage Optimizer for z/OS, no third-party application should default to that port.

**Default**

3444

**Syntax**

```
CQM_LOCAL_PORTAL_PORT=port
```

**port**
The port that the CAE Server listens on.

**Example**

```
CQM_LOCAL_PORTAL_PORT=3460
```

**Also referred to as**

Java Local Portal Port

**CQM_LOGS**
(Required) The location to which CAE Agent logs are stored on z/OS.

**Note:** The directory part of the path of the STDOUT DD statement must be the same as the directory specified for the CQM_LOGS parameter in STDENV. For example, if `/u/username/cqm33/bin/start_cae_agent` is in the STDOUT DD statement, then the CQM_LOGS must be `/u/username/cqm33/logs` (the `/u/username/cqm33` portion of the path must match for both).

**Default**

```
/var/cqm/logs
```

**Syntax**

```
CQM_LOGS=path
```

**path**
The location to which CAE Agent logs are stored on z/OS.

**Example**

```
CQM_LOGS=/u/username/cqm33/logs
```

**CQM_LOGS_TO_KEEP**
(Optional) The number of agent logs that are kept.

**Default**

```
5
```

**Syntax**

```
CQM_LOGS_TO_KEEP=n
```

**n**
The number of agent logs that are kept.
**Syntax**

CQM_LOGS_TO_KEEP=10

**CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME**

(Optional) Instructs the CAE Server to use the IP address instead of the host name to send metadata to the query tuning client.

**Default**

false

**Syntax**

CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME=true|false

**Example**

CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME=true

**CQM_REMOTE_PORTAL_PORT**

(Optional) The port that the Java Agent attempts to connect to.

**Default**

3444

**Syntax**

CQM_REMOTE_PORTAL_PORT=port

**Example**

CQM_REMOTE_PORTAL_PORT=3460

**Also referred to as**

Java Remote Portal Port

**CQM_REORG_METRICS**

Specifies the metrics and corresponding threshold values that are analyzed during reorganization recommendation. One or more metrics (and their corresponding threshold values) can be defined. A colon separates the metric and its values. A comma separates each metric/value set.

**Default**

DB2_CPU:60:1:10,DB2_ELAPSED:60:10:20

**Syntax**

CQM_REORG_METRICS=metric1:low_threshold%_1:absolute_threshold_1:threshold%_1,metric2:low_threshold%_2:absolute_threshold_2:threshold%_2

**metric1, metric2**

The metrics that are analyzed for reorganization recommendation. Valid metrics include columns in the CQM_SUMM_METRICS table.

**low_threshold%_1, low_threshold%_2**

The low threshold percentage is used to verify that sufficient data exists in the comparison performance window to analyze and to make a reorganization recommendation. The low threshold percentage is checked when recommendation is requested from Db2 Automation Tool.

**absolute_threshold_1, absolute_threshold_2**

The absolute threshold for a metric is used to verify that sufficient data exists in the performance window to analyze and to make a reorganization recommendation.

**threshold%_1, threshold%_2**

The threshold percentage for a metric is the percentage by which the metric differs as measured in the baseline performance window versus the comparison performance window. The threshold % is checked when recommendation is requested from Db2 Automation Tool.

For example, the default value DB2_CPU:60:1:10,DB2_ELAPSED:60:10:20, specifies that:

- The total DB2_CPU value (for all statements that ran against the specified objects) must be greater than 1 second or the total DB2_ELAPSED value (of all statements that ran against
specified objects) must be greater than 10 seconds for the interval to be saved as a baseline or a comparison performance window.

- One of the following conditions must be met to initiate reorganization recommendation analysis (otherwise the message "Not enough data" is issued):
  - The total DB2_CPU value of all statements in the comparison window that are common with the statements in the baseline window must be at least 60% of the total DB2_CPU value (the low threshold%) for all statements from the comparison window.
  - The total DB2_CPU value of all statements in the comparison window that are common with the statements in the baseline window must be at least 1 second (the absolute threshold).
  - The total DB2_ELAPSED value of all statements in the comparison window that are common with the statements in the baseline window must be at least 60% of the total DB2_ELAPSED value (the low threshold%) for all statements from the comparison window.
  - The total DB2_ELAPSED value of all statements in the comparison window that are common with the statements in the baseline window must be at least 10 seconds (the absolute threshold).

- If one of the preceding conditions is met, then DB2_CPU performance must degrade by 10% or more, or DB2_ELAPSED performance must degrade by 20% or more (the threshold %) for a reorganization to be recommended by Db2 Query Monitor.

Example
CQM_REORG_METRICS=GETPAGES:60:100:15

CQM_RMI_PORT_RANGE
(Optional) The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication.

Default
3445-3455

Syntax
CQM_RMI_PORT_RANGE=port1-port2

port1-port2
The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication.

Example
CQM_RMI_PORT_RANGE=3465-3475

Also referred to as
RMI Port Range

CQM_SHTDWN_FAILOVER_WAIT_TIME
(Optional) How long in seconds the Watchdog waits after receiving a message from the Primary CAE Server that it is shutting down. That is, the Primary CAE Server was given an explicit stop command. Set this timer to the average time it takes for the operator on the Primary CAE Server to perform maintenance and issue a start command for the Primary CAE Server.

Default
600

Syntax
CQM_SHTDWN_FAILOVER_WAIT_TIME=n

n
The number of seconds the Watchdog waits after receiving a message from the Primary CAE Server that it is shutting down.

Example
CQM_SHTDWN_FAILOVER_WAIT_TIME=800
CQM_TZ
(Optional) Overrides the TZ (TIMEZONE) variable active for the USS segment of the user submitting
the CQMCAE JCL.

Default
None. If you do not specify CQM_TZ, the CAE Server uses system properties to determine your
time zone.

Syntax
CQM_TZ=zulu

CQM_VAR_HOME
(Required) The location of the configuration and data files for the CAE Server.

Default
userhome/cqmv3r3/var

Syntax
CQM_VAR_HOME=path

path
The location of the configuration and data files for the CAE Server.

Example
CQM_VAR_HOME=/proj/qmcaedata

REGION
(Optional) The region size in MB for the CAE Server. The value you specify for REGION must be at least
300 MB more than the value you specify for CQM_HEAP. The REGION parameter is specified on the
EXEC of CQMCAESV.

Note: It is recommended that your USS environment includes the following setting:
_BPX_SHAREAS=NO.

Default
800

Syntax
REGION=size

size
The region size in MB for the CAE Server.

Example
REGION=1000

CAE Server properties - cqm.server.properties - Windows

CAE Server properties are defined in cqm.server.properties. For the CAE Server on Windows,
cqm.server.properties is located in the root folder of your CAE installation directory. For the CAE Server on
USS, cqm.server.properties is in the CQM_VAR_HOME directory.

com.rocketsoft.denali.agents.localPort
(Optional) The port that the Java Agent listens on.

Note:
• If you change the Java Local Portal Port of the CAE Server, the Java Remote Portal Port of the
Backup CAE Server and the Watchdog must changed to match that value too.
• When specifying the Java Local Portal Port and Java Remote Portal Port, make sure they are not
within the RMI Port Range, which by default is 3445-3455. If you specify a Java Local Portal Port
within the RMI Port Range, there is a chance of a conflict.
• The port 3444 has been registered with IANA for use by Db2 Query Monitor. With the exception of
IBM Tivoli Storage Optimizer for z/OS, no third-party application should default to that port.
**Default**
3444

**Syntax**
com.rocketsoft.denali.agents.localPort=port

*port*
The port that the Java Agent listens on.

**Example**
com.rocketsoft.denali.agents.localPort=3460

**Also referred to as**
Java Local Portal Port

**com.rocketsoft.denali.agents.remotePort**
(Optional) The port that the Java Agent attempts to connect to.

**Default**
3444

**Syntax**
com.rocketsoft.denali.agents.remotePort=port

*port*
The port that the Java Agent attempts to connect to.

**Example**
com.rocketsoft.denali.agents.remotePort=3460

**Also referred to as**
Java Remote Portal Port

**com.rocketsoft.denali.agents.rmiPortRange**
(Optional) The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication.

**Default**
3445-3455

**Syntax**
com.rocketsoft.denali.agents.rmiPortRange=port1-port2

*port1*-*port2*
The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication.

**Example**
com.rocketsoft.denali.agents.rmiPortRange=3465-3475

**Also referred to as**
RMI Port Range

**com.rocketsoft.kbm.explicitLocalHost**
(Optional) Specifies the IP address of the host where the CAE Server is running. The CAE Server determines its local address automatically. However in some environments, a fully qualified domain name for the CAE Server might point to more than one physical host. In such a situation, the com.rocketsoft.kbm.explicitLocalHost parameter can be used to specify the CAE Server local host address.

**Default**
None. If this parameter is not specified, the CAE Server determines its local address automatically.

**Syntax**
com.rocketsoft.kbm.explicitLocalHost=ip_address

**Example**
com.rocketsoft.kbm.explicitLocalHost=10.10.10.10
com.rocketsoft.nm.qm.caeAgent.listenerPort
(Optional) This port identifies the port at which the CAE Server listens for incoming connections from the CAE Agent.

Default
3448

Syntax
com.rocketsoft.nm.qm.caeAgent.listenerPort=port

port
The port number.

Example
com.rocketsoft.nm.qm.caeAgent.listenerPort=3559

Also referred to as
CAE Server Listener Port

com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames
(Optional) Instructs the CAE Server to use the IP address instead of the host name to send metadata to the query tuning client.

Default
false

Syntax
com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames=true|false

Example
com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames=true

com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength
When running reorganization recommendation, the MaxCollectionWindowLength parameter defines the maximum time period (in milliseconds) for which Db2 Query Monitor keeps data in a performance window. If MaxCollectionWindowLength is less than the INTERVAL length, Db2 Query Monitor will snap extra intervals to align with MaxCollectionWindowLength.

The purpose of the MaxCollectionWindowLength parameter is to ensure that the performance data you collect during reorganization recommendation does not consume too much space, especially if the performance window is larger than the Db2 Query Monitor INTERVAL parameter. By default, the maximum collection window length is 3600000 milliseconds (1 hour).

If you are not running reorganization recommendation, the MaxCollectionWindowLength parameter has no effect on Db2 Query Monitor intervals.

Best practices for using MaxCollectionWindowLength
We recommend that you set the MaxCollectionWindowLength parameter to be a whole integer multiple of the Db2 Query Monitor interval length (the interval length is defined in CQMPARMS using the INTERVAL parameter). For example, if your INTERVAL parameter is 2 hours, we recommend a MaxCollectionWindowLength setting of 7200000 (2 hours) or 14400000 (4 hours).

Default
3600000 milliseconds

Syntax
com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength=time

time
The time in milliseconds. The default value, 3600000, corresponds to 1 hour.

Example
com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength=7200000

com.rocketsoft.nm.qm.reorg.metrics
(Optional) Specifies the metrics and corresponding threshold values that are analyzed during reorganization recommendation. One or more metrics (and their corresponding threshold values) can be defined. A colon separates the metric and its values. A comma separates each metric/value set.
Default
DB2_CPU:60:1:10, DB2_ELAPSED:60:10:20

Syntax

metric1, metric2
The metrics that are analyzed for reorganization recommendation. Valid metrics include columns in the CQM_SUMM_METRICS table.

low_threshold%_1, low_threshold%_2
The low threshold percentage is used to verify that sufficient data exists in the comparison performance window to analyze and to make a reorganization recommendation. The low threshold percentage is checked when recommendation is requested from Db2 Automation Tool.

absolute_threshold_1, absolute_threshold_2
The absolute threshold for a metric is used to verify that sufficient data exists in the performance window to analyze and to make a reorganization recommendation.

threshold%_1, threshold%_2
The threshold percentage for a metric is the percentage by which the metric differs as measured in the baseline performance window versus the comparison performance window. The threshold % is checked when recommendation is requested from Db2 Automation Tool.

For example, the default value DB2_CPU:60:1:10, DB2_ELAPSED:60:10:20, specifies that:

- The total DB2_CPU value (for all statements that ran against the specified objects) must be greater than 1 second or the total DB2_ELAPSED value (of all statements that ran against specified objects) must be greater than 10 seconds for the interval to be saved as a baseline or a comparison performance window.

- One of the following conditions must be met to initiate reorganization recommendation analysis (otherwise the message “Not enough data” is issued):
  - The total DB2_CPU value of all statements in the comparison window that are common with the statements in the baseline window must be at least 60% of the total DB2_CPU value (the low threshold%) for all statements from the comparison window.
  - The total DB2_CPU value of all statements in the comparison window that are common with the statements in the baseline window must be at least 1 second (the absolute threshold).
  - The total DB2_ELAPSED value of all statements in the comparison window that are common with the statements in the baseline window must be at least 60% of the total DB2_ELAPSED value (the low threshold%) for all statements from the comparison window.
  - The total DB2_ELAPSED value of all statements in the comparison window that are common with the statements in the baseline window must be at least 10 seconds (the absolute threshold).

- If one of the preceding conditions is met, then DB2_CPU performance must degrade by 10% or more, or DB2_ELAPSED performance must degrade by 20% or more (the threshold %) for a reorganization to be recommended by Db2 Query Monitor.

Example
com.rocketsoft.nm.qm.reorg.metrics=GETPAGES:60:100:15
com.rocketsoft.nm.qm.reorg.MinIntervalLength

(Optional) When running reorganization recommendation, the MinIntervalLength parameter defines the length of time (in milliseconds) of a Db2 Query Monitor interval that must be exceeded for an interval to be snapped. Db2 Query Monitor does not snap intervals shorter than the value specified by this parameter when performing reorganization recommendation monitoring.

MinIntervalLength defines a lower limit for the performance window duration. For example, if the user specifies a performance window that is shorter than MinIntervalLength (for example, 1 minute), then the performance window is increased to the MinIntervalLength (5 minutes by default).
Although you can use this parameter to adjust the minimum interval length that Db2 Query Monitor
snaps during reorganization recommendation, we recommend that you **do not** alter the value of this
parameter unless instructed to do so by IBM Software Support. The default value of the
MinIntervalLength parameter is 5 minutes (Db2 Query Monitor does not snap intervals shorter than 5
minutes in length).

**Default**
300000 milliseconds

**Syntax**
com.rocketsoft.nm.qm.reorg.MinIntervalLength=**time**

* time
  The time in milliseconds. The default value, 300000, corresponds to 5 minutes.

**Example**
com.rocketsoft.nm.qm.reorg.MinIntervalLength=600000
Chapter 28. Troubleshooting

Use these topics to diagnose and correct problems that you experience with Db2 Query Monitor.

Topics:
- “Recovery procedures” on page 555
- “Messages” on page 558
- “Gathering diagnostic information” on page 740
- “NORUN parameter” on page 741
- “Tools Customizer troubleshooting” on page 742

Recovery procedures
Recovery procedures have been developed for many common Db2 Query Monitor problems.

Topics:
- “Recovering from disk failure” on page 555
- “Recovering from subsystem termination” on page 557

Recovering from disk failure
You can recover from a disk hardware failure that results in the loss of an entire unit.

Symptoms
No I/O activity occurs for the affected disk address. Databases and tables that reside on the affected unit are unavailable.

Resolving the problem
Operator response:

1. Ensure that no incomplete I/O requests exist for the failing device. One way to do this is to force the volume offline by issuing the following z/OS command, where xxx is the unit address:

```
VARY xxx,OFFLINE,FORCE
```

To check disk status, issue the following command:

```
D U,DASD,ONLINE
```

The following console message is displayed after you force a volume offline:

```
UNIT  TYPE  STATUS   VOLSER  VOLSTATE
4B1   3390  O-BOX    XTRA02  PRIV/RSDNT
```

The disk unit is now available for service.

If you previously set the I/O timing interval for the device class, the I/O timing facility terminates all requests that are incomplete at the end of the specified time interval, and you can proceed to the next step without varying the volume offline. You can set the I/O timing interval either through the IECIOSxx z/OS parameter library member or by issuing the following z/OS command:

```
SETIOS MIH,DEV=devnum,IOTIMING=mm:ss.
```
2. Issue (or request that an authorized operator issue) the following DB2 command to stop all databases and table spaces that reside on the affected volume:

   ```
   -STOP DATABASE(database-name) SPACENAM(space-name)
   ```

   If the disk unit must be disconnected for repair, stop all databases and table spaces on all volumes in the disk unit.

3. Select a spare disk pack, and use ICKDSF to initialize from scratch a disk unit with a different unit address (yyy) and the same volume serial number (VOLSER).

   ```
   // Job
   //ICKDSF   EXEC PGM=ICKDSF
   //SYSPRINT DD   SYSOUT=*  
   //SYSIN    DD   *
   REVAL UNITADDRESS(yyy) VERIFY(volser)
   ```

   If you initialize a 3380 or 3390 volume, use REVAL with the VERIFY parameter to ensure that you initialize the intended volume, or to revalidate the home address of the volume and record 0. Alternatively, use ISMF to initialize the disk unit.

4. Issue the following z/OS console command, where yyy is the new unit address:

   ```
   VARY yyy,ONLINE
   ```

5. To check disk status, issue the following command:

   ```
   D U,DASD,ONLINE
   ```

   The following console message is displayed:

<table>
<thead>
<tr>
<th>UNIT</th>
<th>TYPE</th>
<th>STATUS</th>
<th>VOLSER</th>
<th>VOLSTATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D4</td>
<td>3390</td>
<td>O</td>
<td>XTRA02</td>
<td>PRIV/RSDNT</td>
</tr>
</tbody>
</table>

6. Issue the following DB2 command to start all the appropriate databases and table spaces that were previously stopped:

   ```
   -START DATABASE(database-name) SPACENAM(space-name)
   ```

7. Delete all table spaces (VSAM linear data sets) from the ICF catalog by issuing the following access method services command for each one of them, where y is either I or J:

   ```
   DELETE catnam.DSNDBC.dbname.tsname.y0001.A00x CLUSTER NOSCRATCH
   ```

8. For user-managed table spaces, define the VSAM cluster and data components for the new volume by issuing the access method services DEFINE CLUSTER command with the same data set name as in the previous step, in the following format: catnam.DSNDBC.dbname.tsname.y0001.A00x. The y is I or J, and the x is C (for VSAM clusters) or D (for VSAM data components).

9. For a user-defined table space, define the new data set before an attempt to recover it. You can recover table spaces that are defined in storage groups without prior definition.

10. Recover the table spaces by using the DB2 RECOVER utility.
Recovering from subsystem termination

You can recover Db2 Query Monitor after Db2 Query Monitor or an operator-issued cancel causes the subsystem to terminate.

Symptoms

When an Db2 Query Monitor subsystem terminates, the specific failure is identified in one or more messages. The following messages might be issued at the z/OS console:

- DSNV086E - DB2 ABNORMAL TERMINATION REASON=XXXXXXXX
- DSN3104I - DSN3EC00 - TERMINATION COMPLETE
- DSN3100I - DSN3EC00 - SUBSYSTEM ssnm READY FOR START COMMAND

The following message might be issued to the IMS master terminal:

- DSNM002I   IMS/TM xxxx DISCONNECTED FROM SUBSYSTEM yyyy RC=rc

The following message might be issued to the CICS transient data error destination, which is defined in the RDO:

- DSNC2025I - THE ATTACHMENT FACILITY IS INACTIVE

Environment

- IMS and CICS continue.
- In-process IMS and CICS applications receive SQLCODE -923 (SQLSTATE ‘57015’) when accessing DB2.

In most cases, if an IMS or CICS application program is running when a -923 SQLCODE is returned, an abend occurs. This is because the application program generally terminates when it receives a -923 SQLCODE. To terminate, some synchronization processing occurs (such as a commit). If DB2 is not operational when synchronization processing is attempted by an application program, the application program abends. In-process applications can abend with an abend code X’04F’.

- IMS applications that begin to run after subsystem termination begins are handled according to the error options.
  - For option R, SQL return code -923 is sent to the application, and IMS pseudo abends.
  - For option Q, the message is enqueued again, and the transaction abends.
  - For option A, the message is discarded, and the transaction abends.

- CICS applications that begin to run after subsystem termination begins are handled as follows:
  - If the CICS attachment facility has not terminated, the application receives a -923 SQLCODE.
  - If the CICS attachment facility has terminated, the application abends (code AEY9).

Resolving the problem

Operator response:

1. Restart Db2 Query Monitor by issuing the START command.
2. For IMS environments, reestablish the IMS connection by issuing the IMS command /START SUBSYS DB2.
3. For CICS environments, reestablish the CICS connection by issuing the CICS attachment facility command DSNC STRT.
Messages

All messages generated by Db2 Query Monitor have a severity code printed as the last character of the message ID.

The severity codes are I (Information only, no user action required), W (Warning message, results may not be as expected), and E (Error message, some errors may be user-correctable, read the User Response to determine the course of action).

Db2 Query Monitor’s message information can be broken down into these categories:

• **Product panel messages** – Messages that display when using the ISPF interface for Db2 Query Monitor.

• **WTO messages** – Write-to-operator messages that appear in your SYSLOG or other appropriate output for your site.

• **FEC messages** – Message pertaining to the various Db2 Query Monitor functions such as column sorting and display.

• **Return codes** – Information pertaining to return codes that may appear during Db2 Query Monitor processing.

**Note:** Messages CQM9000 through CQM9999 are messages for use by IBM Software Support as diagnostic tools and are only issued when CQMPARMS specifies DEBUG(Y) or when a diagnostic utility is executed under the instruction from IBM Software Support.

**Product panel messages**

The following message list contains explanations and user responses to the various messages you might encounter when using the Query Monitor ISPF interface.

**Note:** If you select to allow V2 letter style options (specified via the Allow V2 Letter Style Options setting in the Dialog Options panel) messages that pertain to option selection errors will reflect the option style you select. For example, if you enter an invalid alphabetic character, you will get a V2 letter style error message.

<table>
<thead>
<tr>
<th>Message ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM001E</td>
<td>Invalid value. Please enter a valid value.</td>
</tr>
</tbody>
</table>

**Explanation**
The value you entered in the option line is not valid for this panel.

**User response**
Enter a valid value.

<table>
<thead>
<tr>
<th>Message ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM002E</td>
<td>A valid DB2 Query Monitor Subsystem ID is required. Please enter a valid QM Subsystem ID or datasharing group.</td>
</tr>
</tbody>
</table>

**Explanation**
A valid Query Monitor Subsystem has not been specified.

**User response**
Enter a valid Query Monitor Subsystem in the **DB2 QM Subsystem ID** field. Enter `?` to select a Query Monitor Subsystem from a list.

<table>
<thead>
<tr>
<th>Message ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM003I</td>
<td>Please enter a command. Enter a <code>?</code> for a list of valid commands.</td>
</tr>
</tbody>
</table>

**Explanation**
You must enter a command to proceed.

**User response**
Enter a command. If you do not know the valid commands available to you, type a `?` in the command line and press Enter to display a list of valid commands for the panel.

<table>
<thead>
<tr>
<th>Message ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM004E</td>
<td>User is not authorized to enter Query Monitor.</td>
</tr>
</tbody>
</table>

**Explanation**
The user ID under which you attempted to enter Query Monitor is not authorized to use the product.

**User response**
Verify that you are using the correct user ID and if so, contact your system administrator for assistance.
Query Monitor Subsystem not active. You must start the DB2 QM subsystem to view current activity or to work with monitoring agents.

Explanation
The Query Monitor Subsystem you specified has not been started, either via started task or job. It is required that the Query Monitor Subsystem be started prior to issuing the requested option.

User response
Start the Query Monitor Subsystem.

Invalid value. Valid values are (B) buffer statistics, (S) SQL detail, (I) SQL instruction totals, (D) delays, (L) locking statistics, or (C) cancel thread.

Explanation
The line command you entered is not valid for this panel.

User response
Issue a valid command. Valid commands are B (buffer statistics), S (SQL detail), I (SQL instruction totals), D (delays), L (locking statistics), or C (cancel thread).

Invalid value. Valid values are (A) to display only the active threads or (I) to display all threads within the current interval.

Explanation
An invalid value was entered in the Display Threads field.

User response
Specify a valid value. Valid values are A (display active threads) or I (display all threads within the current interval).

Invalid value. Valid values are (D) to display the detail of every thread in the interval or (S) to summarize the display of like threads.

Explanation
An invalid value was specified in the Detail/Summarize field.

User response
Specify a valid value. Valid values are D (to display the detail of every thread in the interval) and S (to summarize the display of like threads).

Invalid subsystem. The DB2 QM subsystem or data sharing group specified is not valid or has not been activated.

Explanation
This message displays if the Query Monitor Subsystem is not valid or has not been started.

User response
Ensure that the specified Query Monitor Subsystem is valid. If it is, then ensure that it has been properly configured and started.

Data no longer available. The Plan you were reviewing has been deleted from the data collector. Please select another plan.

Explanation
The data you requested is no longer available for viewing. The plan has been deleted from the data collector. This may be due to the interval having been overwritten with a new interval while you were viewing it.

User response
Select another plan.

No data exists to display. Either a filter is in effect and no data matches the filter's display criteria or no data has been gathered by the selected DB2 QM subsystem.
**Explanation**

There is no data to display. Either a filter is in effect (and no data matches the display criteria of that filter) or no data has been collected by the Query Monitor Subsystem that matches the current display.

**User response**

If you are using a filter, ensure that the filter is not excluding the data you expect to see. If your filter is set up to include the data you expect to see, or if you are not using a filter, you may have to wait until some SQL has been executed and collected by Db2 Query Monitor. If, after SQL execution you still do not see the expected data, verify that your monitoring profile settings are correct.

---

**CQM013**

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**Explanation**

Informational message detailing the copyrights for DB2 Query Monitor.

**User response**

No action is required.

---

**CQM014E**

Invalid command. The command you entered on the command line is not valid for this screen.

**Explanation**

The command you specified is invalid for the panel.

**User response**

Enter a valid command for the panel. For a list of valid commands for the panel, refer to those listed on the panel or in the corresponding section of the user documentation.

---

**CQM015E**

Next interval is not valid because you are currently viewing the current interval.

**Explanation**

The NEXT command was requested while viewing the current interval. Because the interval being viewed is the most current available, no subsequent intervals can be viewed.

**User response**

No action is required. If you would like to view intervals other than the current interval, you can issue the INTV command to view the available intervals and select those you want to view from a list.

---

**CQM016E**

You are currently viewing the last available interval in this navigational direction. Please navigate in the opposite direction to view other available intervals by pressing either the PF4 or PF6 key.

**Explanation**

The PREV command was requested while viewing the last interval. Because the interval being viewed is the first (oldest) interval, no previous intervals can be viewed.

**User response**

No action is required. If you would like to view intervals other than the interval you are currently viewing, you can issue the INTV command to view the available intervals and select those you want to view from a list.

---

**CQM018E**

Data is no longer in the partition displayed. The data has not been offloaded to an external data set, thus this data is lost and is no longer available.

**Explanation**

The selected data is not available. The requested data has not been written to an external data set and is therefore no longer available.

**User response**

No action is required.

---

**CQM019E**

Thread cannot be canceled because it is no longer active.

**Explanation**

The thread you selected to cancel is not active, therefore it cannot be canceled.

**User response**

No action is required.
CQM034E Invalid value. Please enter a valid value.

Explanation
The specified value is invalid.

User response
Enter one of the valid values listed on the panel.

CQM035E Invalid recursion attempt. You have selected an action that has been previously used. Please choose another action.

Explanation
The series of drill down commands specified was invalid. The same command cannot be used multiple times when drilling down to display activity information.

User response
Select a different drill down command or re-sequence the order in which you issue drill down commands to locate the data you want to view.

CQM046I Range set.

Explanation
This message confirms that the range you specified has now been set. Records will be filtered and displayed according to your settings.

User response
No action is required.

CQM047E Invalid range. Start range value must not be greater than ending range value.

Explanation
The specified range is invalid. The start point of the range must be less than the end point of the range. The specified range's start point was greater than its end point.

User response
Enter a valid range. To do so, correct the start point of the range or end point of the range so that the start point is less than the end point.

CQM048E Invalid value. Please enter a valid number between 1 and 99,999,999.

CQM049E Invalid value. Please enter 0 for no exception threshold or a numeric value between 1 and 2,147,483,647.

Explanation
The specified value was invalid.

User response
Specify 0 for no exception or a numeric value between 1 and 2,147,483,647.

CQM075E Storage exhausted. The amount of virtual storage required to satisfy your request does not exist at this time. Retry the operation with more filtering parameters.

Explanation
At the time of your request, there was not enough virtual storage available to display the results of your request.

User response
Increase the REGION size for the DB2 Query Monitor subsystem and retry your request or use the RANGE or FILTER functions to reduce the amount of data being displayed.

CQM078E Not authorized. You are not authorized to access this DB2 QM subsystem.

Explanation
You are not authorized to use the requested Query Monitor Subsystem.

User response
Ensure you have READ access to the CQM.ACCESS.qmid profile in your security system (where qmid is the Query Monitor Subsystem you are attempting to access).

CQM081E A truncation error displaying the panel - RC=16
**Explanation**

A truncation error occurred when displaying the panel.

**User response**

Contact IBM Technical Support.

---

**CQM082E**

A severe error occurred while trying to display the panel - RC=20

**Explanation**

A severe error occurred when displaying the panel. The return code is 20.

**User response**

Contact IBM Technical Support.

---

**CQM083E**

An unexpected return code was received while attempting to display the panel - RC=24

**Explanation**

When attempting to display the panel and unexpected return code was received.

**User response**

Contact IBM Technical Support.

---

**CQM088E**

Cannot delete last line of profile. Either update the last line or cancel out of profile update.

**Explanation**

A monitoring profile must contain at least one profile line. Deleting the last line of a profile is not allowed.

**User response**

Delete the entire monitoring profile (instead of attempting to delete its only profile line) or update the last profile line to reflect your monitoring profile needs.

---

**CQM089E**

Cannot delete last line of filter. Either update the last line or cancel out of the filter update.

**Explanation**

A filter must contain at least one filter line. Deleting the last line of a filter is not allowed.

**User response**

Either update the last filter line to reflect your filtering needs or cancel the filter update.

---

**CQM091E**


**Explanation**

The specified line command is not valid for the panel.

**User response**

Specify one of the valid line commands listed in the message.

---

**CQM092E**

Invalid line command. Enter "O" for Objects, "D" for Delay detail, "L" for Lock detail, "A" for SQL text Analysis, "B" for Bufferpool detail, "V" to View full SQL text or "Q" for Misc Statistics.

**Explanation**

The line command you specified was invalid.

**User response**

Specify the valid line command listed in the message.

---

**CQM093E**

Invalid line command. Enter "D" for Access Detail.

**Explanation**

The specified line command was invalid.

**User response**

Specify the valid line command listed in the message.

---

**CQM094E**

Invalid line command. Enter "D" for DB2, "N" for Data Base, "B" for Buffer Pool, "P" for Pageset, "O" for Object Detail.

**Explanation**

The specified line command was invalid.

**User response**

Specify one of the valid line commands listed in the message.
CQM095E  Invalid line command. Enter "U" for Object Usage or "S" for SQL text.

Explanation
The specified line command was invalid.

User response
Specify the valid line command listed in the message.

CQM096E  Invalid line command. Enter "D" for Delay detail, "L" for Lock detail, "A" for SQL text Analysis, "B" for Bufferpool detail, "V" to View full SQL text, or "Q" for Misc Stats.

Explanation
The specified line command was not valid.

User response
Specify one of the valid line commands listed in the message.


Explanation
The specified line command was invalid.

User response
Specify the valid line command listed in the message.


Explanation
The specified line command was invalid.

User response
Specify the valid line command listed in the message.

CQM101E  Invalid line command. Enter "B" for Buffers, "C" for SQLCA, "D" for Delays, "H" for Host Variables, "L" for Locks, "Q" for Misc Statistics or "S" for SQL Text.

Explanation
The specified line command was invalid.

User response
Specify one of the valid line commands listed in the message.

CQM102E  Invalid line command. Enter "B" for Buffer Pool Statistics.

Explanation
The specified line command was invalid.

User response
Specify one of the valid line commands listed in the message.

CQM103I  Host variables not gathered. DB2 QM does not collect host variables for this call type.

Explanation
The call type you selected for display of host variables is not among those for which QM collects host variable information.

User response
No action is required.

CQM104I  No host variables. DB2 QM found no input host variables present for this call or the monitoring profile stated not to collect them.

Explanation
No host variables are available for display for one of the following reasons:

• QM did not collect information about any host variables for the selected call.
• The active monitoring profile specified that host variables were not to be collected.
User response
If you expected to see host variable information, check that the monitoring profile in use does not improperly specify that host variables are not to be collected.

CQM105E  Missing member name. The member name was missing for an export data set with DSORG=PO.

Explanation
The data set to which you were attempting to export did not have a member name associated with it.

User response
Specify a member name for the export data set name.

CQM106E  Invalid value. Valid values are "Y" or "N".

Explanation
The specified value was not valid.

User response
Specify either Y or N.

CQM107E  Invalid line command. Enter "D" to display data sets, or "S" to select interval.

Explanation
The line command you specified on the Interval Selection panel is not valid. Valid line commands for the Interval Selection panel include D (displays the data sets for one or more intervals) or S (selects one or more intervals for viewing).

User response
Specify either D (to display data sets for an interval) or S (to select an interval for viewing).

CQM108I  Not active. The statement under review is no longer active.

Explanation
The SQL statement for which you are attempting to view information is no longer active and can no longer be viewed under the View Current Activity option. If information about the statement has been collected by QM, you can view it via the View Activity Summaries option, provided any filter or range settings you are being do not exclude the statement from display.

User response
No action is required.

CQM109E  Invalid line command. Enter "11" for After, "10" for Before, "6" for Copy, "5" for Delete, "1" for Insert, "9" for Move, "2" for Update or "4" for Repeat.

Explanation
The specified line command was invalid.

User response
Specify one of the valid line commands listed in the message.

CQM110I  Copy pending.

Explanation
The item has been copied and will be pasted pending your next command.

User response
To place the copied item after a line item, use the A (after) line command. To place the copied item before a line item, use the B (before) line command.

CQM111E  Invalid command. Enter "C" to copy profile, "D" to delete profile, "U" to update profile, "R" to rename profile, "N" to Create New Profile, or "V" to view profile.

Explanation
The specified line command was invalid.

User response
Specify one of the valid line commands listed in the message.

CQM112E  Invalid command. Enter "A" to activate monitoring, "C" to change profile, "D" to deactivate monitoring, "R" to refresh profile, or "V" to view profile.

Explanation
The specified line command was invalid.

User response
Specify one of the valid line commands listed in the message.
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Message Description</th>
<th>Explanation</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM113E</td>
<td>Invalid command. Enter &quot;C&quot; to copy profile, &quot;D&quot; to delete profile, &quot;U&quot; to update profile, &quot;R&quot; to rename profile, &quot;S&quot; to select profile, or &quot;V&quot; to view profile.</td>
<td>The specified line command was invalid.</td>
<td>Specify one of the valid line commands listed in the message.</td>
</tr>
<tr>
<td>CQM114E</td>
<td>Invalid -SQLCODE value. Enter a -SQLCODE value between -1 and -99,999.</td>
<td>The specified value was invalid.</td>
<td>Specify one of the valid values listed in the message.</td>
</tr>
<tr>
<td>CQM115E</td>
<td>Invalid number of excluded SQLCODES exceeds limit. Enter only up to 64 excluded SQLCODES.</td>
<td>The value you specified is not valid.</td>
<td>Specify 64 or fewer SQLCODES for exclusion. If you need to exclude additional SQLCODES from exception or alert processing, consider creating another profile line to accomplish this.</td>
</tr>
<tr>
<td>CQM116I</td>
<td>Duplicates removed.</td>
<td>The duplicates you requested for removal have now been removed.</td>
<td>No action is required.</td>
</tr>
<tr>
<td>CQM117E</td>
<td>Invalid value. Enter &quot;E&quot; to exclude or &quot;I&quot; to include.</td>
<td>The value you specified is not valid.</td>
<td>Specify E to exclude or I to include.</td>
</tr>
<tr>
<td>CQM118E</td>
<td>Invalid value. Enter &quot;Y&quot; to exclude specific SQLCODEs or &quot;N&quot; not to exclude SQLCODEs.</td>
<td>The specified value was invalid.</td>
<td>Specify one of the valid values listed in the message.</td>
</tr>
<tr>
<td>CQM119E</td>
<td>Invalid value. Enter &quot;Y&quot; to disable summary reporting or &quot;N&quot; to enable.</td>
<td>The specified value was invalid.</td>
<td>Specify one of the valid values listed in the message.</td>
</tr>
<tr>
<td>CQM120E</td>
<td>Invalid value. Enter &quot;Y&quot; to gather host variables or &quot;N&quot; not to gather host variables.</td>
<td>The value you specified is not valid.</td>
<td>Specify Y to gather host variables or N to not gather host variables.</td>
</tr>
<tr>
<td>CQM121E</td>
<td>Invalid value combination. Disable summary reporting is only valid with an exclude profile line.</td>
<td>A Disable Summary Reporting value of Y is only valid for EXCLUDE profile lines. A Disable Summary Reporting value of N must be specified for all INCLUDE profile lines.</td>
<td></td>
</tr>
</tbody>
</table>
Either specify a value of N in the Disable Summary Reporting field or change your profile line to an EXCLUDE profile line.

**Explanation**
The valid you specified in the Exclude QM Plans field is not valid.

**User response**
Specify Y to exclude QM plans from monitoring or N to include QM plans in monitoring for the profile.

**CQM122E** Invalid value. Enter "Y" to exclude QM plans from monitoring or "N" to include them.

**Explanation**
The command you specified is not valid for this panel.

**User response**
Please enter only ISPF system commands.

**CQM127E** Invalid command. Only ISPF system commands may be entered on this panel.

**Explanation**
A recent request was not processed because another request is already being processed for the agent.

**User response**
Please reissue your request at another time.

**CQM128I** Request failed. The request was not processed because the QM subsystem is processing another request for this agent. Please retry the operation at another time.

**Explanation**
You must specify a new monitoring profile name to be activated on the monitoring agent.

**User response**
Specify a monitoring profile name for use with the monitoring agent.

**CQM130I** Request sent. The request was sent to the QM subsystem for processing.

**Explanation**
Your request has now been sent to the Query Monitor subsystem for processing.
User response
No action is required.

CQM131I Deactivation complete. Monitoring has been deactivated for the selected DB2 subsystem.

Explanation
You specified the deactivation of a monitoring agent for a DB2 subsystem and that deactivation is now complete. The DB2 subsystem is no longer being monitored by the Query Monitor subsystem.

User response
No action is required.

CQM132E Authorization failed. The security system has determined that additional authorization is required to perform the selected operation.

Explanation
You are attempting to perform an operation for which you do not currently have authorization.

User response
Do not perform the function or contact your system administrator for assistance in obtaining the appropriate authorization to perform the function.

CQM133I Reactivation complete. Monitoring has been resumed for the selected DB2 subsystem.

Explanation
The monitoring agent for which you requested reactivation has now resumed monitoring for the selected DB2 subsystem.

User response
No action is required.

CQM134I Profile in use. The selected profile is in use by jobname on member. Please retry the operation again at a later time.

Explanation
The monitoring profile you selected is not available because it is currently being used by the job and member indicated in the message.

User response
No action is required.

CQM135I Target profile in use. The profile name targeted for use for a copy or rename operation is currently in use by another user. Please retry the operation again at another time.

Explanation
You cannot copy or rename the profile while it is being used by another Query Monitor user.

User response
Wait to perform the copy or rename until after the profile is no longer in use by another user.

CQM136I Profile change failed. The load for the selected profile has failed.

Explanation
The requested profile change did not complete successfully.

User response
Verify that the profile you specified on the Change Monitoring Profile panel is a valid profile. Correct as needed and resubmit the profile change request.

CQM137I Profile changed. The profile has been changed for the selected monitoring agent.

Explanation
The monitoring profile has now been changed for the monitoring agent.

User response
No action is required.

CQM138I Profile refreshed. The profile has been refreshed for the selected monitoring agent.

Explanation
The profile refresh action that you requested for the monitoring agent has now completed.

User response
No action is required.
CQM139I Profile refreshed failed. The load for the selected profile has failed.

Explanation
The requested refresh of the monitoring profile has failed. The profile could not reload.

User response
Verify that the profile associated with the monitoring agent still exists. If necessary, re-create the profile or change the profile for the monitoring agent.

CQM140I Profile change in progress. Please wait.

Explanation
Query Monitor cannot process your request due to a monitoring profile change that is currently in progress.

User response
Wait until the monitoring profile change has completed and reissue your request.

CQM141I No object data. No object data was present for DB2 QM to gather for this statement.

Explanation
Query Monitor did not collect any object data for the selected statement (no object data was present for collection).

User response
No action is required.

CQM142E Invalid line command. Enter "A" to analyze SQL text, "B" for Buffers, "C" for SQL Calls, "D" for Delays, "H" for Host Variables, "L" for Locks, "O" for Objects, "P" for Parallel Activity, "Q" for Misc Statistics or "S" for SQL Text.

Explanation
The line command you specified was not valid for the panel.

User response
Please enter one of the valid line commands listed in the message.

CQM143I Command not processed. You are currently viewing the last available interval.

Explanation
The interval navigation command you specified was not processed because you are already viewing the last interval available.

User response
Navigate in the other direction if needed.

CQM144I Command not processed. You are currently viewing the current interval.

Explanation
The navigational command you specified is not valid because you are already viewing the current interval. No intervals yet exist that follow the interval you are viewing.

User response
No action is required. If you want to view a different interval, consider using the INTV command to access the Interval Selection panel where you can select from a list of available intervals.

CQM145I SQL text not available. The SQL text for the item under review is not available in the DB2 catalog.

Explanation
SQL cannot be displayed for the item being reviewed because it is not available in the DB2 catalog. CQM145I might be generated in the following situations:

• If an SQL cannot be displayed for the item being reviewed because it is not available in the DB2 catalog.

• If a rebind of the plan, package, stored procedure, etc. occurs, because the consistency token used to locate the SQL text of interest is replaced when a bind occurs.

• If the call is an EXECUTE (there is no SQL for an EXECUTE call)

User response
No action is required.

CQM146E Command processor not installed. The CLIST to process the interval data set command has not been
installed or is missing from the SYSPROC concatenation.

**Explanation**
A required CLIST is missing or has not been installed. To process the interval data set command you issued, Query Monitor requires that the CLIST is installed and is included in your SYSPROC concatenation.

**User response**
Verify that the CLIST has been configured and properly included in your SYSPROC concatenation.

CQM147E Command not allowed. The command you entered is not valid when the DB2 subsystem is not monitored.

**Explanation**
Query Monitor must be monitoring the DB2 subsystem for the command you specified to be allowed.

**User response**
Initiate monitoring of the DB2 subsystem prior to issuing the command.

CQM148E Invalid operand. The operand is not valid for the command entered.

**Explanation**
The operand you specified is not valid for the command.

**User response**
Specify a valid operand.

CQM149E RETURN CODE return_code REASON CODE reason_code WAS ENCOUNTERED DURING DYNAMIC ALLOCATION OF data_set.

**Explanation**
A return code was produced during the dynamic allocation of the data set indicated in the message.

**User response**
Diagnose the error as needed given the return code information. Please refer to z/OS DFSMS Macro Instructions for Data Sets (SC26-7408-03) for additional information about the return and reason codes displayed in the message text.

CQM150E No monitoring profile. The requested operation is not valid on an agent without a valid monitoring profile.

**Explanation**
The operation you requested is not valid because the monitoring agent does not have a valid monitoring profile associated with it.

**User response**
Do not attempt to perform the operation or specify an appropriate monitoring profile for use with the monitoring agent.

CQM151E Duplicate profile name. The requested operation failed due to the existence of a profile with the same name.

**Explanation**
The profile name you specified already exists. Profile names must be unique.

**User response**
Specify a unique profile name.

CQM152E Profile not found. The requested operation failed because the profile no longer exists.

**Explanation**
The operation you requested for the profile could not be performed because the profile no longer exists.

**User response**
No action is required.

CQM153E RETURN CODE return_code REASON CODE reason_code WAS ENCOUNTERED DURING TRANSLATION. SOURCE CCSID=ccsid TARGET CCSID=ccsid

**Explanation**
At ISPF dialog startup DB2 Query Monitor verifies that translations are available from the CCSIDs 37, 500, 1208, and 1388 and the CCSID of the user’s terminal. Conversion services must be configured to support the translations. This message is issued upon entry to options A, E, P, N and U if any of these translations are not available. Additionally, this message is issued when you attempt to convert from one CCSID to...
another when there is no direct conversion available (for example, the conversion requested may be from CCSID 500 to CCSID 8229).

**Note:** If an object is created from an application bound in a single byte CCSID, DB2 translates the object name to unicode using the application encoding scheme as the source CCSID. If the source CCSID is not a mixed byte CCSID, the characters are treated as single byte characters and none of the imbedded DBCS characters are translated correctly.

**User response**

Configure conversion services to support the translations. Verify that the appropriate CCSID (code page) conversion has been added to the MVS unicode table in SYS1.PARMLIB. Unicode conversion services support states that a direct conversion between the two CCSIDs is not available, but an indirect one is available, from CCSID 500 -> CCSID 1200 -> CCSID 8829. The application code may also receive a return code 8, with reason code 3 when the initial conversion is attempted. Common code processing has been changed to allow applications to invoke the conversion services to attempt indirect conversions between CCSIDs. Please refer to *z/OS Support for Unicode (TM) - Using Conversion Services* (SA22-7649) for additional information about the return codes and reason codes displayed in the message.

---

**CQM154E**

**Explanation**

An error was encountered during VSAM processing of the sequence number indicated in the message.

**User response**

Diagnose the error as needed given the return code information. Please refer to *z/OS DFSMS Macro Instructions for Data Sets* (SC26-7408-03) for additional information about the return and reason codes displayed in the message text. If you cannot resolve the issue, please contact IBM Technical support.

**Note:** The return and reason codes produced by messages CQM154E are intended for internal diagnostic purposes. If you encounter this message, contact IBM Software Support.

---

**CQM155E**

**Error opening** data_set. return_code ACBERFLG=X"code".

---

**CQM156E**

**Profile name invalid.** A monitoring profile name must not begin with spaces or numerics, must not contain imbedded spaces, and must not contain characters other than "A-Z", "0-9", ",#" "$", or ",@".

**Explanation**

The monitoring profile name you specified is not valid.

**User response**

Specify a monitoring profile name that does not contain characters other than A-Z, 0-9, #, $, or @.

---

**CQM157E**

**SQL error.** An SQL error occurred when attempting to retrieve SQL text from the DB2 catalog.

**Explanation**

An SQL error occurred which prevents the retrieval of the SQL text from the DB2 catalog.

**User response**

No action is required.

---

**CQM158E**

**Connect failed.** Return code return_code reason code reason_code when attempting to connect to ssid with plan name plan_name.

**Explanation**

The connect to the subsystem and plan shown in the message failed with the return and reason codes indicated.

**User response**

Refer to *DB2 UDB for z/OS Messages* (GC18-9602) and *DB2 UDB for z/OS Codes* (GC18-9603) for additional information about the return and reason codes displayed in the message.

---

**CQM159E**

**Workload name not unique.** Workload names must be unique.
within a monitoring profile. Please choose another name.

**Explanation**

Another workload in the monitoring profile already uses the workload name you specified.

**User response**

Specify a unique workload name. Query Monitor requires workload names to be unique within a monitoring profile.

**CQM160E** Workloads not unique. The profile contains non-unique workload names. Please make them unique and retry the operation.

**Explanation**

The workloads in the monitoring profile are not unique.

**User response**

Specify a unique workload name for each workload within the profile. Query Monitor requires workload names to be unique within a monitoring profile.

**CQM161I** Filters saved.

**Explanation**

The updates you made to filters have now been saved.

**User response**

No action is required.

**CQM162E** Return code return_code reason_code received from the DB2 command processor.

**Explanation**

The DB2 command processor encountered problems. Reason and return codes provided in the message enable further diagnosis.

**User response**

Refer to DB2 UDB for z/OS Messages (GC18-9602) and DB2 UDB for z/OS Codes (GC18-9603) for additional information about the return and reason codes displayed in the message.

**CQM163I** Cancel Thread has been issued successfully.

**Explanation**

The cancel thread command you requested has been issued successfully.

**User response**

No action is required.

**CQM164I** filtermsg

**Explanation**

This message indicates filter message that applies to the usage of filters in the ISPF interface in Query Monitor.

**User response**

No action is required. If you need to alter the current filter settings, you can do so via the FILTERS command.

**CQM165E** RETURN CODE return_code REASON CODE reason_code WAS ENCOUNTERED DURING DYNAMIC ALLOCATION OF data_set.

**Explanation**

Dynamic allocation of the data set shown in the message failed. Reason and return codes provided in the message enable further diagnosis.

**User response**

Please refer to z/OS DFSMS Macro Instructions for Data Sets (SC26-7408-03) for additional information about the return and reason codes displayed in the message.

**CQM166E** RETURN CODE return_code REASON CODE reason_code WAS ENCOUNTERED DURING DYNAMIC DE-ALLOCATION OF data_set.

**Explanation**

Dynamic de-allocation of the data set shown in the message failed. Reason and return codes provided in the message enable further diagnosis.

**User response**

Please refer to z/OS DFSMS Macro Instructions for Data Sets (SC26-7408-03) for additional information about the return and reason codes displayed in the message.
CQM167E  Filter not found. The requested operation failed because the filter no longer exists.

**Explanation**
Query Monitor could not perform the requested operation for the filter because that filter no longer exists.

**User response**
No action is required.

CQM168E  Filter name invalid. A filter name must not begin with spaces or numerics, must not contain imbedded spaces, must not contained reserved words, and must not contain characters other than "A-Z", "0-9", "#" "$", or "@".

**Explanation**
The filter name you specified is invalid.

**User response**
Specify a valid filter name. Filter names can only be constructed using the following characters: A-Z, 0-9, the pound sign, the dollar sign, and the ampersand. Additionally you cannot use the following reserved words as filter names:
ON
OFF

CQM169E  Filter already exists. The requested operation failed because the new filter name already exists.

**Explanation**
The new filter name you specified for the filter already exists.

**User response**
Specify a unique filter name when renaming filters.

CQM170E  Invalid command. Valid commands are "S" to select SQLCODEs.

**Explanation**
The command you specified is not valid on this panel. Valid commands include S to select SQLCODEs.

**User response**
Specify a valid command.

CQM171E  Invalid command. Valid commands are "A" to group by AUTHID, "D" to group by DBRM/Package, or "P" to group by plan.

**Explanation**
The command you specified is not valid on this panel. Valid commands include A to group display data by AUTHID, D to group display data by DBRM/Package, and P to group display data by plan.

**User response**
Specify a valid command.

CQM172E  Invalid command. Valid commands are "C" to view SQLCA data or "S" to select SQL text.

**Explanation**
The command you specified is not valid for this panel. Valid commands include C to view SQLCA information and S to select SQL text.

**User response**
Specify a valid command.

CQM173E  Command not allowed. The command you entered is not valid when the DB2 subsystem is already monitored.

**Explanation**
You attempted to activate monitoring for a DB2 subsystem that is already monitored. This is not a valid action.

**User response**
No action is required.

CQM174I  message_text

**Explanation**
This message accompanies other messages.

**User response**
No action is required.

CQM175I  Interval process in progress; reached current end of data.
<table>
<thead>
<tr>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval processing is in progress. The current end of data has been reached.</td>
<td>No action is required.</td>
</tr>
</tbody>
</table>

**CQM176I**  
Interval process in progress; simulated backstore read.  

**Explanation**  
Interval processing is in progress.  

**User response**  
No action is required. A simulated backstore has been read while interval processing progresses.  

**CQM180E**  
TBCLOSE failed for filter table.  
**RC=return_code**  

**Explanation**  
A CLOSE operation failed for the filter table producing the return code listed in the message.  

**User response**  
Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.  

**CQM181E**  
TBDELETE failed for filter table.  
**RC=return_code**  

**Explanation**  
A DELETE operation failed for the filter table, producing the return code listed in the message.  

**User response**  
Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.  

**CQM182E**  
TBGET failed for filter table.  
**RC=return_code**  

**Explanation**  
A GET operation failed for the filter table, producing the return code listed in the message.  

**User response**  
Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.  

**CQM183E**  
TBOPEN failed for filter table.  
**RC=return_code**  

**Explanation**  
An OPEN operation failed for the filter table, producing the return code indicated in the message.  

**User response**  
Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.  

**CQM184E**  
CQMFILTS library not allocated.  

**Explanation**  
The CQMFILTS library is not allocated. Query Monitor requires a CQMFILTS library to be allocated.  

**User response**  
Allocate a CQMFILTS library.  

**CQM186E**  
TBCREATE failed for a filter table.  
**RC=return_code**  

**Explanation**  
A CREATE operation failed for the filter table, producing the return code indicated in the message.  

**User response**  
Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.  

**CQM187E**  
TBSAVE failed for filter table.  
**RC=return_code**  

**Explanation**  
A SAVE operation failed for the filter table due to insufficient space in the output data set, producing the return code indicated in the message.  

**User response**  
Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.  

**CQM188E**  
TBMOD failed for filter table.  
**RC=return_code**  

**Explanation**  
A MODIFY operation failed for the filter table, producing the return code indicated in the message.  

**User response**  
Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.
CQM189E  Invalid line command. Valid non-blanks are S, C, and D.

Explanation
The line command you specified is not valid for the panel.

User response
Specify a valid line command. Valid line commands are S, C, and D.

CQM190E  Mixture of line commands. Only one type at a time.

Explanation
You specified a more than one line command.

User response
Please type only one line command at a time. Respecify a single line command and press Enter. If several line commands are necessary, determine the appropriate sequence and execute each line command by itself in the order needed to perform the task.

CQM191E  Filter must have a name.

Explanation
Filter name is a required field. You did not yet specify a filter name.

User response
Specify a name for the filter you are creating.

CQM192E  Filter must have a description.

Explanation
Filter description is a required field. You did not yet specify a filter description.

User response
Specify a description for the filter you are defining.

CQM193I  DASD copy of monitoring profile does not exist.

Explanation
A copy of the monitoring profile you requested is not available on DASD.

User response
Verify whether or not the monitoring profile has been migrated. If it has been migrated, issue a recall before reattempting to use the monitoring profile with Query Monitor.

CQM194I  DASD copy of monitoring profile does not match.

Explanation
The DASD copy of the monitoring profile does not match the monitoring profile under review.

User response
Verify that you have specified the correct monitoring profile.

CQM195E  Invalid version. The version of Query Monitor running on the specified subsystem is not compatible with the dialog.

Explanation
The version of the requested Query Monitor subsystem is not compatible with the version of the dialog you are currently running.

User response
You can only access DB2 Query Monitor Version 2 subsystems for management via the DB2 Query Monitor Version 2 dialog.

CQM196I  SQL text not available. The SQL text for the item under review is not available.

Explanation
The SQL text is not available for the item you are currently reviewing.

User response
No action is required.

CQM197E  Invalid line command. Enter "S" to select QM subsystem.

Explanation
The line command you specified is not valid.

User response
Specify a valid line command. Valid line commands for the panel include S to select a Query Monitor subsystem.

CQM198E  Member name not valid. A member name was entered for an export data set without DSOR=PO.

Explanation
A member name was entered for an export data set without DSOR=PO.
Explanation
The member name you specified is not valid.

User response
Specify a valid member name.

CQM199E
Export failed. An out of space condition was detected while writing to the export data set.

Explanation
The requested export operation failed because an out of space condition was encountered.

User response
Allocate more space to the export data set or specify a different data set for the export.

CQM200E
TBERASE failed for filter table. RC=return_code

Explanation
The requested TBERASE operation failed for the filter table.

User response
Refer to the ISPF Services Guide (SC34-4819-03) for information about the return code.

CQM201E
Invalid new filter name. The target filter name cannot be the same as the source filter name. Please choose a different name.

Explanation
The new filter name you specified is not valid. When copying or renaming a filter, the name of the new filter must not be the same as the old name.

User response
Specify a unique new filter name. Ensure the new filter name does not match the old filter name or the name of the filter that you are copying.

CQM202E
Invalid operator. The specified comparison operator cannot be used in conjunction with wildcards or N/A.

Explanation
The operator you specified is not valid with wildcards.

CQM204I
SQL/PA not installed.

Explanation
You requested that IBM SQL Performance Analyzer execute against the export dsn but IBM SQLPA is not installed.

User response
Contact your system administrator if you require the installation of SQLPA.

CQM205E
Thread cannot be canceled because it is no longer active.

Explanation
The thread you requested a cancelation for is no longer active and can therefore cannot be canceled.

User response
No action is required.

CQM206E
Filter data set not found.

Explanation
The data set name specified in the Filter Data Set Name field could not be found.

User response
Please verify that the data set name you specified in the Filter Data Set Name field correctly identifies the data set that holds your filter definitions.

CQM207E
Db2 Query Monitor was unable to connect to DB2 db2name and retrieve information from the DB2 catalog.

Explanation
Possible causes for this message include:
- The control file you specified does not contain a record for the DB2 db2name specified in the message.
- A user ID lacks authorization to connect to DB2 or execute the plan used for Db2 Query Monitor or perform some of the functions within Db2 Query Monitor.
User response
1. Ensure the user ID has the ability to perform the desired function within Db2 Query Monitor, for example, viewing SQLTEXT requires both READ access to the CQM.SQLTEXT.qmid RACF Facility Class Profile, and also EXECUTE authority on the plan used by Db2 Query Monitor. For more information, see “Reviewing and setting proper authorizations” on page 55.

2. Verify that the control file and ssid you specified are correct. From the Db2 Query Monitor main menu, select option 7. Setup and then select 1: ZPARAM, BSDS, and Load Library Information. Verify that the correct DB2 information and load libraries are specified on that panel. Verify that the values for DB2 Loadlib1 through DB2 Loadlib5 are correct, ensuring they are correct in terms of DB2 version.


Explanation
The filter type you specified is not valid.

User response
Specify a filter type from those listed in the message text.

CQM209E Invalid filter comparison operator. Valid operators are "EQ", "NE", "LT", "LE", "GT", and "GE".

Explanation
The filter operator you specified is not valid.

User response
Specify one of the valid operators listed in the message text.

CQM210E Maximum filters defined. The number of filters defined is already equal to the maximum allowed (32).

Explanation
You cannot define more than 32 filters.

User response
If you need to define a new filter and already have 32 filters defined, delete or edit an existing filter as appropriate for your display objectives.

CQM211E Invalid boolean operator. Valid values are "AND" and "OR".

Explanation
The operator you specified is not valid. Valid operators are AND and OR.

User response
Specify either AND or OR as the boolean operator.

CQM212E Invalid filter length. The length of the filter value is invalid for the type of filter.

Explanation
The length of the column you specified for the filter line is not valid. Column values must be within the valid length required for the column name you specify. These lengths apply for each column name: PLAN (8), PROGRAM (128), CURSOR (128), COLLID (128), CONN (8), CORRNAME (12), AUTHID (8), JOBNAME (8), SSID (4), WSUSER (16), WSNAME (16), WSTRAN (16).

User response
Specify a column value that is within the valid number of characters for the column name you specified.

CQM213E IBM*, Rocket** Licensed Materials - Property of IBM 5697-I03 (c) Copyright IBM Corp. 2008 All Rights Reserved. (c) Copyright Rocket Software, Inc. 2008 All Rights Reserved. *Trademark of International Business Machines. **Trademark of Rocket Software, Inc.

Explanation
Informational message detailing the copyrights for DB2 Query Monitor.

User response
No action is required.

CQM214E Invalid combination. It is invalid to change the grouping level and issue line commands concurrently.
Explanation
The combination of commands you specified was not valid.

User response
Either change the grouping level or issue a line command. It is invalid to attempt to execute both actions simultaneously.

CQM215E Invalid filter value. It must be numeric (only 0-9) but it can contain the wildcard(*) character.

Explanation
The filter value you specified is not numeric (0-9).

User response
Specify a valid filter value. It may contain a wildcard (*) character.

CQM216E Invalid filter value. It must be I, INDEX, or T, TABLE.

Explanation
The filter value you specified is not valid. Valid values are I (INDEX) or T (TABLE).

User response
Specify a valid filter value.

CQM217E Invalid filter value. Must be BP followed by a number or a number followed by K but it can contain the wildcard(*) character.

Explanation
The filter value you specified is not valid.

User response
Specify a valid value (BP followed by a number or a number followed by K).

CQM218E Invalid value. Enter "Y" to override OPTKEYS specified in CQMPARMS or "N" to use values from CQMPARMS.

Explanation
The value you specified in the OPTKEYS field is not valid. Valid values are Y (Query Monitor overrides the setting of the OPTKEYS parameter in CQMPARMS for the workload specified in the profile line according to the override values shown in the OPTTEXT), OPTAUTHID, OPTCORRID, OPTWSUSER, OPTWSTRAN, OPTWSNAME, and OPTCALLS columns) and N (Query Monitor does not override OPTKEYS parameter in CQMPARMS for the workload).

User response
Specify a valid value in the OPTKEYS field.

CQM219E Invalid value. Enter "Y" to enable the OPTKEY setting or "N" to disable.

Explanation
The value you specified in the OPTKEY setting field is not valid. The value you specify indicates whether or not Query Monitor overrides the specific OPTKEYS parameter (TEXT, AUTHID, CORRID, WSUSER, WSTRAN, WSNAME, or CALLS) in CQMPARMS when OPTKEYS is set to Y.

User response
Specify a valid value in the OPTKEY setting field.

CQM220E Invalid command. Valid commands are "P" to select plans, "D" to select DBRMs/Packages, or "S" to select SQLCODEs.

Explanation
The command you specified is not valid.

User response
Specify A to select AUTHIDs, P to select plans, or S to select SQLCODES.

CQM221E Invalid command. Valid commands are "A" to select AUTHIDs, "P" to select plans, or "S" to select SQLCODEs.

Explanation
The command you specified was invalid.

User response
Specify A to select AUTHIDs, P to select plans, or S to select SQLCODES.

CQM222E Invalid command. Valid commands are "A" to select AUTHIDs, "D" to select DBRMs/Packages, or "S" to select SQLCODEs.
The command you specified was invalid.

Specify A to select AUTHIDs, D to select DBRMs/Packages, or S to select SQLCODEs.

**Explanation**

Invalid command. Valid commands are "A" to group by AUTHID, "D" to group by DBRM/Package, "P" to group by plan, "S" to group by SQLCODE, or "*" for no grouping.

**User response**

Specify A to group by AUTHID, D to group by DBRM/Packages, P to group by plan, S to group by SQLCODE, or * for no grouping.

**Explanation**

Invalid command. Valid commands are "A" to select AUTHIDs, "D" to select DBRMs/Packages, or "P" to select plans, or "S" to select SQLCODE detail.

**User response**

Specify A to group by AUTHID, D to group by DBRM/Packages, or P to select plans, or S to select SQLCODE detail.

**Explanation**

Invalid command. Valid commands are "V" to view filter line.

**User response**

Specify one of the valid line commands listed in the message.

**Explanation**

Invalid command. Valid commands are "D" to delete filter line, "I" to insert filter line, "R" to repeat filter line, "U" to update filter line, or "V" to view filter line.

**User response**

Specify one of the valid line commands listed in the message.

**Explanation**

Invalid line command. Enter "A" for After, "B" for Before, "C" for Copy, "D" for Delete, "I" for Insert, "M" for Move, or "R" for Repeat.

**User response**

Specify a valid command.

**Explanation**

The specified line command was invalid.

The command you specified was invalid.

Specify a valid command.

**Explanation**

The command you specified was invalid.

Specify a valid command.

**Explanation**

The command you specified was invalid.

Specify a valid command.

**Explanation**

The command you specified was invalid.

Specify a valid command.

**Explanation**

The command you specified was invalid.

Specify a valid command.
User response
Specify one of the valid line commands listed in the message.

CQM233E  Invalid time value. Please enter a valid time value in the format of HH : MM : SS : t.thij, where HH is hours based on a 24 hour clock, MM is minutes, SS is seconds, t is tenths of a second, h is a hundredths of a second, m is milliseconds, i is ten-thousandths of a second, j is hundred-thousandths of a second, and u is microseconds.

Explanation
The specified time value is not valid.

User response
Please enter a valid time value according to the specifications set forth in the message text.

CQM234E  Invalid filter data set attributes. The stored filter data set must be allocated as a PDS with LRECL=80 and RECFM=FB.

Explanation
The filter data set attributes you specified are not valid.

User response
Please allocate the stored filter data set as a PDS with LRECL=80 and RECFM=FB.

CQM235E  Invalid value. Please enter 0 for no alert threshold or a numeric value between 1 and 2,147,483,647.

Explanation
The value you specified was not a valid alert threshold.

User response
Specify a valid value for alert threshold. Valid values are numeric. Specify 0 for no alert threshold or an integer between 1 and 2,147,483,647 for an alert threshold.

CQM236E  LMCOPY failed for filter table.. RC=return_code

Explanation
You attempted to copy a filter to a filter that already exists and the copy failed.

User response
Please refer to the ISPF Services Guide (SC34-4819-03) documentation for more information.

CQM237E  Invalid filter data set name. Please enter a valid MVS data set name.

Explanation
The filter data set name you specified is not a valid MVS data set name.

User response
Specify a valid MVS filter data set name.

CQM238E  TBOPEN failed for filter table... member.. RC=return_code

Explanation
Query Monitor has encountered a problem during TBOPEN processing of a particular member within the filter data set. All members that are successfully TBOPENed will be displayed. Any member that failed TBOPEN processing will be excluded from the list of available filters.

User response
Please refer to the ISPF Services Guide (SC34-4819-03) documentation for more information.

CQM239E  VIRTUAL STORAGE EXHAUSTED WHILE OPENING &DATASET.. RETURN CODE rc RECEIVED FROM OPEN.

Explanation
Query Monitor cannot open the data set indicated in the message since it requires more virtual storage than is currently available.

User response
Please refer to the DB2 z/OS DFSMS Macro Instructions for Data Sets (SC26-7408-03) documentation for more information.

CQM240E  Call attach failed. Return code return_code reason code reason_code was received during

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initialization of the call attach facility.

Explanation
Query Monitor cannot perform the requested call attach due to errors during the initialization of the call attach facility.

User response
Refer to DB2 UDB for z/OS Messages (GC18-9602) and DB2 UDB for z/OS Codes (GC18-9603) for additional information about the return and reason codes displayed in the message.

CQM241E Invalid target name. The target of a rename or copy operation cannot equal the name of the source. Please choose another name.

Explanation
The target name you specified is not valid because it is the same as the name of the item you are attempting to copy or rename.

User response
Specify a new name (for the item you are copying or renaming) that is different from the existing name for the source item.

CQM242E Invalid export data set name. Please enter a valid data set name that conforms to MVS standards within quotation marks without imbedded PDS member names.

Explanation
The export data set name you specified is not valid. You must specify a valid data set name. The data set name must be placed within quotation marks and must not have a PDS member name imbedded within it.

User response
Verify that the data set name you specified conforms to MVS standards and is enclosed in single quotation marks for example, 'TWTEST.CQM.SQLTEXT'

CQM243E Invalid export data set attributes. The export data set must be either DSORG=PS or DSORG=PO and LRECL=80.

Explanation
The export data set attributes you specified are not valid.

User response
Specify DSORG=PS or DSORG=PO and LRECL=80 for the data set attributes.

CQM244E Unable to determine terminal CCSID. The Coded Character Set Identifier (CCSID) of the terminal cannot be determined.

Explanation
Query Monitor is not able to determine the Coded Character Set Identifier for the terminal. The ZTERMCID may be blank or zeros.

User response
In order to circumvent this situation, please try specifying the CCSID in the Query Monitor startup CLIST. There is a keyword that can be passed to CQM $MAIN in the CQMCLIST CLIST. The parameter name is ZTERMCID and it is passed to CQM$MAIN as follows: CQM$MAIN ZTERMCID(nnnn) Where nnnn is the CCSID of the ISPF user's terminal. Another possibility is to update VTAM® definitions so ISPF reports a valid value in ZTERMCID, possibly a LOGMODE setting. For additional information, contact IBM Technical Support.

CQM245I No parallel task data. No parallel task data exists for the selected item.

Explanation
There is no parallel task data for the selected item.

User response
No action is required.

CQM246E Invalid line command. Enter "B" for Buffers, "C" for SQL Calls, "D" for Delays, "E" for Cancel Thread, "L" for Locks, "O" for Objects, or "Q" for Misc Statistics.

Explanation
The line command you entered is not valid.

User response
Specify one of the valid line commands listed in the message.
CQM247E  Cursor not on valid choice. The cursor must be placed on a column within the dynamic area of the panel in order to process the CHELP command.

Explanation
Your cursor must be placed on a column within the dynamic area of the panel in order to process the CHELP command.

User response
Type the CHELP command in the option line and then place your cursor within the dynamic area of the panel (on the column for which you want help). Then press Enter.

CQM248I  SQL text not collected. The SQL text was not collected due to OPTKEYS settings.

Explanation
No SQL text is available for display due to the OPTKEYS settings.

User response
No action is required.

CQM249I  Profile refresh in progress. Please wait.

Explanation
The requested operation cannot be completed because a monitoring profile refresh is in progress.

User response
Wait until the profile refresh has completed and reissue the request.

CQM250E  Authorization failed. You do not have authority in the target DB2 subsystem to execute the selected operation.

Explanation
You do not have the necessary authority to issue the cancel thread command for a given DB2 subsystem.

User response
No action is required. You cannot issue the cancel thread command for the DB2 subsystem. Contact your system administrator if necessary.

CQM251E  Required FEC maintenance has not been installed. Query Monitor will not start up an ISPF session until the correct FEC maintenance has been installed.

Explanation
You do not have the necessary maintenance on the FEC component required for correct operation of CQM.

User response
Contact IBM to acquire the required maintenance. Please note, Query Monitor must be recycled after FEC code is updated.

CQM252E  Authorization failure encountered when opening data set data_set.

Explanation
Query Monitor encountered an authorization failure when attempting to open the data set indicated in the message.

User response
No action is required. You do not have sufficient authority to open the requested data set. If you require access, please contact your security administrator for assistance.

CQM254E  Mutually exclusive parameters coded. OPTKEYS(CORRNAME) cannot be specified if OPTKEYS(CORRID) is also specified.

Explanation
Both OPTKEYS(CORRNAME) and OPTKEYS(CORRID) have been specified but these parameters are mutually exclusive. You cannot specify both parameters simultaneously.

User response
Specify either OPTKEYS(CORRNAME) or OPTKEYS(CORRID) but not both.

CQM260E  Unable to create log

Explanation
Query Monitor was unable to create a log. The MEMLIMIT parameter has been specified with a value of less than 1M and Query Monitor will not initialize under ISPF.
User response
Specify a value for the MEMLIMIT parameter of 1M or greater. For more information, see “Setting MEMLIMIT” on page 192.

CQM261E  INVALID LINE COMMAND ENTER command

Explanation
The specified line command is not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM262E  INVALID LINE COMMAND. ENTER command

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM263E  Invalid line command. Enter "9" for Objs, "12" for Call "19" for Delay, "20" for Lock, "21" for Misc, or "22" for Buffstat or "27" for "Cancel Thread".

Explanation
The specified line command is not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM264E  Invalid command. Valid commands are "1" to group by plans, "3" to group by DBRM/Packages or "4" to group by AUTHIDs.

Explanation
The specified line command is not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM265E  Invalid command. Valid commands are "3" for DBRMs/packages, "4" for AUTHIDs or "S" to select detail.

CQM266E  Invalid command. Valid commands are "1" for plans, "4" for AUTHIDs or "S" to select detail.

CQM267E  Invalid command. Valid commands are "1" for plans, "3" for DBRM/Packages or "S" to select detail.

CQM268E  Invalid line command. Enter "9" for Objs, "12" for Call, "16" for SQL, "18" for Analyze, "19" for Delay, "20" for Locks, "21" for Misc, "22" for Buffstat, "25" for Host Variables, "26" for Parallel Activity or "27" for Cancel Thread.

CQM269E  Invalid line command. Enter "9" for Objs, "12" for Call, "16" for
SQL, "18" for Analyze, "19" for Delay, "20" for Locks, "21" for Misc, "22" for Buffstat, "25" for Host Variables, or "26" for Parallel Activity.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM270E Invalid line command. Enter "16" for SQL, "19" for Delay, "20" for Locks, "21" for Misc, "22" for Buffstat, "25" for Host Variables or "28" to format the SQLCA.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM271E Invalid line command. Enter "22" for Buffstat.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM272E Invalid command. Valid commands are "1" for plans, "4" for AUTHIDs or "30" for SQLCODEs.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM273E Invalid command. Valid commands are "1" for plans, "4" for AUTHIDs or "30" for SQLCODEs.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM274E Invalid command. Valid commands are "3" for DBRMs/packages, "4" for AUTHIDs or "30" for SQLCODEs.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM275E Invalid command. Valid commands are "1" to group by plans, "3" to group by DBRM/package, "4" to group by AUTHIDs, "30" to group by SQLCODE or "*" for no grouping.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM276E Invalid command. Valid commands are "1" for plans, "3" for DBRMs/Packages, "4" for AUTHIDs or "S" to select detail.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.
CQM277E Invalid command. Valid commands are "1" to select plans or "S" to select detail.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM278E Invalid command. Valid commands are "4" to select AUTHIDs or "S" to select detail.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM279E Invalid command. Valid commands are "3" to select DBRMs/Packages or "S" to select detail.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM280E SETSLIP does not support CQM subsystem version 2.2 or lower.

Explanation
The SETSLIP function cannot be used to SET SLIPS for the version of the CQM subsystem indicated in the message.

User response
Please connect to a CQM subsystem at the appropriate release level.

CQM281E You are not RACF authorized for SETSLIP.

Explanation
The SETSLIP function is RACF protected.

User response
Please contact your system administrator for RACF authority to use SETSLIP.

CQM282E Invalid completion code. Completion codes are S for system followed by three digit hexadecimal code or U followed by a 4 digit number between 0001 and 4095.

Explanation
The completion code is not valid.

User response
Respecify the abend completion code and press Enter.

CQM283E Invalid jobname. It must be set to your TSO userid userid or the cqmssid jobname jobname.

Explanation
SETSLIP only supports a jobname set to your TSO userid or the CQM subsystem started task or jobname.

User response
Respecify the jobname and press Enter.

CQM284E You may select only one item for a SLIP.

Explanation
You can only set a SLIP for one program at a time.

User response
Select a single program and press Enter.

CQM285E Selection is invalid for reason listed.

Explanation
When issuing SLIPS for the CQM collector, the collector must be active for the selected program.

User response
Start the collector and retry.

CQM286E Displacement is a 6 digit hexadecimal number provided by
technical support. It must end in 0,2,4,6,8,A,C or E and contain the digits 0-9 or the characters A-F without intervening blanks.

Explanation

Program displacements are provided by technical support and must be entered as provided.

User response

Verify that you have entered the program displacement as provided. If you cannot verify, contact technical support. Please be sure to provide the version data displayed on the panel.

CQM287E

Verify data must be an even number of hexadecimal digits as provided by technical support. It must contain the digits 0-9 or the characters A-F without intervening blanks.

Explanation

Verify data are provided by technical support and must be entered as provided.

User response

Verify that you have entered the verify data as provided. If you cannot verify, contact technical support. Please be sure to provide the version data displayed on the panel.

CQM288E

Program program does not verify at disp with the provided verify data data. Please verify the data and if it matches what was provided by technical support. Call and provide the version shown on this screen to verify that the verify data matches your system.

Explanation

The verify data did not match the values found in the program.

User response

Verify that you have entered the verify data and program displacement as provided by technical support. If in doubt, contact technical support. Please be sure to provide the version data displayed on the panel.

CQM289E

Program abend verifying collector program program. Make the collector is still active and retry. If problem persists, report it to technical support.

Explanation

An abend occurred trying to verify the program.

User response

Make sure the CQM subsystem is active and retry. If the problem persists, contact technical support. Please be sure to provide the version data displayed in the panel.

CQM290E

Displacement exceeds the program length. This value must be entered as provided by technical support.

Explanation

The specified line command was not valid for the panel.

User response

Specify one of the valid line commands listed in the message.

CQM291E

Length= may specify a 1 to 3 digit number between 1 and 255.

Explanation

The specified line command was not valid for the panel.

User response

Specify one of the valid line commands listed in the message.s

CQM292E

Invalid command. Valid commands are "16" to view SQL text or "28" to view the SQLCA.

Explanation

The command you specified is not valid for the panel. Valid commands include C to view SQLCA information and S to select SQL text.

User response

Specify a valid command.

CQM293E

Invalid command. Valid commands are "S" to select SQLCODE detail.
Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM294E Invalid command. Valid commands are "1" to select plans or "S" to select SQLCODE detail.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM295E Invalid command. Valid commands are "4" to select AUTHIDs or "S" to select SQLCODE detail.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM296E Invalid command. Valid commands are "3" to select DBRMs/Packages or "S" to select SQLCODE detail.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM297E Invalid command. Valid commands are "1" to group by plans, "3" to group by DBRM/Packages, "4" to group by AUTHIDs, "30" to group by SQLCODEs or "*" for no grouping.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line command listed in the message.

CQM298E Invalid command. Valid commands are "S" to select detail.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM299E Invalid command. Valid commands are "S" to select an entry, "D" to list interval datasets, "K" to keep interval, or "R" to release interval.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM300E Errors occurred reading the VSAM files for an XQM group. Enter XQMVSAM to see details on this error.

Explanation
A VSAM error occurred on one or more members of an XQM group.

User response
Use the EXPLAIN command to display a screen with an explanation of the VSAM errors by a group member.

CQM301I There are no XQM VSAM errors to explain.

Explanation
You entered EXPLAIN to view VSAM errors for members of an XQM group and there were no errors found.
User response
No action is required.

CQM302E  Invalid command. Valid commands are "3" to view filter line.
Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM306E  Invalid line command. Enter "2" for Update, "3" for View, "5" for Delete, "6" for Copy, or "7" for Rename, or "8" for New filter.
Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM307E  Invalid command. Enter "2" to update profile, "3" to view profile, "5" to delete profile, "6" to copy profile, "7" to rename profile, or "8" to Create New Profile.
Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM308E  Invalid command. Enter "1" to activate monitoring, "2" to deactivate monitoring, "3" to view profile, "4" to refresh profile, or "5" to change profile.
Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM309E  Invalid command. Enter "0" to select profile, "2" to update profile, "3" to view profile, "5" to delete profile, "6" to copy profile, "7" to rename profile, or "8" to create new profile.
Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM310E
Invalid line command. Enter "1" for Insert, "4" for Repeat, "5" for Delete, "6" for Copy, "9" for Move, "10" for Before, "11" for After, or "2" for Update.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM311E
Invalid command. Valid commands are "3" to view profile line data.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM312E
Invalid line command. Enter "2" for Insert, "4" for Repeat, "5" for Delete, "6" for Copy, "9" for Move, "10" for Before, or "11" for After.

Explanation
The specified line command was not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM313E
Invalid command. Valid commands are "1" for plans, "3" for DBRM/Packages, "4" for AUTHIDs, or "5" to select detail.

Explanation
You entered an invalid command.

User response
Specify one of the valid line commands listed in the message.

CQM314E
command command is invalid in FORM mode.

Explanation
The command you specified is not valid in FORM mode.

User response
No action is required.

CQM315E
Call Attach error during dataset, RC=returncode RS=reasoncode

Explanation
A call attach error occurred.

User response
No action is required.

CQM316E
Error formatting SQLCA, RC=returncode RS=reasoncode

Explanation
There was an error formatting SQLCA.

User response
No action is required.

CQM317E
Error during retrieval, RC=returncode

Explanation
A non-specific error occurred during retrieval for the specified return code.

User response
Report the error.

CQM318E
The data is no longer available for msg

Explanation
The specified line command is not valid for the panel.

User response
Specify one of the valid line commands listed in the message.
CQM319E  
_cqmssid_ is an XQM and it does not have any group members.

**Explanation**
There are no group members associated with the indicated CQM subsystem.

**User response**
No action is required.

CQM322E  
Mutually exclusive parameters coded. OPTKEYS(TEXT) cannot be specified if OPTKEYS(PTEXT) is also specified.

**Explanation**
OPTKEYS TEXT and PTEXT (literal stripped text) cannot be specified in the same monitor profile line.

**User response**
Specify TEXT if you want the full SQL text in summaries or PTEXT if you want to summarize by literal stripped text.

CQM323E  
Invalid recursion attempted. You are currently at the selected level.

**Explanation**
You have specified a drill down command for the panel that you are currently viewing.

**User response**
Select a different drill down command.

CQM324E  
EXPORTLOG INITIATED BY SEVERE ERROR DURING ISPF PROCESSING.

**Explanation**
A serious error occurred during ISPF processing. Because of the nature of the error, the EXPORTLOG function has been initiated.

**User response**
Please provide a dataset so that the ISPF log can be exported to be provided to technical support for diagnosis.

CQM325E  
Invalid command. Valid commands are "1" to select plans or "S" to select SQLCODE detail.

**Explanation**
The specified line command was not valid for the panel.

**User response**
Specify one of the valid line commands listed in the message.

CQM326E  
INVALID COMMAND. VALID COMMANDS ARE "4" TO SELECT AUTHIDS OR "S" TO SELECT SQLCODE DETAIL.

**Explanation**
The specified line command was not valid for the panel.

**User response**
Specify one of the valid line commands listed in the message.

CQM327E  
Invalid command. Valid commands are "3" to select DBRMs/Packages or "S" to select SQLCODE detail.

**Explanation**
The specified line command was not valid for the panel.

**User response**
Specify one of the valid line commands listed in the message.

CQM328E  
Invalid command. Valid commands are "30" to select SQLCODES.

**Explanation**
The specified line command was not valid for the panel.

**User response**
Specify one of the valid line commands listed in the message.

CQM329E  
FEC apar PK52221 is required to view host variables with a REAL type.
Explanation
The CQM administrator must apply PK52221 to the FEC subcomponent to view host variables with a REAL type.

User response
Have PK52221 installed.

CQM330E  Invalid line command. Enter "O" for Objs, "C" for Call, "D" for Delay, "L" for Lock, "Q" for Misc, or "B" for Buffstat.

Explanation
The line command you entered is not valid.

User response
Specify one of the valid commands listed in the message.

CQM331E  Invalid line command. Enter "9" for Objs, "12" for Call, "19" for Delay, "20" for Lock, "21" for Misc, or "22" for Buffstat.

Explanation
The specified line command is not valid for the panel.

User response
Specify one of the valid line commands listed in the message.

CQM332E  RETURN CODE {rc} REASON CODE {rsn} WAS ENCOUNTERED WHILE ATTEMPTING TO FORMAT THE SQLCA.

Explanation
The SQLCA formatting routine ended with an error. The return code and reason code are included in the message.

User response
Contact IBM Software Support.

CQM333E  Unable to display data. Storage Exhausted.

Explanation:
The ISPF client is unable to allocate storage to display data.

User response:
Try to reduce the size of the response. For example, use filtering to reduce the size of the result set. In Activity Summaries, try to narrow the result set by using different drill downs. Perhaps use fewer intervals, if possible. If you need a particular result set, consider increasing the TSO region size. If none of these measures meet your needs, then contact IBM Software Support. Provide a description of the kind of request you are making, with some indication of the expected size of the result set. Include a screenshot that shows the failed request.

CQM334E  Invalid SQLCODE value. Enter a positive or negative value.

Explanation
The SQLCODE you specified on the Exception, Alert, or Summary SQLCODE Exclusion or Inclusion List panel is not a positive or negative value.

User response:
To specify positive SQLCODEs, set the corresponding flag Collect Exception Positive SQLCODEs, Collect Alert Positive SQLCODEs, or Collect Summary Positive SQLCODEs to Y.

CQM340E  Unable to initialize LE environment

Explanation
The LE environment initialization failed.

User response
Ensure that the correct Language Environment LOADLIB is available.

CQM341E  Unable to terminate LE environment

Explanation
The LE environment termination failed.

User response
Ensure that the correct Language Environment LOADLIB is available.

CQM343E  Invalid Value - Enter "Y" to collect object data for this workload or "N" to not collect object data.

Explanation
You specified an invalid value in the Collect Object Data field.
User response
Correct the specified value.

CQM344E Invalid Value - Enter "Y" to override CQMPARMS settings for this workload or "N" not to override CQMPARMS settings.

Explanation
You specified an invalid value in the Override CQMPARMS Settings field.

User response
Correct the specified value.

CQM345E Invalid Value - Enter "Y" to collect static SQL for this work or "N" not to collect static SQL

Explanation
You specified an invalid value in the Collect Static SQL field.

User response
Correct the specified value.

CQM346E Invalid Value - Enter "Y" to collect dynamic SQL for this workload or "N" not to collect dynamic SQL

Explanation
You specified an invalid value in the Collect Dynamic SQL field.

User response
Correct the specified value.

CQM347I No SQLCODEs Included

Explanation
This informational message displays when you access the SQLCODE inclusion list (when inserting or updating a profile line) and no SQLCODES have yet been defined for inclusion.

User response
No action is required. If you want to include SQLCODES from processing, type those SQLCODES in the fields provided.

CQM348E Invalid value. Enter "Y" to include specific SQLCODEs or "N" not to include SQLCODEs

Explanation
You specified an invalid value.

User response
Correct the specified value.

CQM501E The "Setup" option is unavailable when a DB2 data sharing group has been selected.

Explanation
The Setup option is not available when a DB2 data sharing group has been selected.

User response
Please select a Db2 Query Monitor subsystem before using this option.

CQM502E The "Work with Profiles" option is unavailable when a DB2 data sharing group has been selected.

Explanation
The Work with Profiles option is not available when a DB2 data sharing group has been selected.

User response
Please select a Db2 Query Monitor subsystem before using this option.

CQM508I This line command is not currently available when a DB2 data sharing group is selected in this version of the CQM 3.1 Beta. Please use one of the following line commands: "D" for Delay, "L" for Locks, "C" for Call, "O" for Objs, "Q" for Misc, "B" for Buffstat, or "P" for Parallel Activity.

Explanation
You specified a line command that is not currently available.

User response
Specify one of the line commands listed in the message.

CQM509I This line command is not currently available when a DB2 data sharing group is selected in this version of the CQM 3.1 Beta. Please use one of the following line commands: "D" for Delay, "L" for Locks, "Q" for Misc, "B" for Buffstat, or "P" for Parallel Activity.

User response
Please select a Db2 Query Monitor subsystem before using this option.
Explanation
You specified a line command that is not currently available.

User response
Specify one of the line commands listed in the message.

CQM600E  Mutually exclusive parameters coded. OPTKEYS(CORRNUM) cannot be specified if OPTKEYS(CORRID) is also specified.

Explanation
You specified two mutually exclusive parameters.

User response
Remove one of the two parameters.

CQM700E

Explanation
You do not have the authority needed to access the Db2 Query Monitor Setup panel, option 7.

User response
Only authorization IDs with READ access to the CQM.ADMIN.FUNCTIONS profile within the RACF FACILITY class are allowed to access the Db2 Query Monitor Setup panel (option 7). For more information, see “Reviewing and setting proper authorizations” on page 55 or contact your system administrator.

CQM837E  Dataset name including user prefix exceeds 44 characters. To avoid prefix, enclose DSN in single quotes.

Explanation
The data set name specified already existed and you specified N or PF3 as the response to the Replace (Y/N) query. The file is not replaced.

User response
Specify a new DSN or hit PF3 to exit the Export CQM ISPF Log panel.

CQM838E  Dataset dsn must be created as a sequential or PDS fixed length file with a logical record length of 4096 with or without blocking.

Explanation
The data set name specified for the Export CQM ISPF Log DSN was found but it was not defined with fixed logical record length of 4096.

User response
Please specify a new sequential or PDS file with a fixed logical record length of 4096. The blksize may be any multiple of 4096.

CQM839I  CQM ISPF log exported to dataset dsn.

Explanation
The CQM ISPF log has been exported to the specified data set.

User response
Record the data set name and member (if applicable) so the file can be transmitted to technical support for analysis.

CQM842E  Invalid member name. Must consist of A-Z, 0-9, and $,# or @

Explanation
The member name has invalid characters. Only A-Z, 0-9, $, #, and @ are valid characters.

User response
Correct the specified value.

CQM843I  Existing file is a sequential file and you have specified a PDS.

Explanation
The specified DSN already exists. The existing file is a sequential file and you have specified a PDS.
If you want to replace the file, specify Y to the Replace File popup.

CQM852E Invalid value. Please enter a valid non-zero numeric value for the toleration level when anomalies are being collected.

Explanation
The specified toleration level value is not valid when anomalies are collected.

User response
Enter a non-zero numeric value.

CQM901E The default load library could not be located.

Explanation
The data set name entered for DB2 Tools Load Library was not found.

User response
Enter a valid loadlib data set name and continue.

CQM902E A DB2 subsystem ID has to be entered for processing.

Explanation
There was no valid value entered for DB2 subsystem ID.

User response
Enter a valid DB2 subsystem name.

CQM903E The default GDG base data set name could not be located.

Explanation
The data set name entered for GDG Base model was not found.

User response
Enter a valid model data set name and continue.

CQM904E The specified data set could not be opened for I/O.

Explanation
A VSAM open error occurred while attempting to open the data set specified for the Db2 Control File.

User response
Verify that the VSAM data set is accessible.

CQM905E An unexpected return code from VSAM was encountered while doing a read of the control file.

Explanation
A VSAM READ error occurred while attempting to access the data set specified for the Db2 Control File. The VSAM return code is provided for diagnostic purposes.

User response
Refer to the z/OS DFSMS Macro Instructions for Data Sets (SC26-7408) documentation to resolve, and then continue.

CQM906I The control file record for DB2 subsystem ssid has been successfully updated.

Explanation
The Db2 Control File record has been successfully updated based on the definitions for the specified DB2 subsystem.

User response
No action is required.

CQM907E An unexpected return code from VSAM was encountered while doing an update operation of the control file.

Explanation
A VSAM update error occurred while attempting to update the data set specified for the Db2 Control File. The RC1 and RC2 (VSAM return cards) are provided for diagnostic purposes.

User response
Refer to the z/OS DFSMS Macro Instructions for Data Sets (SC26-7408) documentation to resolve, and then continue.

CQM908I The control file record for DB2 subsystem ssid has been successfully added.
**Explanation**
The Db2 Control File record has been successfully updated based on the definitions for the specified DB2 subsystem.

**User response**
No action is required.

**CQM909E** Invalid value. Valid options are 1 and 2.

**Explanation**
The value you specified is not valid. Valid values are 1 and 2.

**User response**
Enter a valid value.

**CQM910E** An unexpected return code from VSAM was encountered while doing an add operation to the control file.

**Explanation**
A VSAM error occurred while attempting to perform an add operation to the specified Db2 Control File. The RC1 and RC2 (VSAM return codes) are provided for diagnostic purposes.

**User response**
Refer to the z/OS DFSMS Macro Instructions for Data Sets (SC26-7408) documentation to resolve, and then continue.

**CQM911E** The (F)IND command was entered but no parameters were specified.

**Explanation**
The (F)IND command was entered but no parameters were specified.

**User response**
Enter a FIND parameter.

**CQM912I** The requested find string was not found.

**Explanation**
The requested find string was not found.

**User response**
No action is required.

**CQM914E** An unknown column was specified using the SORT command.

**Explanation**
An unknown column was specified using the SORT command.

**User response**
Verify that you correctly typed the name of the column or select another column.

**CQM915E** SORT is not supported for the specified column.

**Explanation**
SORT is not supported for the column specified in the SORT command.

**User response**
Refer to the sort columns listed on the Define Sort Columns panel for a list of valid columns on which the sort can be based and redefine the sort.

**CQM916E** Sort column not entered. Column name or number must be specified.

**Explanation**
SORT column not entered. A column name or number must be specified for the SORT command.

**User response**
Ensure that if the column name is used, that all spaces in the name are replaced with an underscore.

**CQM918I** find_string not found. Press PF5 to continue from top.

**Explanation**
The indicated character string was not found.

**User response**
To continue searching for the character string from the top of the dialog, press PF5.

**CQM919I** find_string not found. Press PF5 to continue from bottom.

**Explanation**
The indicated character string was not found.
**User response**
To continue searching for the character string from the bottom of the dialog, press PF5.

<table>
<thead>
<tr>
<th>CQM920E</th>
<th>File tailoring open returned a file tailoring already in progress condition.</th>
</tr>
</thead>
</table>

**Explanation**
An attempt to perform file tailoring for utility customization failed. There was a file tailoring session already in progress. File tailoring sessions cannot be performed concurrently.

<table>
<thead>
<tr>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>No action is required.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CQM921E</th>
<th>File tailoring open returned the output file already in use condition. ENQ failed.</th>
</tr>
</thead>
</table>

**Explanation**
An attempt to open the Db2 Control File failed with an ENQ error. The data set is already open for output.

<table>
<thead>
<tr>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that you are the only user attempting to access this file.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CQM922E</th>
<th>File tailoring open returned the skeletal file or output file not allocated condition.</th>
</tr>
</thead>
</table>

**Explanation**
An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

<table>
<thead>
<tr>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that all required files are allocated prior to performing file tailoring.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CQM923E</th>
<th>File tailoring open returned a severe error condition.</th>
</tr>
</thead>
</table>

**Explanation**
An attempt to perform file tailoring failed because a severe error condition was encountered on open.

<table>
<thead>
<tr>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that all required files are allocated and accessible prior to performing file tailoring.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CQM924E</th>
<th>File tailoring open returned an unknown code - severe error.</th>
</tr>
</thead>
</table>

**Explanation**
An attempt to perform file tailoring failed because a severe error condition was encountered on open.

<table>
<thead>
<tr>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that all required files are allocated and accessible prior to performing file tailoring.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CQM925E</th>
<th>File tailoring close returned a file not open condition - severe error.</th>
</tr>
</thead>
</table>

**Explanation**
An attempt to perform file tailoring failed because a File-Not-Open condition was encountered on close.

<table>
<thead>
<tr>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CQM926E</th>
<th>File tailoring close returned an output file in use condition.</th>
</tr>
</thead>
</table>

**Explanation**
An attempt to perform file tailoring failed because an Output-File-In use condition was encountered on close.

<table>
<thead>
<tr>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CQM927E</th>
<th>File tailoring close returned a skeletal file or output file not allocated condition.</th>
</tr>
</thead>
</table>

**Explanation**
An attempt to close file tailoring failed because either a tailoring skeleton file or output file was not allocated.

<table>
<thead>
<tr>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CQM928E</th>
<th>File tailoring close returned a severe error.</th>
</tr>
</thead>
</table>

**Chapter 28. Troubleshooting 595**
### Explanation
An attempt to perform file tailoring failed because a severe error condition was encountered on close.

**User response**
Verify that all required files are allocated and accessible prior to performing file tailoring.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM929E</td>
<td>File tailoring close returned an unknown code - severe error.</td>
</tr>
</tbody>
</table>

### Explanation
An attempt to perform file tailoring failed because a severe error condition was encountered on close.

**User response**
Verify that all required files are allocated and accessible prior to performing file tailoring.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM930E</td>
<td>File tailoring close returned an output member exists in the output library and NOREPL was specified.</td>
</tr>
</tbody>
</table>

### Explanation
An attempt to perform file tailoring failed because the close process could not replace the pre-existing tailored member in the output file.

**User response**
Change the output member name to a new name or ensure that the output library allows for member replacement.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM931E</td>
<td>File tailoring include returned a skeleton does not exist condition.</td>
</tr>
</tbody>
</table>

### Explanation
An attempt to perform file tailoring failed because the tailoring process could not locate a required tailoring skeleton.

**User response**
Assure that all required files are allocated to perform file tailoring.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM932E</td>
<td>File tailoring include returned a skeleton in use - ENQ failed condition.</td>
</tr>
</tbody>
</table>

### Explanation
An attempt to access a tailoring skeleton failed with an ENQ error (member-in-use).

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM933E</td>
<td>File tailoring include returned a data truncation or skeleton library or output file not allocated condition.</td>
</tr>
</tbody>
</table>

### Explanation
An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

**User response**
Verify that all required files are allocated prior to performing file tailoring.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM934E</td>
<td>File tailoring include returned a severe error condition.</td>
</tr>
</tbody>
</table>

### Explanation
An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

**User response**
Verify that all required files are allocated and accessible prior to performing file tailoring.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM935E</td>
<td>File tailoring include returned an unknown condition - severe error.</td>
</tr>
</tbody>
</table>

### Explanation
An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

**User response**
Verify that all required files are allocated and accessible prior to performing file tailoring.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM936E</td>
<td>Allocation error - The ISPFILE DD is already allocated and cannot be deallocated. Process not completed.</td>
</tr>
</tbody>
</table>

### Explanation
The ISPFILE DD allocation failed. The DD is already allocated and cannot be deallocated for this TSO session. The process did not complete successfully.
User response
No action is required.

CQM937E  Allocation Error. An error was encountered allocating the ISPWRK1 or ISPWRK2 DD. Process not completed.

Explanation
The ISPWRK1 or ISPWRK2 DD allocation failed.

User response
Verify TSO session parameters are set correctly for your site prior to allocation of these DD statements. The process did not complete successfully.

CQM938E  Field Required. The data set entered is a partitioned data set and the member name is required.

Explanation
A required field was not specified. The data set entered is a PDS (partitioned data set) and a member in this PDS must be referenced.

User response
Please enter a valid member name for PDS access.

CQM939E  The only valid values are "T" for tracks and "C" for cylinders.

Explanation
You specified an invalid value. The only valid values are "T" for tracks and "C" for cylinders.

User response
Specify a valid value.

CQM940E  The specified data set could not be found in the MVS catalog.

Explanation
The specified data set could not be found in the MVS catalog.

User response
Ensure that the data set name is correct.

CQM941E  The RFIND key works only after a FIND character string is entered.

Explanation
The RFIND command was issued before a FIND command was issued. You must issue FIND before RFIND will function.

User response
Issue FIND prior to attempting to issue RFIND.

CQM942E  Invalid sort number. Enter a valid digit.

Explanation
An invalid character was entered in the Srt column. Valid characters are the digits 1, 2, 3,... up to 9, or the number of sortable columns, whichever is less.

User response
Specify a valid sort number.

CQM943E  Same sort number entered twice.

Explanation
The same sort number was entered for more than one column. The screen is positioned to the second instance. Sort sequence numbers must be unique.

User response
Specify a valid sort number.

CQM944E  Sort sequence skips a number.

Explanation
The selected sorting sequence skips a number. This is not allowed. The screen is positioned to a selection whose number is lacking an immediate predecessor. The sort sequence is completely rebuilt from the Cmd (and Dir) information. Any previously existing sort sequence is entirely replaced. It is not added to or extended by the new entries.

User response
Specify a valid sort sequence that does not skip a number.

CQM945E  Invalid dir entered. Must be A or D (ascending/descending).

Explanation
The selected sorting direction is invalid. Only A (ascending) or D (descending) can be specified. A blank indicates ascending (default).
User response
Specify a valid sorting direction.

CQM946E Dir not valid without Ord.

Explanation
A sorting direction was selected for a column that was not selected to be sorted. Sorting direction is only a valid choice for selected columns.

User response
Select a sorting direction and order.

CQM947E Max sort columns exceeded.
Sorting first 10 columns.

Explanation
More columns were selected for sorting than are supported. Nine columns can be selected. Under certain circumstances the limit is less than nine, due to internal constraints. For example, sorting a date field can be implemented by three sorts of partial column fields. In that case, the column would count as three towards the maximum of nine, not one.

User response
Specify the appropriate allowable maximum number of sort columns.

CQM948E Fix columns cannot exceed screen size.

Explanation
More columns were selected to be fixed than will fit on the screen.

User response
Remove the (F) selection character from one or more columns.

CQM950E Invalid selection character. "F" and "U" are valid.

Explanation
An invalid Cmd character was entered. Valid characters are F (fix) and U (unfix). Fix causes the column to move to the fixed area on the left side of the screen. Fixed columns do not scroll horizontally when LEFT or RIGHT scrolling commands are issued. Unfix moves the column out of the fixed area, and allows it to scroll horizontally when LEFT and RIGHT scroll commands are issued.

User response
Either remove the invalid character or enter a valid one.

CQM951E Invalid entry. Must be numeric.

Explanation
An invalid Cmd value was entered. Cmd values must be numeric. If the column is fixed, the number must be in the fixed range. If the column is not fixed, the number must be in the unfixed range.

User response
Either remove the invalid number or enter a valid one.

CQM952E Invalid entry for fixed column.

Explanation
An invalid Cmd value was entered for a fixed column. Valid selections for fixed columns are up to the number of fixed columns.

User response
Either remove the invalid number or enter a valid one.

CQM953E Invalid entry for unfixed column.

Explanation
An invalid Cmd value was entered for an unfixed column. The number must be less than the number of columns, and greater than the number of fixed columns.

User response
Either remove the invalid number or enter a valid one.

CQM954E Invalid value entered for column size: non-numeric data.

Explanation
An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields.

User response
Either remove the invalid number or enter a valid one.

CQM955E Invalid value entered for column size: out of range.

Explanation
An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields.
MIN is the smallest acceptable value. MAX is the largest acceptable value.

**User response**
Either remove the invalid number or enter a valid number.

**CQM956E** Total fixed column sizes cannot exceed screen size.

**Explanation**
The Cmd values entered would result in the sum of the fixed column sizes to exceed the screen size. This is not allowed. The fixed columns are those with an OR in the Fix column. Fixed columns are always displayed, and so must fit on the screen.

**User response**
Either change the fixed column sizes so that the total is less than the screen size or cancel to return to the previous panel.

**CQM957E** New configuration makes column size invalid.

**Explanation**
The requested column sizes make at least one unfixed column unable to be displayed. The cursor is positioned on the value where the problem was detected. The unfixed area on the screen would be too small to show the column where the cursor is placed.

**User response**
Do one of the following:
- Make the column where the cursor is smaller so that it can fit in the available unfixed area.
- Set it to its maximum size (width).
- Make the fixed area smaller.
- Cancel to return to the previous panel.

**CQM958E** Column does not fit in unfixed area in new configuration.

**Explanation**
The requested column sizes would make the unfixed column (where the cursor is positioned) unable to be displayed. The unfixed area on the screen would be too small to show this column.

**User response**
Shrinking the fixed area by either unfixing columns or making fixed columns smaller. The column where the cursor is cannot be partially displayed (min-max) so its size cannot be changed.

**CQM959E** New configuration makes this column size invalid.

**Explanation**
Fixing the requested columns would shrink the available area for unfixed columns unacceptably. One or more unfixed columns would not fit in the remaining unfixed area of the screen. The cursor is placed on a row that represents one such column. Therefore, the requested configuration is not allowed.

**User response**
To change column sizes, cancel out of the CFIX function and invoke the CSIZE function. Either cancel to exit CFIX with no change or blank out one or more FIX selections until an allowable fixed size is reached.

**CQM960E** Invalid fixed selections. Would not leave enough space for this column.

**Explanation**
Fixing the columns requested would make at least one unfixed column unable to be displayed. The cursor is positioned on the row that represents one such unfixed column, whose minimum displayable size would not fit in the available screen area.

**User response**
Shrink the requested fixed area by either:
- Requesting fewer fixed columns.
- Unfixing one or more fixed columns.
- Cancel out of CFIX and invoke CSIZE in order to shrink one or more fixed columns enough so that all unfixed columns have the space they require.

**CQM962E** Duplicate Cmd values entered.

**Explanation**
Duplicate Cmd numbers were entered. The cursor points to the second instance of a Cmd value.

**User response**
Either change this value, clear it, or exit the CORDER function.

**CQM963E** Cursor not on data element.
Explanation

CEXPAND was issued and the cursor was not located on a valid (expandable) area. CEXPAND requires the cursor to be positioned on a data element (non-heading area) in the dynamic area of the display. Or CEXPAND can be issued specifying the row and column of the data element to expand.

User response

Ensure the cursor is located on a valid (expandable) area prior to issuing the CEXPAND command.

CQM964E Invalid scroll amount for CRIGHT. Must be numeric.

Explanation

Invalid (non-numeric) parameter to CRIGHT specified. CRIGHT accepts one numeric parameter: the number of columns to scroll right. If no parameter is entered a value of 1 is assumed.

User response

Specify a numeric parameter to the CRIGHT command.

CQM965E Invalid scroll amount for CLEFT. Must be numeric.

Explanation

Invalid (non-numeric) parameter to CLEFT specified. CLEFT accepts one numeric parameter: the number of columns to scroll left. If no parameter is entered, a value of 1 is assumed.

User response

Specify a numeric parameter to the CLEFT command.

CQM966E Invalid parameter to ICRIGHT; must be numeric.

Explanation

A parameter to ICRIGHT is too long. ICRIGHT does not process more than eight digits in a parameter, which is more than double any reasonable value.

User response

Specify a valid parameter for ICRIGHT.

CQM968E Parameter to ICRIGHT is zero. Invalid.

Explanation

A parameter to ICRIGHT has the value zero. This is not supported.

User response

Specify non-zero parameters to ICRIGHT.

CQM969E ICRIGHT: unspecified column.

Explanation

ICRIGHT was invoked with no parameters and the cursor is not positioned in the dynamic panel area.

User response

Either put the cursor in the column that should be scrolled or specify the column by number. Column numbers can refer to visible columns (in the current display window) only. Numbers start at 1, on the left side.

CQM971E ICRIGHT: Column number specified is too big.

Explanation

A column number parameter to ICRIGHT must be between 1 and the number of columns currently on the display screen.

User response

To refer to a column by number, you must first position the display window so that the desired column is visible.

CQM972E Invalid parameter to ICLEFT; must be numeric.

Explanation

A parameter to ICLEFT is not numeric. ICLEFT (inner column scroll left) accepts either zero, one, or two numeric parameters. ICLEFT can be abbreviated as ICL.
User response
Specify a valid parameter for ICLEFT.

CQM973E Parameter to ICLEFT too long. Invalid.

Explanation
A parameter to ICLEFT is too long. ICLEFT does not process more than eight digits in a parameter which is more than double reasonable value.

User response
Specify a parameter less than or equal to eight digits for ICLEFT.

CQM974E Parameter to ICLEFT is zero. Invalid.

Explanation
A parameter to ICLEFT has the value zero. This is not supported.

User response
Specify a non-zero number for ICLEFT.

CQM975E ICLEFT: unspecified column.

Explanation
ICLEFT was invoked with no parameters and the cursor is not positioned in the dynamic panel area.

User response
Either put the cursor in the column that should be scrolled or specify the column by number. Column numbers can refer to visible columns (in the current display window) only. Numbering starts at 1 on the left side.

CQM977E ICLEFT: Column number specified is too big.

Explanation
A column number parameter to ICLEFT must be between 1 and the number of columns currently on the display screen.

User response
To refer to a column by number, you must first position the display window so that the desired column is visible.

CQM978E Invalid column number specified for SORT (not numeric).

Explanation
Invalid column number parameter to CSORT specified (non-numeric).

User response
Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

CQM979E Invalid column number specified. Too many digits.

Explanation
Invalid parameter to CSORT specified. More than eight digits were specified. Parsing stops at eight digits.

User response
Specify a column number parameter between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

CQM980E Invalid column number specified: zero.

Explanation
Invalid parameter to CSORT was specified (zero).

User response
Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

CQM981E Invalid column number specified: out of range.

Explanation
Invalid parameter to CSORT was specified (zero).

User response
Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

CQM982E Invalid view. View adjusted.

Explanation
The current view was adjusted but not deleted. The saved view did not match the report requirements.
This could be caused by the report changing or the view file getting corrupted.

**User response**

The adjusted view will be used. You can issue CSET to modify the view.

**CQM983E** Invalid view. View deleted.

**Explanation**

Invalid data was found in a view for this report. The view was deleted and contents ignored. This could be caused by the report changing or the view file getting corrupted.

**User response**

You can issue CSET to create a view that will match the current report.

**CQM984E** Unexpected return code from TBSTATS: tbstats

**Explanation**

An unexpected failure issuing TBSTATS was received.

**User response**

Please refer to *ISPF Services Guide* (SC34-4819-03) for (hex) return code descriptions. Also, review the ISPTLIB and ISPTABL allocations.

**CQM985E** View library not allocated.

**Explanation**

A view input library has not been allocated. In order for a user to save and use report customizations that are created via the CSET command, ISPTABL and ISPTLIB must be allocated.

**User response**

Refer to the *ISPF Services Guide* (SC34-4819-03) for more information about ISPTABL and ISPTLIB.

**CQM986E** TBCREATE failed. RC=return_code

**Explanation**

TBCREATE was issued to create a view. It failed with a (hex) return code as indicated in the message.

**User response**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

**CQM987E** TBOPEN failed. RC=return_code

**Explanation**

TBOPEN was issued to open a view. It failed with a (hex) return code as indicated in the message.

**User response**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

**CQM988E** TBGET failed. RC=return_code

**Explanation**

A TBGET produced a return code (as indicated in the message).

**User response**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

**CQM989E** TBMOD failed. RC=return_code

**Explanation**

A TBMOD produced an error and return code (as indicated in the message).

**User response**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

**CQM990E** TBCLOSE failed. RC=return_code

**Explanation**

TBCLOSE failed with a (hex) return code as indicated in the message.

**User response**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

**CQM991E** TBDELETE failed. RC=return_code

**Explanation**

TBDELETE failed with a (hex) return code as indicated in the message.
Explanation
TBDELETE failed with a (hex) return code as indicated in the message.

User response
Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the ISPF Services Guide (SC34-4819-03).

CQM992E Invalid selection.

Explanation
A command that is not supported on this panel was selected.

User response
Issue a valid command for the panel.

CQM993I Permanent view not supported.

Explanation
Query Monitor has detected something that prevents views from being saved. The permanent view flag cannot be set to Y. The most likely cause of this is that either ISPTLIB or ISPTABL (or both) have not been properly allocated.

User response
Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to ISPF Services Guide (SC34-4819-03).

CQM994E Invalid row number.

Explanation
CEXPAND was issued with an invalid row number. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response
Specify a valid parameter count for use with CEXPAND.

CQM995E Invalid column number.

Explanation
CEXPAND was issued with an invalid column number. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response
Specify a valid parameter count for use with CEXPAND.

CQM996E Invalid digits.

Explanation
CEXPAND was issued with an invalid digits. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response
Specify a valid parameter count for use with CEXPAND.

CQM997E Too many digits.

Explanation
CEXPAND was issued with too many digits. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response
Specify a valid parameter count for use with CEXPAND.

CQM998E Zero parameter invalid.

Explanation
CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and
the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted). The column number is counted from left to right, starting with the left column in the current display window.

**User response**

Specify a non-zero parameter.

---

**CQM999E**

Invalid parameter count. The parameter count must be either two or zero parms.

**WTO messages**

These messages may appear as write-to-operator (WTO) messages in your SYSLOG or other appropriate output for your site.

**CQM1000E**

NOT APF AUTHORIZED

**Explanation**

The Db2 Query Monitor started task or job is not APF authorized.

**User response**

Db2 Query Monitor requires that the target load libraries SCQMLOAD, SFECLOAD, and SCQCLOAD be APF-authorized. Include the following libraries as part of the system APF-authorized list:

- highlevel.SCQMLOAD
- highlevel.SFECLOAD
- highlevel.SCQCLOAD

**CQM1000I**

INITIALIZING SYSTEM GLOBAL MEMORY

**Explanation**

Query Monitor is initializing system global memory.

**User response**

No action is required.

**CQM1001I**

DB2 QUERY MONITOR INITIALIZATION IN PROGRESS FOR SUBSYSTEM ssid

**Explanation**

This message appears during the normal initialization process of the DB2 Query Monitor subsystem and identifies the QM subsystem that is undergoing initialization.

**User response**

Verify that you are activating the correct Query Monitor Subsystem. If you are attempting to activate a Query Monitor Subsystem that is already active, do not attempt activation.

**CQM1003E**

SUBSYSTEM ssid ALREADY ACTIVE

**Explanation**

The Query Monitor Subsystem indicated in the message is already active so it cannot process another activate command.

**User response**

No action is required.

**CQM1004I**

DB2 QUERY MONITOR TERMINATION IN PROGRESS FOR SUBSYSTEM subsystem

**Explanation**

This message was issued with an invalid number of parameters. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted). The column number is counted from left to right, starting with the left column in the current display window.

**User response**

Specify a valid parameter count for use with CEXPAND.
Explanation
This message appears during normal shutdown of the Query Monitor Subsystem and indicates the Query Monitor Subsystem undergoing shutdown.

User response
No action is required.

CQM1005I  DB2 QUERY MONITOR TERMINATION COMPLETE FOR SUBSYSTEM ssid

Explanation
The DB2 Query Monitor subsystem has been terminated. This message could appear as part of normal shutdown or as a failure to connect to a subsystem.

User response
Investigate other WTO messages preceding this one to determine the reason for the termination.

CQM1006E  statement DD STATEMENT MISSING

Explanation
The parameter DD statement (for example, CQMPARMS DD statement) is missing from the JCL for the Db2 Query Monitor started task or offload job.

User response
Create the necessary DD statement and code the appropriate parameters in the data set.

CQM1007E  INVALID USERID SPECIFIED FOR AUTHID

Explanation
The user ID entered in the AUTHID parm in the CQMPARMS data set has not been defined to RACF or an equivalent security system.

User response
Correct the user ID, or ensure the ID is defined to your security system.

CQM1008E  MUTUALLY EXCLUSIVE PARAMETERS CODED FOR OPTKEYS PARAMETER SPECIFICATION (PTEXT and TEXT)

Explanation
OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

User response
Remove either OPTKEYS(TEXT) or OPTKEYS(PTEXT).

CQM1010I  DEBUG MODE ON

Explanation
Debugging mode has been turned on.

User response
No action is required.

CQM1011I  DEBUG MODE OFF

Explanation
Debugging mode has been turned off.

User response
No action is required.

CQM1012E  DB2 NAME IS INVALID IN PARAMETERS STARTING AT LINE line COLUMN column FOR KEYWORD keyword

Explanation
The keyword specified in the message is invalid.

Note: The end of any parameter in CQMPARMS is denoted by a closed parenthesis ‘)’. The absence of a close parenthesis on any non-commented line indicates that it is to be continued and the continuation must begin in column 1 of the following line.

User response
Verify your parameter and keyword specifications and correct any errors.

CQM1013E  PROFILE NAME IS INVALID IN PARAMETERS STARTING AT LINE nn COLUMN n FOR KEYWORD MONITOR

Explanation
The profile name specified on the MONITOR parameter in the CQMPARMS file contains invalid characters.
User response
Correct the profile name so it contains only valid characters. A monitoring profile name must not begin with spaces or numerics, must not contain imbedded spaces, and must not contain characters other than 'A-Z', '0-9', '#', '$', or '@'.

**CQM1016E** INVALID COMMAND SYNTAX

Explanation
The command syntax you used was invalid.

**CQM1017E** INVALID COMMAND

Explanation
An invalid MVS Modify command was issued.

User response
Correct the command and execute it again.

**CQM1018I** INTERVAL EXTERNALIZATION MODE ON

Explanation
The DB2 Query Monitor subsystem was started with externalization mode set to on.

User response
No action is required.

**CQM1019I** INTERVAL EXTERNALIZATION MODE OFF

Explanation
The DB2 Query Monitor subsystem was started with externalization mode set to off.

User response
No action is required.

**CQM1020E** DB2 SUBSYSTEM ssid IS NOT DEFINED

Explanation
Db2 Query Monitor cannot locate the Db2 subsystem (specified in the Db2 Query Monitor started task) on the z/OS SSCT chain. The name entered for the Db2 subsystem is not a valid z/OS subsystem name.

User response
Verify that you have specified a valid Db2 subsystem in your started task JCL.

**CQM1021I** OPTKEYS(AUTHIDS,TEXT) IN EFFECT FOR NEXT INTERVAL

Explanation
The AUTHIDS and TEXT optional keys will take effect for the next interval.

User response
No action is required.

**CQM1022I** OPTKEYS(AUTHIDS) IN EFFECT FOR NEXT INTERVAL

Explanation
The AUTHIDS optional key will take effect for the next interval.

User response
No action is required.

**CQM1023I** OPTKEYS(TEXT) IN EFFECT FOR NEXT INTERVAL

Explanation
The TEXT optional key will take effect for the next interval.

User response
No action is required.

**CQM1024E** dsn SPECIFICATION INVALID

Explanation
The data set name listed in this message is not valid.

User response
Verify that you specified the correct data set name in CQMPARMS.

**CQM1025E** CQMNAMES DSN DOES NOT MATCH THE GLOBALLY DEFINED NAME: name

Explanation
The CQMNAMES DSN does not match the globally defined name.
User response
Adjust CQMNAMES DSN as needed.

CQM1026E  SHARED MEMORY FAILURE FOR OBJECT object REQUEST, RC=rc RS=rs

Explanation
There has been a shared memory failure for the indicated object.

User response
Contact IBM Technical Support.

CQM1027E  TERMINATING DUE TO STORAGE EXHAUSTION IN SHARED MEMORY OBJECT

Explanation
Query Monitor is terminating due to storage exhaustion in shared memory object.

User response
No action is required.

CQM1027I  CPU=CPU Type- CPU Model- CPU Manufacturer. OS Name OS Version. OS Release. OS Modification.

Explanation
This message displays information about the CPU and the operating system.

User response
No action is required.

CQM1028E  component REQUIRES a 64 BIT PROCESSOR AND ZOS1.5 OR HIGHER

Explanation
Your system does not meet the minimum system requirements.

User response
Upgrade to the minimum requirements.

CQM1029E  INVALID PARAMETER DETECTED ON EXEC STATEMENT

Explanation
An invalid parameter has been detected on the EXEC statement.

User response
Correct the parameter.

CQM1030I  RECOVERY BYPASSED, SHARED MEMORY REUSED

Explanation
Recovery has been bypassed.

User response
No action is required.

CQM1031E  SERIOUS ERROR IN MASTER ADDRESS SPACE address_space

Explanation
A serious error has occurred in the master address space.

User response
Verify the master address space is available.

CQM1032I  RECREATING MASTER ADDRESS SPACE

Explanation
Recreating the master address space.

User response
No action is required.

CQM1033E  UNABLE TO CREATE MASTER ADDRESS SPACE additional_info

Explanation
The explanation for this message depends on the variation of the message that is received.

UNABLE TO CREATE MASTER ADDRESS SPACE, MISMATCHED MASTER CODE LEVELS
Db2 Query Monitor is not able to create the master address space indicated in the message.

UNABLE TO CREATE MASTER ADDRESS SPACE, CSVDYLPA ERROR, RC=004
The CSVDYLPA service returns a return code indicating Db2 Query Monitor lacks the authorization to issue CSVDYLPA.
User response
The user response for this message depends on the variation of the message that is received.

UNABLE TO CREATE MASTER ADDRESS SPACE, MISMATCHED MASTER CODE LEVELS
The Support Services Address Space is unable to start or function properly.

- If this is an initial install, the problem is likely related to a security issue.
- If you are running two versions of Db2 Query Monitor, you must specify different values for the MASTER_PROCPNAME parameters for each version.
- If message IEE296I is issued, then the AUTHID for the Support Services Address Space assigned from the started task table may have been revoked or never initialized. The installation's security settings should be reviewed by your Security or z/OS support areas to ensure that the settings are configured correctly before restarting Db2 Query Monitor. You can use the CQMPROC userid as a model to create a similar entry for the Support Services Address Space. If the message is issued after applying Db2 Query Monitor maintenance, one of the fixes is likely to have affected the Support Services Address Space. You must cycle the Db2 Query Monitor started task and Support Services Address Space after applying maintenance. Refer to SAMPLIB member CQMMSTR for example on how to cycle the master. If you are unable to diagnose or resolve the problem, send your console log to IBM Software Support.

UNABLE TO CREATE MASTER ADDRESS SPACE, CSVDYLPA ERROR, RC=004
This is a RACF definition issue. For more information, see “Reviewing and setting proper authorizations” on page 55.

Explanation
The master address space has started.

User response
No action is required.

CQM1036I  statement DD STATEMENT MISSING. YOU WILL NOT BE ABLE TO VIEW member AS A MEMBER OF XQM GROUP group.

Explanation
Query Monitor is not properly configured for data sharing.

User response
Verify that the correct DD statements are properly specified.

CQM1037I  DB2 ssid TERMINATING DUE TO NORUN OR RESET PARM

Explanation
This message indicates that the NORUN parameter has been specified in the startup parameter file.

User response
If you want to start CQM normally, remove the NORUN parameter.

CQM1038E  REQUIRED FEC APAR UK26503(PK46595) HAS NOT BEEN APPLIED. DB2 ssid WILL NOT START UP WITHOUT THIS APAR.

Explanation
FEC APAR UK26503(PK46595) has not been applied.

User response
Install the required FEC maintenance.

CQM1039E  DUMP SUPPRESSED FOR & $#CQMPID. subtask SUBTASK ABENDED code

Explanation
The subtask indicated in the message abended.

User response
Contact Technical Support.

CQM1040E  sys HAS EXCEEDED THE RETRY LIMIT AND IS TERMINATING
Explanation
The retry limit for the indicated system has been exceeded.

User response
No action is required.

_CQM1041E_ **DB2 sys SUBSYSTEM ssid IS TERMINATING DUE TO THE TERMINATION OF THE MASTER ADDRESS SPACE**

Explanation
The DB2 subsystem is in the process of terminating due to the master address space having terminated.

User response
Restart the master address space and the DB2 subsystem.

_CQM1042E_ **SYSTEM DUMP FAILED FOR cqmpid.code RC=rc**

Explanation
The system dump failed.

User response
Contact Technical Support.

_CQM1043E_ **THE MASTER ADDRESS SPACE CANNOT BE STOPPED OR RESET WHILE IN USE**

Explanation
You cannot stop or reset the master address space while it is still in use.

User response
Stop all processes that are using the master address space prior to attempting to stop it.

_CQM1044I_ **MASTER STOPPED**

Explanation
The master address space has stopped.

User response
No action is required.

_CQM1045I_ **MASTER IS NOT ACTIVE**

Explanation
The master address space is not active.

User response
No action is required.

_CQM1046E_ **SMEM SIZE IS LESS THAN MAXIMUM ALLOCATIONS**

Explanation
Db2 Query Monitor requires the SMEM_SIZE parameter to be larger than the MAXIMUM_ALLOCATIONS parameter. SMEM_SIZE determines the maximum amount of global shared memory that will be allocated by Db2 Query Monitor for all purposes. CQM issues the CQM1046E message then shuts down.

User response
Increase the value of the SMEM_SIZE parameter in the CQMPARMS file to a larger value than MAXIMUM_ALLOCATIONS. If this parameter is already set to a higher value and the problem persists, please contact IBM Software Support.

_CQM1051E_ **INTEGRATED STORAGE MANAGER ENCOUNTERED SERIOUS FAILURE DURING EXTENT ACQUISITION.**

Explanation
The integrated storage manager encountered a serious failure.

User response
Contact Technical Support.

_CQM1052E_ **xxx DETECTED CQM STARTED IN AN XQM GROUP AND TIMED OUT TRYING TO SYNCHRONIZE INTERVALS**

Explanation
Query Monitor started in a data sharing group but timed out trying to synchronize intervals.

User response
No action is required.

_CQM1053E_ **xxx INITIALIZATION FAILED, UNABLE TO CONTINUE**

Explanation
Initialization failed.
Contact Technical Support.

**CQM1054I** MASTER LEVEL HAS BEEN REFRESHED

**Explanation**
The master address space level has been refreshed.

**User response**
No action is required.

**CQM1056I** CURRENT SYSTEM STATUS HAS BEEN RECORDED FOR ssid

**Explanation**
The system status has been recorded.

**User response**
No action is required.

**CQM1057E** CURRENT SYSTEM STATUS RECORD HAS FAILED FOR ssid

**Explanation**
The system status record has failed.

**User response**
Contact Technical Support.

**CQM1058E** INTERNAL ERROR, TERMINATION IN PROGRESS FOR ssid

**Explanation**
There has been an internal error.

**User response**
Contact Technical Support.

**CQM1060I** ZIIP SUPPORT IS NOT ACTIVE.

**Explanation**
The messages displays the name of the IBM Workload Manager (WLM) service request that failed in place of the *descrl* variable in the message. Valid values include:

- **IWM4ECRE** Create Enclave
- **IWV4EOCT** Offload CPU Time Service

The return code *xx* and reason code *yyyyyyyy* are returned from the service.

**User response**
Refer to the WLM documentation for the return code descriptions. If message CQM1060I is issued, it means the service request blocks (SRBs) running under an enclave will not run on a zIIP processor but normal product functioning will continue.

**CQM1061E** MISSING PARAMETER parameter

**Explanation**
The indicated parameter is not specified in your CQM parameter file.

**User response**
Specify the parameter that is missing.

**CQM1062E** COMMUNICATION INTERFACE DISABLED BY CROSS MEMORY FAILURE

**Explanation**
The communication interface has been disabled by cross memory failure.

**User response**
No action is required.

**CQM1062I** ZIIP SUPPORT IS INSTALLED

**Explanation**
All the necessary steps required to use the IBM System z® Integrated Information Processor (zIIP) have been completed.

**User response**
No action is required.
CQM1065E  REQUIRED DATA ACCESS
COMMON COLLECTOR MODULE
NOT FOUND

Explanation
The started task did not find the Data Access Common Collector (CQC) initialization module, which prevented a successful startup.

User response
Verify that the Data Access Common Collector (CQC) has been installed and that the loadlib is included in the started task STEPLIB concatenation.

CQM1065I  ADETECT MEMORY LIMIT
REACHED

Explanation
The amount of storage specified in the ADETECT MEMORY LIMIT startup parameter has been exceeded.

User response
Increase the memory quantity specified in ADETECT MEMORY LIMIT and restart Db2 Query Monitor. Db2 Query Monitor will stop collecting anomaly detection data for new workloads until this limit is increased.

CQM1086E  CSVDYLPA RACF FAILURE,
DEFINE USERID ASSIGNED TO
STARTED TASK WITH ACCESS TO
CSVDYLPA.ADD.CQC*

Explanation
There has been a RACF authority failure.

User response
Define the userid assigned to the started task with access to CSVDYLPA.ADD.CQC*.

CQM1100E  RESOLVED
TRACK_DATA_DSNHLQ EXCEEDS
35 CHARACTERS, TRACKING IS
DISABLED

Explanation
Tracking has been disabled.

User response
No action is required.

CQM1101E  RESOLVED
TRACK_DATA_DSNHLQ EXCEEDS
36 CHARACTERS, TRACKING IS
DISABLED

Explanation
Tracking is disabled.

User response
No action is required.

CQM1102I  CHANGING
TRACK_DATA_DSNHLQ AFTER IT
IS INITIALLY SET IS NOT
RECOMMENDED, LOSS OF
TRACKING DATA WILL OCCUR.

Explanation
Loss of tracking data is expected.

User response
No action is required.

CQM1103I  TRACKING FILE FOR xxx IS
UNUSABLE, RECORD record

Explanation
The tracking file is unusable.

User response
No action is required.

CQM1104E  ABEND xxx IN xxx DURING xxx

Explanation
An abend has occurred.

User response
Contact Technical Support.

CQM1153E  RETURN CODE return_code
REASON CODE reason_code WAS
ENCOUNTERED DURING
TRANSLATION SOURCE CCSID
csid TARGET CCSID cssid
INCORRECT DATA LOCATED IN
DDNAME=CQMERROR

Explanation
An error was encountered during the translation of the indicated CCSIDs. This may be the result of not having defined conversion paths between the CCSID of the
collected SQL text and CCSID 1208 when performing a Db2 offload. The information about the problem field together with record numbers can be found in the CQMERROR file.

**User response**

To offload SQL text, verify that all necessary CCSID paths to 1208 are installed. You must define conversion paths between the CCSID of the collected SQL text and CCSID 1208.

**CQM1202I**  
STORAGE CONSTRAINT RELIEVED FOR SPACE – space – OCCURRENCES: count

**Explanation**

A Query Monitor Integrated Storage Manager error had previously occurred due to a storage constraint for the space named in the message. The storage constraint has now been relieved. The number of storage constraint occurrences for this incident is displayed in the message.

**User response**

None.

**CQM1203I**  
ASID=asid, TCB=tcb, CPID=cpid, MODULE=module, ADDR=addr, RC=rc, RSN=rsn

**Explanation**

An Integrated Storage Manager error has occurred. This message provides details that can be used by IBM Software Support to diagnose the situation.

**User response**

Verify that your SMEM_SIZE and MAXIMUM_ALLOCATIONS parameters are set to values that allow sufficient internal storage for Db2 Query Monitor and adjust as needed. If this does not resolve the issue, please provide IBM Software Support with the text of messages CQM1203I, CQM1204I, and CQM1205I and any dumps that were produced.

**CQM1205E**  
ISM ERROR OCCURRED, DETAIL FOLLOWS: note

**Explanation**

An Integrated Storage Manager error has occurred. This message provides details that can be used by IBM Software Support to diagnose the situation.

**User response**

Verify that your SMEM_SIZE and MAXIMUM_ALLOCATIONS parameters are set to values that allow sufficient internal storage for Db2 Query Monitor and adjust as needed. If this does not resolve the issue, please provide IBM Software Support with the text of messages CQM1203I, CQM1204I, and CQM1205I and any dumps that were produced.

**CQM1209W**  
ISM ERROR RC=rc, RSN=rsn, SPACE – space

**Explanation**

A Query Monitor Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Software Support to diagnose the situation.

**User response**

Provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Software Support.

**CQM1210E**  
ISM SPACE IS DISABLED – space

**Explanation**

A Query Monitor Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

**User response**

Provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.
**Explanation**

A Query Monitor Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

**User response**

Please provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.

**Explanation**

An Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Software Support to diagnose the situation.

This message might appear if you are collecting more monitoring data than Db2 Query Monitor has storage for. In this case, you might consider the following options:

1. Increasing the values for MAXIMUM_ALLOCATIONS and SMEM_SIZE parameters in CQMPARMS.
2. Reduce the INTERVAL parameter in CQMPARMS.
3. Alter your monitoring profiles to reduce the amount of monitoring data that is recorded.
4. Add CATALOG_OBJECTS(N) to your CQMPARMS (appropriate if you are using many dynamic statements that use prepares).

After making any changes to CQMPARMS, you must restart the Db2 Data Access Common Collector.

**User response**

Please provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.

**Explanation**

A Query Monitor Integrated Storage Manager operation has failed because no more large extents can be obtained for the space named in the message. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

**User response**

This may be a temporary situation due to the level of DB2 activity currently being monitored by Query Monitor. If message CQM1202I is issued later to indicate that the Storage Constraint has ended, then processing resumes normally. If this situation rarely occurs, it may not be a problem. If this situation frequently occurs, it may be possible to prevent it by adjusting the amount of data collected by Query Monitor within an interval. This could be accomplished by reducing the number of OPTKEYS that are specified for the workload, reducing the length of the INTERVAL, or increasing the amount of memory available to Query Monitor (MAXIMUM_ALLOCATIONS and SMEM_SIZE).

If you need assistance with tuning these parameters, please provide the text of this message and messages CQM1203I and CQM1204I to IBM Technical Support.
processing resumes normally. If this situation rarely occurs, it may not be a problem. If this situation frequently occurs, it may be possible to prevent it by adjusting the amount of data collected by Query Monitor within an interval. This could be accomplished by reducing the number of OPTKEYs that are specified for the workload, reducing the length of the INTERVAL, or increasing the amount of memory available to Query Monitor (MAXIMUM_ALLOCATIONS and SMEM_SIZE).

If you need assistance with tuning these parameters, please provide the text of this message and messages CQM1203I and CQM1204I to IBM Technical Support.

**CQM1216E**  EXTENT PROCESSING FAILED (ABEND) FOR SPACE – space

**Explanation:**
A Query Monitor Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

**User response**
Please provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.

**CQM1217W**  SPACE IS FULL AND NO MORE LARGE EXTENTS CAN BE OBTAINED FOR SPACE – space

**Explanation:**
A Query Monitor Integrated Storage Manager operation has failed because the request would have exceeded the maximum number of extents allowed for the space named in the message. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

**User response**
This may be a temporary situation due to the level of DB2 activity currently being monitored by Query Monitor. If message CQM1202I is issued later to indicate that the Storage Constraint has ended, then processing resumes normally. If this situation rarely occurs, it may not be a problem. If this situation frequently occurs, it may be possible to prevent it by adjusting the amount of data collected by Query Monitor within an interval. This could be accomplished by reducing the number of OPTKEYs that are specified for the workload, reducing the length of the INTERVAL, or increasing the amount of memory available to Query Monitor (MAXIMUM_ALLOCATIONS and SMEM_SIZE).

If you need assistance with tuning these parameters, please provide the text of this message and messages CQM1203I and CQM1204I to IBM Technical Support.

**CQM1218W**  MAXIMUM EXTENTS HAS BEEN REACHED FOR SPACE – space

**Explanation:**
A Query Monitor Integrated Storage Manager operation has failed because the request would have exceeded the maximum number of extents allowed for the space named in the message. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

**User response**
This may be a temporary situation due to the level of DB2 activity currently being monitored by Query Monitor. If message CQM1202I is issued later to indicate that the Storage Constraint has ended, then processing resumes normally. If this situation rarely occurs, it may not be a problem. If this situation frequently occurs, it may be possible to prevent it by adjusting the amount of data collected by Query Monitor (MAXIMUM_ALLOCATIONS and SMEM_SIZE).

**CQM1219W**  ALL ISMERROR MESSAGE BLOCKS ARE IN USE

**Explanation:**
A Query Monitor Integrated Storage Manager error has occurred. However there were no free ISMERROR message blocks available.

**User response**
Increase the value of the ISM_ERROR_BLOCKS parameter in the CQMPARMS file. If this parameter is already set to the maximum value and the problem persists, please contact IBM Technical Support.

**CQM1250E**  GQSCAN ERROR RC=rc,RSN=rsn

**Explanation:**
The GQSCAN service returned an unexpected error.
User response
Please review the return and reason codes for the GQSCAN macro in the MVS Programming Assembler Services Reference manual. If you are unable to resolve the error, please contact IBM Technical Support and supply the text of this message for diagnosis.

CQM1251I Group INTERVAL value established INTERVAL(nnnnn)

Explanation
The INTERVAL value specified in this message has been established for the QM_GROUP of which this CQM started task is a member. This value was set since this is the first CQM started task to initialize as a member of this QM_GROUP.

User response
None.

CQM1252I Group INTERVAL_MIDNIGHT value established INTERVAL_MIDNIGHT(x)

Explanation
The INTERVAL_MIDNIGHT value specified in this message has been established for the QM_GROUP of which this CQM started task is a member. This value was set since this is the first CQM started task to initialize as a member of this QM_GROUP.

User response
None.

CQM1253W INTERVAL(iiiii) differs from Group INTERVAL(nnnnn)

Explanation
The INTERVAL(iiiii) is the INTERVAL value from the CQMPARMS file. Interval(nnnnn) is the QM_GROUP INTERVAL value.

User response
None.

CQM1254W INTERVAL_MIDNIGHT(z) value differs from Group INTERVAL_MIDNIGHT (x)

Explanation
INTERVAL_MIDNIGHT(z) is the INTERVAL_MIDNIGHT value from the CQMPARMS file. INTERVAL_MIDNIGHT(x) is the QM_GROUP INTERVAL_MIDNIGHT value.

User response
No action is required. However, if you would like to prevent this message from being issued in the future, you can change the INTERVAL_MIDNIGHT value in the CQMPARMS dataset for this CQM started task to match the INTERVAL_MIDNIGHT value in the message.

CQM1255I Group INTERVAL value will be used INTERVAL(nnnnn)

Explanation
The INTERVAL value specified in this message has been established for the QM_GROUP of which this CQM started task is a member. This INTERVAL value will be used instead of any value coded in the CQMPARMS dataset allocated to this CQM started task. This value was set by the first CQM started task to initialize as a member of this QM_GROUP.

User response
None.

CQM1256I Group INTERVAL_MIDNIGHT value will be used INTERVAL_MIDNIGHT(x)

Explanation
The INTERVAL_MIDNIGHT value specified in this message has been established for the QM_GROUP of which this CQM started task is a member. This INTERVAL_MIDNIGHT value will be used instead of any value coded in the CQMPARMS dataset allocated to this CQM started task. This value was set by the first CQM started task to initialize as a member of this QM_GROUP.

User response
None.

CQM1257W INTERVAL_MIDNIGHT(Y) is recommended when QM_GROUP is specified

Explanation
The INTERVAL_MIDNIGHT value which will be used for the QM_GROUP is INTERVAL_MIDNIGHT(N). While this setting is allowed, it is not the optimum value. INTERVAL_MIDNIGHT(Y) causes intervals to be
aligned to midnight so that interval boundaries across the CQM started tasks will tend to start and stop near the same time. Having intervals with similar start and stop times is not required, but it helps improve summarization in the ISPF user interface when selecting a data sharing group for data display.

**User response**

No action is required. However it is recommended that INTERVAL_MIDNIGHT(Y) be used in the CQMPARMS dataset for this CQM started task.

**CQM1500E**

**ABNORMAL EOT FOR subtask SUBTASK**

**Explanation**

An abnormal end of task occurred for the subtask indicated in the message.

**User response**

Verify conditions surrounding the abnormal end of task and reissue the subtask.

**CQM2001E**

**DB2 SUBSYSTEM ssid ALREADY MONITORED BY SUBSYSTEM ssid**

**Explanation**

The indicated DB2 subsystem is already being monitored by the Query Monitor subsystem shown in the message.

**User response**

A DB2 subsystem can only be monitored by a single Query Monitor subsystem. To monitor the DB2 subsystem with another Query Monitor subsystem, first stop the monitoring of the DB2 subsystem by the Query Monitor subsystem (shown in the message).

**CQM2002E**

**MONITORING AGENT INSTALLATION FAILED FOR SUBSYSTEM ssid**

**Explanation**

A monitoring agent was unable to start. Another SQL-type monitoring product may possibly be active within the specified DB2 subsystem.

**User response**

Check to see if another SQL-type monitoring product is active. If so, shut down the other product and restart Db2 Query Monitor. If this does not resolve the problem, contact IBM Software Support.

If you encounter message CQM2002E and receive a dump, please open a PMR and provide the dump for diagnostic purposes.

**CQM2003I**

**FORCING MONITORING AGENT INSTALLATION FOR ssid**

**Explanation**

DB2 Query Monitor has detected that a monitoring agent is already active, but is forcing installation because FORCE (Y) was included.

**User response**

No action is required.

**CQM2005I**

**MULTIPLE MONITORING AGENT INSTALLATION FOR SUBSYSTEM ssid**

**Explanation**

DB2 Query Monitor has installed multiple monitoring agents for the subsystem shown in the message.

**User response**

No action is required.

**CQM2006E**

**UNABLE TO MONITOR V7.1 OR BELOW DB2 SUBSYSTEM (ssss) IN SHARED MEMORY MODE**

**Explanation**

(need info)

**User response**

(need info)

**CQM2009E**

**DB2 SYSTEM ssid WAS PREVIOUSLY MONITORED BY A 2.2 OR BELOW CQM SUBSYSTEM qmid WHICH HAS NOT APPLIED APAR PK55535.**

**Explanation**

You must apply V2R2 APAR PK 55535.

**User response**

Apply the required maintenance.

**CQM2058E**

**LOOP DETECTED FOR THREAD thread_id ssid plan_name**
Explanation
An executing unit of work has exceeded the in-collector elapsed time limit. This might be due to an infinite loop executing within the collector code. This message will be followed by message CQM2060E to track cancellation of the looping unit of work.

After the thread is canceled, no additional monitoring information is collected for that thread until the monitoring agent is restarted.

User response
Review the CQMPARMS parameters LOOP_DUMPS and LOOP_TIME_LIMIT (these parameters set the thresholds for in-collector loop processing).

In environments with high CPU contention, the LOOP_TIME_LIMIT parameter value might need to be increased to avoid false positives. A SVCDUMP will be taken if the LOOP_DUMPS limit has not been met.

If you encounter this message and receive a dump, contact IBM Software Support.

CQM2059E
CALLRTM ISSUED FOR SRB

sr_address IN ASID asid

Explanation
The SRB shown in the message has been canceled and will return to Db2 to resume execution.

User response
Review the CQMPARMS parameters LOOP_DUMPS and LOOP_TIME_LIMIT (these parameters set the thresholds for in-collector loop processing). In environments with high CPU contention, the LOOP_TIME_LIMIT parameter value might need to be increased to avoid false positives. A SVCDUMP will be taken if the LOOP_DUMPS limit has not been met.

If you encounter this message and receive a dump, contact IBM Software Support.

CQM2060E
CALLRTM ISSUED FOR TCB
tcb_address IN ASID asid

Explanation
In order to prevent potential impact to the system, the identified TCB is canceled within the collector and will return to Db2 to resume execution.

User response
Review the CQMPARMS parameters LOOP_DUMPS and LOOP_TIME_LIMIT (these parameters set the thresholds for in-collector loop processing). In environments with high CPU contention, the LOOP_TIME_LIMIT parameter value might need to be increased to avoid false positives. A SVCDUMP will be taken if the LOOP_DUMPS limit has not been met.

If you encounter this message and receive a dump, contact IBM Software Support.
allocations for back store data sets are not set lower than their default values.

**CQM2103E** DUPLICATE PARAMETER DETECTED FOR parameter

**Explanation**
Duplicate parameters were specified in the DB2 Query Monitor startup parameters.

**User response**
Check the startup parameters to ensure that all are specified properly. Remove any duplicate parameters.

**CQM2110E** TERMINATING DUE TO ERRORS IN PARAMETER FILE

**Explanation**
An error in the DB2 Query Monitor subsystem parameter file allocated to CQMPARMS DD caused the termination of Query Monitor processing.

**User response**
Verify that the input you specified for your Query Monitor parameters in CQMPARMS is valid and correct for your monitoring objectives.

**CQM2111E** ERROR READING CQMPARMS DATASET - MEMBER NOT FOUND

**Explanation**
DB2 Query Monitor encountered an error while attempting to read the CQMPARMS data set. The CQMPARMS DD statement specified a PDS data set and the member name specified did not exist.

**User response**
Correct the JCL specification for the CQMPARMS DD statement and specify a valid member name.

**CQM2112E** TERMINATING DUE TO ABEND DURING PARAMETER FILE PROCESSING

**Explanation**
Query Monitor is terminating due to an error encountered in the parameter file.

**User response**
Correct any errors in the parameter file.

**CQM2400I** INTERVAL PROCESSING STARTED FOR procstart INTV#(interval_number)

**Explanation**
Db2 Query Monitor processing has started for the interval shown in the message.

**User response**
No action is required.

**CQM2401I** INTERVAL PROCESSING ENDED FOR PROC INTV#(interval_number)

**Explanation**
Db2 Query Monitor processing has ended for the interval number shown in the message.

**User response**
No action is required.

**CQM2402I** DATASPACE MANAGEMENT IN PROGRESS FOR xxx

**Explanation**
Indicates dataspace management is in progress for the subsystem shown in the message.

**User response**
No action is required.

**CQM2403I** n DATASPACE PAGES RELEASED FOR ssid

**Explanation**
Displays the number of dataspace pages that have been released for the subsystem shown in the message.

**User response**
No action is required.

**CQM2405E** INTERVAL PROCESSING NOT SUSPENDED

**Explanation**
Interval processing for the subsystem has not been suspended.

**User response**
No action is required.

**CQM2406I** RESUMING INTERVAL PROCESSING

**Explanation**
Db2 Query Monitor processing has started for the interval shown in the message.
Explanation
Interval processing is being resumed.

User response
No action is required.

CQM2407I INTERVAL DATASET CONTAINS PRE-RELEASE RECORDS. REPLY "U" TO ACCEPT OR "R" TO REJECT

Explanation
The CQM2407I message will be displayed as long as there are backstore datasets which were created by a prior level of Query Monitor, referenced in the interval file.

User response
If you reply 'U', to ACCEPT, this informational message then you will be able to display these backstore data sets until all of the prior level backstore datasets 'roll off'.

To prevent this message, you can create a new interval file but please note that this will prevent you from seeing any of the old back store data sets.

You could change the RETAIN parameter in the CQMPARMS file to force the prior level backstore data sets off and still keep the same interval data set along with any V2.2 back store data sets you want to keep.

Note: You would not be able to display the prior level backstore data sets.

CQM2408E INVALID REPLY. REPLY "U" TO ACCEPT OR "R" TO REJECT

Explanation
The replay you entered is not valid.

User response
Enter U to accept or R to reject.

CQM2409I TERMINATING DUE TO INTERVALS DATASET VERSION

Explanation
Query Monitor processing is terminating due to interval data set version.

User response
Contact IBM Technical Support.


Explanation
Authorization failed. A possible cause for this error could be that the userid under which the CAE Agent address space runs does not have read access to the subsystem that users are trying to use.

User response
Verify that the userid under which the CAE Agent address space is running has read access to the subsystem users are going to get information from. For example CQM.ACCESS.**

CQM2601E ALLOCATION FAILED FOR VSAM DATASET dsn RETCD=rc REASON=rc

Explanation
This message is issued by the started task if there is a problem during the dynamic allocation of a data set. When this message occurs, Query Monitor stops and the startup process and terminates.

User response
To further diagnose and resolve the problem using the return code and reason code listed in the message, refer to the MVS Programming Authorized Assembler Services Guide (SA22-7608):
https://www-01.ibm.com/support/docview.wss?uid=pub1sa22760813

CQM2602E OPEN FAILED FOR VSAM DATASET dsn RC=rc ACBERFLG=flag RTN=routine

Explanation
This message reports errors encountered during the execution of an OPEN macro instruction against a VSAM data set.

User response
To further diagnose and resolve the problem using the return code, flag (reason code), and routine (name of
program that issued the message) listed in the message, refer to the z/OS V1R1.0 DFSMS/DFP Diagnosis Reference (GY27-7618):
https://www-01.ibm.com/support/docview.wss?uid=pub1gy27761801

**CQM2603E** DEALLOCATION FAILED FOR DATASET data_set
  RETCD=return_code
  REAS=reason_code

**Explanation**
This message reports errors encountered during the execution of a CLOSE macro instruction.

**User response**
To further diagnose and resolve the problem using the return code and reason code listed in the message, refer to the z/OS V1R1.0 DFSMS/DFP Diagnosis Reference (GY27-7618):
https://www-01.ibm.com/support/docview.wss?uid=pub1gy27761801

**CQM2604E** VSAM LOGIC ERROR VASMRC=rc
  VSAMRS=rc

**Explanation**
This message reports errors encountered during the execution of an operation against a VSAM data set.

**User response**
To further diagnose and resolve the problem using the return code and reason code listed in the message, refer to the z/OS V1R1.0 DFSMS/DFP Diagnosis Reference (GY27-7618):
https://www-01.ibm.com/support/docview.wss?uid=pub1gy27761801

**CQM2605E** OUT OF SPACE CONDITION DETECTED ON DATASET data_set

**Explanation**
Your request produced an out of space condition for the data set indicated in the message.

**User response**
Allocate additional space for the indicated Performance History File to accommodate the monitoring data you are collecting. For example, to increase the size of the OBJSDATA Performance History File, you would modify the OBJSDATA_PRIMARY parameter in CQMPARMS.

Db2 Query Monitor issues standard VSAM calls and dynamically allocates the VSAM backstore datasets, it does not control the number of volumes a dataset can span. The number of volumes a dataset can span is controlled in SMS. Multivolume support for backstore data sets is controlled by the DATACLASS that controls the allocation of the VSAM file.

**CQM2606E** TERMINATING DUE TO DATASET_FULL(ABORT)

**Explanation**
The data set was full, causing a termination.

**User response**
Allocate additional space for the data set or specify a different data set.

**CQM2607E** NO FURTHER EXCEPTIONS WILL BE RECORDED UNTIL NEXT INTERVAL

**Explanation**
The number of exceptions to be recorded has exceeded the exception threshold specified in CQMPARMS.

**User response**
No additional exceptions will be recorded.

**CQM2608E** NO FURTHER DB2 COMMAND DATA WILL BE RECORDED UNTIL NEXT INTERVAL

**Explanation**
No additional DB2 command data is to be recorded until the next interval starts.

**User response**
No action is required.

**CQM2609E** NO FURTHER -SQLCODE DATA WILL BE RECORDED UNTIL THE NEXT INTERVAL

**Explanation**
No additional information about SQLCODES is to be recorded until the next interval starts.

**User response**
No action is required.
CQM2610E  NO FURTHER SUMMARY DATA WILL BE RECORDED UNTIL THE NEXT INTERVAL

Explanation
No additional summary data is to be gathered until the next interval starts.

User response
No action is required.

CQM2611E  NO FURTHER SUMMARY TEXT WILL BE RECORDED UNTIL THE NEXT INTERVAL

Explanation
No additional summary text information is to be gathered until the next interval starts.

User response
No action is required.

CQM2612E  S99ERSN=code

Explanation
This message indicates an S99ERSN code.

User response
Refer to related messages generated with this code for more information.

CQM2618E  RESTART OF yyyy SUBTASK xxxxxxxxx IS SUCCESSFUL BUT DATA LOSS MAY HAVE OCCURRED

Explanation
The indicated subtask was restarted successfully but some data loss may have occurred.

User response
No action is required.

CQM2620E  CISIZE INCORRECT FOR AUDIT_DATA BACKSTORE DATASET

Explanation
CISIZE is not valid for the AUDIT_DATA backstore data set.

User response
Redefine the backstore data set with the correct CISIZE.

CQM2621E  CISIZE INCORRECT FOR AUDIT_HOSTV BACKSTORE DATASET

Explanation
CISIZE is not valid for the AUDIT_HOSTV backstore data set.

User response
Redefine the backstore dataset with the correct CISIZE.

CQM2622E  CISIZE INCORRECT FOR AUDIT_OBJECTS BACKSTORE DATASET

Explanation
CISIZE is not valid for the AUDIT_OBJECTS backstore data set.

User response
Redefine the backstore dataset with the correct CISIZE.

CQM2623E  CISIZE INCORRECT FOR AUDIT_TEXT BACKSTORE DATASET

Explanation
CISIZE is not valid for the AUDIT_TEXT backstore data set.

User response
Redefine the backstore dataset with the correct CISIZE.

CQM2624I  TERMINATING DUE TO BACKSTORE DATASET DEFINITION ERRORS

Explanation
Query Monitor is terminating due to backstore data set definitions errors.

User response
Refer to previously issued messages which explain the error situation. Verify that the backstore data sets are defined properly.
NO FURTHER AUDIT DATA WILL BE RECORDED UNTIL THE NEXT INTERVAL

Explanation
Query Monitor will not collect any additional audit data until the next interval.

User response
No action is required.

ERROR OCCURRED CURING CACHE PROCESSING, REVERTING TO NONCACHED METRICS UNTIL NEXT INTERVAL

Explanation
Caching has been disabled due to a failure in the writer task. Caching will remain disabled until the start of the next interval.

User response
No action is required.

DB2 STARTUP DETECTED FOR SUBSYSTEM ssid

Explanation
DB2 Query Monitor determined that a DB2 subsystem in its monitor list has started.

User response
No action is required.

MONITORING AGENT STARTED FOR SUBSYSTEM ssid

Explanation
This message informs you that DB2 Query Monitor has initiated monitoring for the named DB2 subsystem.

User response
No action is required.

DB2 SHUTDOWN DETECTED FOR SUBSYSTEM ssid

Explanation
Db2 Query Monitor determined that a DB2 subsystem in its monitor list has shut down.

User response
No action is required.

MONITORING AGENT ACTIVATED FOR ssid

Explanation
Db2 Query Monitor has been instructed to start the monitoring agent for a given DB2 subsystem when it becomes active. Monitoring of SQL for the DB2 subsystem will start when the monitoring agent is started indicated by message CQM3002I. Monitoring will continue after message CQM3002I is issued until one of the following events occur:

1. The DB2 subsystem is stopped.
2. A deactivate for the monitoring agent is performed.
3. The QM subsystem that is monitoring the DB2 subsystem is stopped.

User response
No action is required.

MONITORING AGENT REACTIVATED FOR ssid

Explanation
Db2 Query Monitor has been re-activated for the DB2 subsystem.

User response
No action is required.

MONITORING AGENT ALREADY ACTIVE FOR sss
**Explanation**
The monitoring agent for the indicated subsystem is already active.

**User response**
No action is required.

**CQM3009I**  MONITORING AGENT NOT ACTIVE FOR ssss

**Explanation**
The monitoring agent for the indicated subsystem is not active.

**User response**
No action is required.

**CQM3013E**  RESOURCE MANAGER HAS TIMED OUT DURING DE-INSTALLATION OF DB2 SYSTEM ssid

**Explanation**
The resource manager timed out.

**User response**
No action is required.

**CQM3190I**  msg

**Explanation**
This is a detail line for a report generated with CQM3188I as the report header.

**User response**
The columns are: Thread, Duration, Program, Activity For DB2 xxxx (where xxxx is the DB2 subsystem ID). These messages are issued in response to the /F cqmstc,DISPLAY THREADS command.

**CQM3192I**  LEVEL STATUS DB2(ssid) message

**Explanation**
This message will only display if a mismatch in code level exists between ADH and CQM. One message per mismatched code level will occur.

**User response**
Ensure that all the programs listed have the CQM and corresponding ADH maintenance applied.

**CQM3200I**  DISPLAY AGENTS

**Explanation**
This message is used in conjunction with other messages to indicate display agents.

**User response**
No action is required.

**CQM3201I**  DB2 SUBYSYSTEM ssid AGENT ADDRESS address apar number

**Explanation**
Indicates the DB2 subsystem and agent address.

**User response**
No action is required.

**CQM3202I**  ssid AGENT ADDRESS address

**Explanation**
Indicates the monitoring agent address.

**User response**
No action is required.

**CQM3203I**  CQM DIAGNOSTIC DISPLAY:

**Explanation**
Indicates CQM diagnostic display is in effect.

**User response**
No action is required.

**CQM3204I**  SDA ADDRESS address

**Explanation**
Indicates the SDA address.

**User response**
No action is required.

**CQM3205I**  ssid ADDRESS address apar number

**Explanation**
This message is used in conjunction with other messages to indicate the address.

**User response**
No action is required.
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Description</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>CQM3206I</td>
<td>Diagnostic data for abend at PSW psw</td>
<td>Contact IBM Technical Support.</td>
</tr>
<tr>
<td>Explanation</td>
<td>The message displays diagnostic data for the abend.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>No action is required.</td>
<td></td>
</tr>
<tr>
<td>CQM3207I</td>
<td>System completion code</td>
<td>Contact IBM Technical Support.</td>
</tr>
<tr>
<td>Explanation</td>
<td>The message indicates the system completion code.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>No action is required.</td>
<td></td>
</tr>
<tr>
<td>CQM3208I</td>
<td>Occurrences n date date time</td>
<td>Contact IBM Technical Support.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Indicates the number of occurrences and the date and time at which the took place.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>No action is required.</td>
<td></td>
</tr>
<tr>
<td>CQM3209I</td>
<td>GPR 0-3 info CHAR interpretation</td>
<td>Contact IBM Technical Support.</td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3210I</td>
<td>GPR 4-7 info CHAR interpretation</td>
<td>Contact IBM Technical Support.</td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3211I</td>
<td>GPR 8-11 info CHAR interpretation</td>
<td>Contact IBM Technical Support.</td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3212I</td>
<td>GPR 12-15 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3213I</td>
<td>AR 0-3 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3214I</td>
<td>AR 4-7 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3215I</td>
<td>AR 8-11 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3216I</td>
<td>AR 12-15 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3217I</td>
<td>AR 16-23 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3218I</td>
<td>AR 24-31 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3219I</td>
<td>AR 32-39 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3220I</td>
<td>AR 40-47 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3221I</td>
<td>AR 48-55 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3222I</td>
<td>AR 56-63 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3223I</td>
<td>AR 64-71 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3224I</td>
<td>AR 72-79 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3225I</td>
<td>AR 80-87 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3226I</td>
<td>AR 88-95 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3227I</td>
<td>AR 96-103 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3228I</td>
<td>AR 104-111 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3229I</td>
<td>AR 112-119 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3230I</td>
<td>AR 120-127 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3231I</td>
<td>AR 128-135 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3232I</td>
<td>AR 136-143 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3233I</td>
<td>AR 144-151 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3234I</td>
<td>AR 152-159 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3235I</td>
<td>AR 160-167 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3236I</td>
<td>AR 168-175 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3237I</td>
<td>AR 176-183 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3238I</td>
<td>AR 184-191 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3239I</td>
<td>AR 192-199 info CHAR interpretation</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>This message displays diagnostic information about the current contents of the register.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Contact IBM Technical Support.</td>
<td></td>
</tr>
<tr>
<td>CQM3240I</td>
<td>DB2 QM dataspace usage display</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>Display of DB2 QM dataspace usage.</td>
<td></td>
</tr>
<tr>
<td>User response</td>
<td>Display of DB2 QM dataspace usage.</td>
<td></td>
</tr>
</tbody>
</table>
**Explanation**

This message appears in conjunction with other messages as a result of the MVS Modify command DISPLAY DATASPACES.

**User response**

No action is required.

**CQM3241I**  
*dataspace DATASPACE*

**Explanation**

This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES.

**User response**

No action is required.

**CQM3242I**  
*NODE SIZE size*

**Explanation**

This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the node size for the named data space.

**User response**

No action is required.

**CQM3243I**  
*TOTAL NODES n*

**Explanation**

This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the total number of nodes allowed for the named data space.

**User response**

No action is required.

**CQM3244I**  
*AVAILABLE NODES n*

**Explanation**

This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the total number of nodes available for use by the named data space.

**User response**

No action is required.

**CQM3245I**  
*PERCENT UTILIZED n*

**Explanation**

This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the percentage of nodes used for the named data space.

**User response**

No action is required.

**CQM3250I**  
*POSTING INTERVAL PROCESSOR*

**Explanation**

This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the percentage of nodes used for the named data space.

**User response**

No action is required.

**CQM3251I**  
*INTERVAL PROCESSOR NOT POSTED - DB2 UNAVAILABLE*

**Explanation**

The interval processor was not started because a DB2 subsystem is not available.

**User response**

Verify the status of all monitored DB2 subsystems.

**CQM3252I**  
*INTERVAL PROCESSING ALREADY IN PROGRESS*

**Explanation**

This message appears to inform you that the interval processor was already started through an MVS Modify INTERVAL command.

**User response**

No action is required.

**CQM3253I**  
*DATASPACE THRESHOLD EXCEEDED FOR dataspace DATASPACE. POSTING INTERVAL PROCESSOR*

**Explanation**

The dataspace threshold has been exceeded for the dataspace indicated in the message.

**User response**

No action is required.
**CQM3284I**  COLLECTION EVENT ENABLE REQUEST IGNORED AS IT WAS INSTALLED AT STARTUP

**Explanation**
The ENABLE_PARALLEL or ENABLE_OBJECTS command you issued was ignored because your CQMPARMS file includes PARALLEL(Y) or OBJECTS(Y).

**User response**
No action is required.

**CQM3288I**  BREAKING EVENT ADDRESS

**Explanation**
This is an informational message that is put out as a result of the DDX modify command.

**User response**
No action is required.

**CQM3301E**  LOAD FAILED FOR PROFILE profile ON location

**Explanation**
The monitoring profile cannot be loaded into memory.

**User response**
Specify a valid monitoring profile.

**CQM3302I**  **WARNING** MONITORING AGENT FOR info WILL NOT COLLECT EXCEPTION DATA OR CURRENT ACTIVITY

**Explanation**
Query Monitor issues this message when a monitoring profile is not in effect after a profile load has been attempted either at monitoring agent startup or after a change profile operation. This message indicates that current activity and exception data will not be collected because these QM functions require a monitoring profile.

**User response**
If you want to collect current activity and exception data, please specify a valid monitoring profile for use with the monitoring agent.

**CQM3303I**  PROFILE CHANGE COMPLETE FOR ssid

**Explanation**
The monitoring profile change you requested has now completed for the indicated subsystem.

**User response**
No action is required.

**CQM3304E**  PROFILE CHANGE FAILED FOR ssid

**Explanation**
The requested profile change failed for the indicated subsystem.

**User response**
Verify that the profile exists and the subsystem is active.

**CQM3305I**  PROFILE REFRESH COMPLETE FOR ssid

**Explanation**
The monitoring profile refresh action has completed for the indicated QM subsystem.

**User response**
No action is required.

**CQM3306E**  PROFILE REFRESH FAILED FOR ssid

**Explanation**
The profile refresh action failed for the specified QM subsystem.

**User response**
Verify that the profile still exists. If necessary, create a new profile or change to another profile.

**CQM3308E**  DB2 SUBSYSTEM ssss IS BEING AUDITED BY DB2 AUDIT SQL COLLECTOR adh WHICH HAS MISMATCHED reason

**Explanation**
Db2 Query Monitor could not be installed to the DB2 Subsystem ssss because of maintenance level mismatch with either InfoSphere Guardium S-TAP for Db2 on z/OS or InfoSphere Optim Workload Replay S-TAP on Db2 on z/OS.
Db2 Query Monitor, InfoSphere Guardium S-TAP for Db2 on z/OS, and InfoSphere Optim Workload Replay S-TAP on Db2 on z/OS all share common collection points. For these collection points to be compatible all three products need to be at the same maintenance level. When a maintenance level set is done for Db2 Query Monitor then perform the same actions for the other two tools.

CQM3311E UNABLE TO LINK TO DB2 SYSTEM

Explanation
Db2 Query Monitor has started the install process on a DB2 subsystem but was able to complete the task.

User response
Contact IBM Software Support.

CQM3315E MASTER SUBSYSTEM DOES NOT MATCH

Explanation
This message is issued if either of the following conditions occur:
- The MASTER_PROCNAME is different between the InfoSphere Guardium S-TAP for Db2 on z/OS and Db2 Query Monitor subsystems that are installing into a particular DB2 subsystem
- Db2 Query Monitor or InfoSphere Guardium S-TAP for Db2 on z/OS is attempting to install into a DB2 subsystem where a non-compatible code level of Db2 Query Monitor or InfoSphere Guardium S-TAP for Db2 on z/OS is already installed.

User response
Verify that the MASTER_PROCNAME is the same for the InfoSphere Guardium S-TAP for Db2 on z/OS and Db2 Query Monitor subsystems that are installing into a particular DB2 subsystem and that the code levels are compatible.

CQM3316E CAPTURING NOT SUPPORTED WITH ACTIVE PRODUCTS

Explanation
Two products that are monitoring a DB2 subsystem are not at compatible release levels.

User response
For information about compatibility, refer to “Compatible releases and maintenance levels” on page 41.

CQM3402I ISSUING COMMAND cmd

Explanation
Indicates command execution.

User response
No action is required.

CQM3551E VSAM LOGIC ERROR ENCOUNTERED WHILE ACCESSING CONTROL FILE FOR DB2 ssid. VSAMRC='rc'
VSAMRS=X"rs"

Explanation
A VSAM logic error was encountered when accessing the control file for the DB2 subsystem indicated in the message.

User response
Verify that the DB2 control file for the DB2 subsystem listed in the message has been properly allocated and that the appropriate DB2 subsystem and plan names information have been specified via DB2 Query Monitor main menu option S (Setup).

Note: The DB2 Subsystem ID you specify on the Enter DB2 System Parameters panel (accessible via Query Monitor main menu option S) must match the first DB2 subsystem listed for the MONITOR parameter you included in CQMPARMS.

CQM3552E SETUP INFORMATION MISSING FROM CONTROL FILE FOR DB2 ssid

Explanation
There is insufficient information in the control file for the DB2 subsystem indicated in the message.

User response
Modify the control file to include the necessary information. To modify the control file, use Query Monitor main menu option S (Setup) and specify the proper DB2 Subsystem ID in the corresponding field.

CQM3553E CONNECT TO DB2 ERROR, error_message

Explanation
Db2 Query Monitor encountered an error occurred while attempting to connect to DB2.
The message provides additional information about the error. Correct the error that is indicated in the message text.

CQM4001E   CONNECT TO DB2 ssid FAILED FOR PLAN plan RETURN CODE rc REASON CODE rc

Explanation
DB2 Query Monitor was not able to connect to the DB2 subsystem using the plan shown in the message.

User response
Refer to DB2 UDB for z/OS Messages (GC18-9602) and DB2 UDB for z/OS Codes (GC18-9603) for additional information about the return and reason codes displayed in the message.

CQM4003E   CONNECT FAILED - DB2 NOT OPERATIONAL

Explanation
DB2 Query Monitor was not able to connect to the DB2 subsystem because DB2 is not currently operational.

User response
Verify that DB2 is functioning properly.

CQM5010I   MONITORING AGENT DEINSTALLATION IN PROGRESS FOR SUBSYSTEM ssid

Explanation
The monitoring agent deinstallation is in progress for the DB2 subsystem indicated in the message.

User response
No action is required.

CQM5011I   Deactivation complete. Monitoring has been deactivated for the selected DB2 subsystem.

Explanation
You specified the deactivation of a monitoring agent for a DB2 subsystem and that deactivation is now complete. The DB2 subsystem is no longer being monitored by the Query Monitor subsystem.

User response
No action is required.

CQM5012I   REQUESTING MONITORING AGENT ACTIVATION FOR DB2 SUBSYSTEM ssid

Explanation
The monitoring agent for the indicated DB2 subsystem is being requested for activation.

User response
No action is required.

CQM5013I   REQUESTING MONITORING AGENT DEACTIVATION FOR DB2 SUBSYSTEM ssid

Explanation
The monitoring agent for the indicated DB2 subsystem is being requested for deactivation.

User response
No action is required.

CQM5014E   MONITORING AGENT DEINSTALLATION FAILED FOR SYSTEM system

Explanation
The monitoring agent deinstallation failed.

User response
Contact IBM Technical Support.

CQM5015E   MONITORING AGENT DEINSTALLATION FAILED FOR SUBSYSTEM ssid DURING

Explanation
The monitoring agent uninstall failed.

User response
No action is required.

CQM5050I   SENT request TO cqm

Explanation
The ACTIVATE, DEACTIVATE, INSTALL, DEINSTALL, CHANGE PROFILE or REFRESH PROFILE request has been sent to the subsystem DB2 monitor process.

User response
No action is required.
CQM5051I type REQUEST for DB2 ssss OVERRIDDEN BY SUBSEQUENT type REQUEST.

Explaination
Requests to change the monitor status of a DB2 are queued to the DB2 monitor process. The DB2 monitor process wakes up periodically to satisfy these requests.

If a new request is queued that is the same type of request or a contradictory request, the monitor process ignores the prior request. For example, if a RPROF for a DB2 is followed by a CPROF for the same DB2 before the RPROF request could be processed, the prior RPROF request will be ignored.

User response
No action is required.

CQM5053I DB2 ssss CANNOT HAVE A type REQUEST UNTIL IT IS INSTALLED OR ACTIVATED.

Explaination
The DEINSTALL DEACTIVATE, CPROF or RPROF subcommands cannot be issued to a DB2 unless it is in the MONITOR parameter in the startup parameter file or it has been added to the monitor list by a previous ACTIVATE or INSTALL subcommand.

User response
Issue a ACTIVATE or INSTALL request for this DB2. Alternately, you could add the DB2 to the MONITOR parameter in the startup parameter file and restart Db2 Query Monitor.

CQM5054I DB2 ssid is now ready to be reinstalled

Explaination
Indicates that the DB2 has been removed from one instance of QM and is ready to be reinstalled to another.

User response
No action is required.

CQM5052I OUT OF SPACE CONDITION DETECTED ON DATASET dataset

Explaination
An out of space condition was encountered for the data set indicated in the message.

User response
Verify that adequate space has been allocated for the data set.

CQM6003I POSTING INTERVAL PROCESSOR DUE TO OUT OF SPACE CONDITION

Explaination
Interval processing is being posted due to the out of space condition encountered for the data set.

User response
Verify that adequate space has been allocated for the interval data set.

CQM6004E CATALOG LOAD FAILED. PLEASE VERIFY THAT THE CORRECT ZPARM MEMBER WAS SPECIFIED IN SETUP

Explaination
Indicates the catalog load did not complete successfully.

User response
Verify that the correct ZPARM member was specified in set up.

CQM6101E LOCATE FAILED FOR dataset R0=code RC=rc

Explaination
A catalog located failed during interval data set expiration processing. r0 contains the contents of the register zero and rc is the LOCATE return code.

User response
See z/OS DFSMSdfp Advanced Services (SC26-7400-02) for a description of the return codes issued by LOCATE.

CQM6102E SCRATCH FAILED FOR file SCRATCH STATUS CODE=code RO=ro

Explaination
The scratch failed for the indicated file.

User response
See z/OS DFSMSdfp Advanced Services (SC26-7400-02) for a description of the return codes issued by LOCATE.
CQM7001E  table TABLE NOT LOCATED IN DB2 CATALOG

Explanation
The table indicated in the message cannot be found in the DB2 catalog.

User response
Verify that the table you specified exists.

CQM7002I  STARTING INTERVAL NOT LOCATED IN CQMINTER DATASET OR ALL INTERVALS ARE EMPTY - NO DATA TO OFFLOAD

Explanation
The starting interval you specified cannot be found in the CQMINTER data set. This situation might occur if the interval is not yet ready to be offloaded.

Note: After a collection interval ends, some interval data must be externalized before the interval is available to the DB2 offload job. Message CQM7002I might be issued, for example, if the offload job is run against the prior (-1) interval for intervals that span a short period time and contain larger volumes of collected data.

User response
Verify that you specified the correct starting interval. Use the NO_DATA_RC parameter to specify any valid user return code values (0-4095) to avoid a return code 8 if this condition occurs.

CQM7003E  COLUMN column MISSING FOR TABLE table

Explanation
The indicated column is missing for the table shown in the message.

Note: Migrations of offload tables may be required between Db2 Query Monitor releases to accommodate the addition or removal of columns. Additionally, default table names change for each Db2 Query Monitor release. For example, the default table name for Db2 Query Monitor V3.3 begins with the prefix CQM_ whereas the default table name for Db2 Query Monitor V3.2 begins with the prefix CQM32_. Message CQM7003E can result if the CQMLOADP DD is not updated with the correct table names in step CQM@WDB2.

User response
Verify that the table contains the necessary columns.

CQM7004E  UNIDENTIFIED COLUMN column IN TABLE table

Explanation
There is an unidentified column in the table indicated in the message.

User response
Verify that the table contains the correct columns.

CQM7005E  TYPE MISMATCH FOR COLUMN column IN TABLE table

Explanation
The column type is not matched for the table shown in the message.

User response
Ensure that the data type is correct for the column.

CQM7006E  LENGTH ERROR FOR COLUMN column IN TABLE table

Explanation
The length of data for the column indicated in the message is not valid.

User response
Ensure that the data length is correct for the column.

CQM7007E  SEQUENCE ERROR FOR COLUMN column IN TABLE table

Explanation
The column indicated in the message was in the wrong sequence for the indicated table.

User response
Update your Query Monitor table definition to be consistent with the correct column sequence. Refer to CQMDDL in SCQMSAMP for the correct column sequence.

CQM7008E  DB2 QM SUBSYSTEM ssid NOT VALID OR HAS NOT BEEN STARTED SINCE IPL

Explanation
The Query Monitor Subsystem shown in the message is not valid.
Verify that you specified the correct Query Monitor Subsystem ID and that it is available.

**CQM7009E**  OUT OF SPACE CONDITION DETECTED WHILE WRITING TO THE *dsn* DATASET

**Explanation**
An out-of-space condition was encountered when attempting to write to the data set indicated in the message.

**User response**
Verify that adequate space has been allocated to the data set.

**CQM7010E**  MISSING "ADD" PARAMETER FOR *parameter* AT LINE *line* COLUMN *column*

**Explanation**
The ADD parameter is missing for the indicated line and column.

**User response**
Specify an ADD parameter.

**CQM7011E**  INTERNAL ERROR - UNABLE TO RESOLVE ALTERNATE COLUMN *column*

**Explanation**
There has been an internal error.

**User response**
Contact IBM Technical Support.

**CQM7012E**  ALTERNATE COLUMN *column* DUPLICATES *column* COLUMN IN TABLE *table*

**Explanation**
There are duplicates in the column and table.

**User response**
Remove the duplicates.

**CQM7013E**  SCALE ERROR FOR COLUMN *column* IN TABLE *table*

**Explanation**
There has been a scale error in the indicated column and table.

**User response**
Contact IBM Technical Support.

**CQM7014I**  RECORDS OFFLOADED FOR *record_type*: INTV# *xxx*-record WITH ERRORS – *error_record*

**Explanation**
This message is only issued if the STATISTICS option is specified on the LOAD parameter when offloading Query Monitor data to Db2. It provides a count of the number of records off-loaded by the interval table for the indicated record type (*record_type*).

If *xxx* is ALL, then *record* represents the number of records for all off-loaded intervals.

If *xxx* is a number, then it represents the off-loaded interval number and *record* represents the number of records for that interval.

In both of these cases, the extra value *error_record* is provided which represents the number of records with issues.

If *xxx* is LENGTH, then the *record* represents the total length of all the records in bytes.

**User response**
No action is required.

**CQM7015E**  NUMBER OF BSDS SPECIFICATIONS INVALID

**Explanation**
An invalid number of BSDS parameters has been sent as input to the CQM#CTLF utility.

**User response**
Verify that the boot strap data sets used for your Db2 subsystem are properly specified.

**CQM7016E**  DUPLICATE RECORD STORE ATTEMPTED FOR DB2 SUBSYSTEM *ssid*

**Explanation**
This message describes an error condition when attempting to load records into the control file that already exist without specifying REPLACE(Y) for the DB2 subsystem indicated in the message.
**User response**

Edit your CQM#CTLF job to include REPLACE(Y). Refer to the instructions in SCQMSAMP library member CQM#CTLF for details.

**CQM8005E**  
ERRORS DETECTED IN file  
PARAMETERS:

**Explanation**

A required parameter is missing from CQMLOADP.

**User response**

Correct the syntax and resubmit the job.

**CQM8006E**  
NON NUMERIC DATA SPECIFIED FOR parameter  
NEAR LINE line COLUMN column

**Explanation**

Non-numeric data was specified in CQMLOADP for the parameter listed in the message.

**User response**

Specify numeric data for the parameter.

**CQM8007E**  
INVALID VALUE SPECIFIED FOR parameter  
NEAR LINE line COLUMN column

**Explanation**

An invalid value was specified in CQMLOADP.

**User response**

Correct the value and resubmit the job.

**CQM8008E**  
value MUST BE value THAN value

**Explanation**

The value of the parameter shown in the message must be within the specified range.

**User response**

Correct the value of the parameter so it falls within the range indicated in the message text.

**CQM8009E**  
DUPLICATE PARAMETER parameter  
AT LINE line COLUMN column

**Explanation**

A parameter you specified is a duplicate.

**User response**

Correct the syntax to eliminate the duplicate parameter.
CQM8010E  DUPLICATE SUBPARAMETER DETECTED FOR PARAMETER parameter AT LINE line COLUMN column

Explanation
A sub-parameter you specified is a duplicate.

User response
Correct the syntax to eliminate the duplicate sub-parameter.

CQM8011E  DB2 VERSION NOT SUPPORTED

Explanation
The version of DB2 with which you are attempting to use is not supported by the unload functionality.

User response
No action is required.

CQM8012E  ERROR OPENING DDNAME ddname

Explanation
DB2 Query Monitor encountered an error attempting to open the TEXTDATA data set.

User response
Verify that the TEXTDATA data set is configured properly and has adequate space available.

CQM8013E  INVALID PARAMETER LENGTH FOR parameter

Explanation
The value you specified for the TBCREATOR parameter is too long and is therefore invalid.

User response
Specify a valid value for TBCREATOR. Valid values are up to eight characters in length.

CQM8014E  LOGIC ERROR: error

Explanation
Query Monitor has encountered a logic error.

User response
Contact IBM Technical Support.

CQM8015E  LOAD (REPLACE,RESUME) ARE CONFLICTING OPTIONS

Explanation
The options specified for LOAD are conflicting options.

User response
Specify only REPLACE or RESUME on the LOAD.

CQM8016E  ONLY 10 OPTIONS CAN BE SPECIFIED PER LINE - LINE line EXCEEDED MAX

Explanation
You have exceeded the maximum number of options that can be specified per line.

User response
Correct the number of options specified on the line indicated in the message so that it is ten or less.

CQM8019E  LOAD(RECOVER,xxxxxxx) ARE CONFLICTING OPTIONS

Explanation
The options specified are not valid. RECOVER cannot be specified with REPLACE or RESUME (in the message, xxxxxxx can be REPLACE or RESUME).

User response
Correct the specified options.

CQM8020E  CONTINUATIONS HAVE EXCEEDED THE MAXIMUM ALLOWED NEAR LINE line

Explanation
A continuation is limited to 360 characters. The leading and trailing blanks on each line are not counted towards that limit so you can specify approximately 40+ DB2/profile pairs.

User response
Correct your CQMPARMS so that the continuation is valid.

CQM8021E  INTERVAL interval FOR QUERY MONITOR qmid IS BEING WRITTEN AND CANNOT BE OFFLOADED UNTIL IT COMPLETES
Explanation
The interval indicated in the message is currently being written and therefore it cannot be offloaded until it is complete.

User response
Wait for the writing of the interval to complete and retry the offload at that time.

CQM8022I  cqm parameter value

Explanation
This message is used to display the contents of the CQMPARMS file that was processed when Query Monitor was started.

User response
None.

CQM8023I  STATEMENT TEXT LONGER THAN 2 MB

Explanation
This message is displayed when the offload process encounters an SQL statement greater than 2 MB. This can sometimes be an indication of corrupted SQL text.

User response
Contact IBM Technical Support.

CQM8025E  INVALID INTERVAL SPECIFICATION

Explanation
The specified STARTING_INTERVAL and/or ENDING_INTERVAL parameter value are not valid.

FECA900E  Invalid Column Function value. Valid values: 1, 2, 3, 4

Explanation:
An invalid character was entered in the Column Function field.

User response:
Specify a valid character (1, 2, 3, or 4).

FECA901E  Invalid Permanent View value. Valid values: Y, N

Explanation:
An invalid value was entered in the Permanent View field.

User response:
Correct the value or cancel. Valid values are Y and N.

FECA902E  Invalid Reset View value. Valid values are Y, N

Explanation:
An invalid character was entered in the Reset View field. Valid characters are Y and N.

User response:
Specify a valid value or cancel. Valid values are:
• Y - resets all customizations.
• N - customizations are not reset.

FECA903E  Invalid Stop Sorting value. Valid values: Y, N

Explanation:
Messages CQM9000-CQM9999 are internal diagnostic messages that are only issued if you specified DEBUG(Y) in CQMPARMS or have run a diagnostic utility.

User response
These messages are for use by IBM Technical Support.
The specified stop sorting value is not valid. Valid values are:

- Y - Indicates that sorting will be stopped.
- N - Indicates that sorting will continue.

User response:
Specify a valid value or cancel.

FECA904E Invalid command in FORM display

Explanation:
The command you issued when viewing the FORM display was not valid.

User response:
Valid commands for FORM display include NROW and PROW.

FECA905E FORM command not supported from CSETUP function

Explanation:
The FORM command was issued from a CSETUP function. FORM is not supported while in a CSETUP function (CSETUP functions include CFIX, CORDER, CSIZE and CS).

User response:
No action is required.

FECA906E Invalid parameter for NROW. Must be numeric.

Explanation:
The parameter you specified was not numeric and is therefore invalid.

User response:
Specify a numeric value corresponding to the number of rows to advance. The default value for NROW is 1.

FECA907E Invalid parameter for PROW. Must be numeric.

Explanation:
The parameter you specified was not numeric and is therefore invalid.

User response:
Specify a numeric value corresponding to the number of rows to scroll back. The default value for PROW is 1.

FECA908E Invalid parameter for NROW. Too many digits.

Explanation:
An invalid parameter for the NROW keyword was specified. More than eight digits were specified. Parsing stops at eight digits.

User response:
A parameter of NROW must be between 1 and the number of rows in the current report display. If no parameter is specified, 1 is assumed.

FECA909E Invalid parameter for PROW. Too many digits.

Explanation:
Invalid parameter to PROW specified. More than eight digits were specified. Parsing stops at eight digits.

User response:
A parameter of PROW must be between 1 and the number of rows in the current report display. If no parameter is specified, 1 is assumed.

FECA910E CSETUP command not supported from FORM function

Explanation:
CSETUP functions are not supported while in the FORM display. CSETUP functions include CFIX, CORDER, CSIZE, CSORT, and CSETUP (CSET).

User response:
Exit the current FORM function before issuing a CSETUP function.

FECA911E Invalid ICR command. Use RIGHT command.

Explanation:
ICR is only valid with columns that are not their maximum size. You can see the column’s current and maximum sizes by issuing CSIZE.

User response:
RIGHT and LEFT commands can be used to see all parts of this column.

FECA912E Invalid ICL command. Use LEFT command.

Explanation:
ICL is only allowed with columns that are not their maximum size. You can see the column’s current and maximum sizes by issuing CSIZE.

User response:
RIGHT and LEFT commands can be used to see all parts of this column.

FECA913E Format mix data element not updated.

Explanation:
Format MIX data cannot be updated when only part of the data is displayed.

User response:
No action is required.

FECA914E FORM command not supported from FORM function

Explanation:
FORM was issued from within a FORM display. This is not supported.

User response:
**Explanation**
The NROW (next row) and PROW (previous row) commands are used to move the FORM display window to another row. The UP, DOWN, LEFT, and RIGHT commands move the FORM display window within the current row.

Row, as mentioned above, refers to the row from the original report display, not any reformatted FORM display row.

By default, NROW advances the FORM display to the next row. If NROW n is issued, the FORM display will advance n rows.

Similarly, PROW moves the FORM display window to the immediately prior row PROW n moves the current FORM display window to the nth prior row.

**User response:**
No action is required.

**FECA916E** Invalid CNUM parm. Valid parms are ON, OFF, or blank.

**Explanation:**
CNUM was issued with an invalid parameter. Issuing CNUM with no parameter acts as an ON/OFF toggle. ON and OFF are the only parameters accepted. ON turns the CNUM display on. OFF turns the CNUM display off.

**User response:**
Use a valid CNUM parameter (ON, OFF, or blank)

**FECA917E** Report width for print too large.

**Explanation:**
The report width exceeds the maximum print width.

**User response:**
The maximum report width that is currently supported is 32,760.

**FECA918E** string not found. Press PF5 to continue from top.

**Explanation:**
The indicated character string was not found.

**User response:**
To continue searching for the character string from the top of the dialog, press PF5.

**FECA920I** Chars chars found n times

**Explanation:**
Indicates the number of times the specified character was found.

**User response:**
Enter COLS ON or COLS OFF. COLS ON turns the COLS display on; COLS OFF turns the COLS display off.

**FECA930I**  No columns eligible for resizing.

**Explanation:**
You cannot resize any columns.

**User response:**
No action is required.

**FECA931I**  No columns eligible for sorting

**Explanation:**
You cannot sort any columns.

**User response:**
No action is required.

**FECA932I**  TBMOD failed. RC=rc

**Explanation:**
An unexpected return code occurred during TBMOD.

**User response**
Suggested diagnostics:
- See z/OS ISPF Services Guide under TBMOD.
- Review ISPTLIB allocation.
- Review security-controlled access to ISPTLIB data sets.

**FECA933E**  Invalid column name: missing quote

**Explanation:**
SORT or CSORT was issued with a parameter that had an initial quotation character, but not a second closing quotation character.

**User response:**
Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

**FECA934E**  More than 9 columns specified

**Explanation:**
SORT or CSORT was issued with too many columns specified as sort columns. A maximum of 9 sort columns can be specified.

**User response:**
Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

**FECA935E**  Invalid column name

**Explanation:**
SORT or CSORT was issued with a column parameter that does not match any column name. A list of the correct column names is seen in the SORT selection panel.

**User response:**
Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

**FECA936E**  Invalid row selection character

**Explanation:**
An invalid selection character was entered in the SSID selection list. The only valid selection character is S. Alternatively, place the cursor on the desired line and press ENTER (without a line selection character).

**User response:**
Clear the invalid character.

**FECA937E**  Only one row selection allowed

**Explanation:**
More than one SSID was selected from the SSID selection list. A maximum of one SSID can be selected.

**User response:**
Clear all, or all but one row selection character.

**FECA938E**  Invalid command

**Explanation:**
An invalid command was entered on the SSID selection list panel.

**User response:**
Clear the command.

**FECA939E**  Read of control file failed

**Explanation:**
Reading the control data set failed.

**User response:**
Check the product setup (accessed from the main menu) to view the control data set currently in use. Verify that the data set name is correct.

**FECA940E**  Invalid DB2 Control data set

**Explanation:**
Allocation of the control DB2 data set failed.

**User response:**
Check the product setup (accessed from the main menu) to view the control data set currently in use. Verify that the data set name is correct.

**FECA942E**  IFCARC1=return code
  IFCARC2=reason code

**Explanation:**
The Db2 command issued failed. The return code and reason code received from Db2 are in the error message. If there is any command output, it is displayed.

**User response:**
Check the command for possible mistyping, invalid syntax, or other errors. Refer to [https://www.ibm.com/](https://www.ibm.com/)
support/knowledgecenter/en/SSEPEK for information about the messages and codes for your version of Db2.

FECA943E  Invalid command
Explanation:  
An invalid command was issued. It is not supported on the current panel.

User response:  
Check the command for typographical error. Clear or correct the command.

FECA944I  Empty History
Explanation:  
This is an informational message. The history database is empty. If commands were previously entered, then either HCLEAR was issued or the size of the history database was set to 0. If ISPTABL and ISPTLIB are not allocated, history is not remembered across sessions, and each new session has an empty history database.

User response:  
No action is required. To verify allocation of ISPTLIB and ISPTABL, ISRDDN and ISPLIBD can be useful. Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW to access the ISPF services guide for your version of z/OS.

FECA945E  Invalid history size limit
Explanation:  
An invalid character was found in the History Size Limit field. Only numeric values from 0-999 are valid.

User response:  
Enter a valid value in the History Size Limit field.

FECA946I  No DB2 command history output library allocated
Explanation:  
This is an informational message. ISPTABL is not allocated. The history database cannot be saved across sessions when ISPTABL is not allocated.

User response:  
No action is required. If saving history across sessions is desired, see product installation instructions for allocating ISPTABL (and ISPTLIB).

FECA947I  No DB2 command history input library allocated
Explanation:  
This is an informational message. ISPTLIB is not allocated. If a history database is saved across sessions (using ISPTABL DD), the ISPTLIB DD is used to initialize a new Db2 Command Processor session. If ISPTLIB is not allocated, this cannot occur and the history starts out empty.

User response:  
No action is required. If saving history across sessions is desired, see product installation instructions for allocating ISPTLIB (and ISPTABL).

FECA948E  TBOPEN failed. RC=return code
Explanation:  
TBOPEN for the history table failed. return code is the return code from the TBOPEN service.

User response:  

FECA949E  Invalid command
Explanation:  
An invalid command was entered.

User response:  
Check for typographical error. Clear or correct the command. Issue HELP for the Db2 Command Processor tutorial to see what commands are valid. KEYS might also be a useful command, since some PF keys are set to valid Db2 Command Processor commands.

FECA950E  No SSIDs in control file
Explanation:  
There are no valid SSIDs found in the Db2 control file specified.

User response:  
A control file with no SSIDs is not useful. It is probably not the control file desired. See product installation instructions for information about creating and building a control file.

FECA951I  History cleared
Explanation:  
History was cleared either by issuing the HCLEAR command or by setting the History Size Limit to 0.

User response:  
No action is required.

FECA952E  Unable to list data sharing members. Display failed
Explanation:  
Command failed attempting to get a list of data sharing members. The reason code and return code are listed in the message.

User response:  

FECA953I  Zero data sharing members found
Explanation:  

Zero data sharing members found. The current SSID is not a member of a data sharing group.

User response: The Datasharing Member field should be left blank.

FECA954E Invalid command
Explanation: An invalid command was issued from the datasharing members list/selection panel.
User response: Clear the command.

FECA955I No member selected
Explanation: You exited the datasharing member selection panel without selecting a datasharing member.
User response: No action is required.

FECA956E Invalid row selection character
Explanation: An invalid selection character was entered in the displayed list of datasharing members. A datasharing member in this display can be selected by selecting it with an "S" selection character, or by placing the cursor anywhere on the desired row and pressing Enter.
User response: Clear the invalid character.

FECA957E Only one row selection allowed
Explanation: More than one datasharing member was selected from the list of displayed datasharing members.
User response: Clear all, or all but one row selection character.

FECA958E Invalid row selection character
Explanation: An invalid selection character was entered in the displayed list of datasharing members. A datasharing member in this display can be selected by selecting it with an "S" selection character, or by placing the cursor anywhere on the desired row and pressing Enter.
User response: Clear the invalid character.

FECA959E Only one row selection allowed
Explanation: More than one datasharing member was selected from the list of displayed datasharing members.
User response: Clear all, or all but one row selection character.

FECA960E Cannot list commands without SSID
Explanation: A command was issued to select a command syntax diagram, but no SSID has been selected. Syntax diagrams cannot be displayed until an SSID has been selected.
User response: Select an SSID. You can generate a list of SSIDs by clearing the SSID field, or entering a ? (question mark).

FECA961E Invalid row selection character
Explanation: An invalid selection character was entered in the displayed list of Db2 commands. A Db2 command in this display can be selected by selecting it with an "S" selection character, or by placing the cursor anywhere on the desired row and pressing Enter.
User response: Clear the invalid character.

FECA962E Only one row selection allowed
Explanation: More than one Db2 command was selected from the list of displayed Db2 commands.
User response: Clear all, or all but one row selection character.

FECA963E Invalid command
Explanation: An invalid command was issued from the Db2 command list/selection panel.
User response: Clear the command.

FEC801E Pgm: program name Stmt: statement Type: type
Explanation: This message is used to convert SQL return code information into a text message. The data from the SQLCA is called using DSNTIAR and formatted into this message.

FEC802E An invalid return code of code was encountered on function function.
The error message text follows:

**Explanation:**
An invalid return code was encountered for the specified function. The supporting diagnostic data are returned in the error message.

**User response:**

**FEC803E** The first character of the command is not a dash. Correct the syntax of the DB2 command and resubmit.

**Explanation:**
The first character of the command is not a dash. Correct syntax for a Db2 command dictates that the command be preceded by a dash.

**User response:**
Precede the command with a dash ('-') and reenter.

**FEC804E** message_text

**Explanation:**
An error occurred during call attach initialization.

**User response:**
Refer to the message text for details. If a reason code accompanies the message, use the reason code to help you determine the appropriate corrective action. If you need assistance, contact IBM Software Support.

**FEC901E** The default load library could not be located.

**Explanation:**
The data set name entered for Db2 Tools Load Library was not found.

**User response:**
Enter a valid loadlib data set name and continue.

**FEC902E** A DB2 subsystem ID has to be entered for processing.

**Explanation:**
There was no valid value entered for Db2 subsystem ID.

**User response:**
Enter a valid Db2 subsystem name.

**FEC903E** The default GDG base data set name could not be located.

**Explanation:**
The data set name entered for GDG Base model was not found.

**User response:**
Enter a valid model data set name and continue.

**FEC904E** The specified data set could not be opened for I/O.

**Explanation:**
A VSAM open error occurred while attempting to open the data set specified for the Db2 Control File.

**User response:**
Verify that the VSAM data set is accessible.

**FEC905E** An unexpected return code from VSAM was encountered while doing a read of the control file. RC1=rc RC2=rc

**Explanation:**
A VSAM READ error occurred while attempting to access the data set specified for the Db2 Control File. The VSAM return code is provided for diagnostic purposes.

**User response:**

**FEC906I** The control file record for DB2 subsystem ssid has been successfully updated.

**Explanation:**
The Db2 Control File record has been successfully updated based on the definitions for the specified Db2 subsystem.

**User response:**
No action is required.

**FEC907E** An unexpected return code from VSAM was encountered while doing an update operation of the control file. RC1=rc RC2=rc

**Explanation:**
A VSAM update error occurred while attempting to update the data set specified for the Db2 Control File. The RC1 and RC2 (VSAM return cards) are provided for diagnostic purposes.

**User response:**

**FEC908I** The control file record for DB2 subsystem sys has been successfully added.

**Explanation:**
The Db2 Control File record has been successfully updated based on the definitions for the specified Db2 subsystem.

**User response:**
No action is required.
No action is required.

FEC909E Invalid value. Valid options are 1 and 2.

Explanation: The value you specified is not valid. Valid values are 1 and 2.

User response: Enter a valid value.

FEC910E An unexpected return code from VSAM was encountered while doing an add operation to the control file. RC1=rc RC2=rc

Explanation: A VSAM error occurred while attempting to perform an add operation to the specified Db2 Control File. The RC1 and RC2 (VSAM return codes) are provided for diagnostic purposes.


FEC911E The (F)IND command was entered but no parameters were specified.

Explanation: No parameters were specified with the (F)IND command. No match can be made unless you specify a string to find.

User response: Enter a FIND parameter.

FEC912I The requested find string was not found.

Explanation: No matches were found for the string you specified with the FIND command.

User response: No action is required.

FEC913I The control file record has been successfully updated.

Explanation: The control file was updated successfully.

User response: No action is required.

FEC914E An unknown column was specified using the SORT command.

Explanation: The column you specified with the SORT command is not known.

User response: Verify that you correctly typed the name of the column or select another column.

FEC915E SORT is not supported for the specified column.

Explanation: The column you attempted to SORT is not supported as a column on which to sort.

User response: Refer to the sort columns listed on the Define Sort Columns panel for a list of valid columns on which the sort can be based and redefine the sort.

FEC916E Sort column not entered. Column name or number must be specified.

Explanation: A column was not specified with the SORT. A column name or number must be specified for the SORT command.

User response: Ensure that if the column name is used, that all spaces in the name are replaced with an underscore.

FEC917E Put an ending quote at the end of the string.

Explanation: You must place a quote at the end of the string.

User response: Place a quote at the end of the string.

FEC918 CHARS string not found. Press PF5 to continue from top.

Explanation: The indicated character string was not found.

User response: To continue searching for the character string from the top of the dialog, press PF5.

FEC919 chars foundstr not found. Press PF5 to continue from bottom.

Explanation: The indicated character string was not found.

User response: To continue searching for the character string from the bottom of the dialog, press PF5.

FEC920E File tailoring open returned a file tailoring already in progress condition

Explanation: An attempt to perform file tailoring for utility customization failed. There was a file tailoring session already in progress. File tailoring sessions cannot be performed concurrently.
**User response:**
No action is required.

**FEC921E** File tailoring open returned the output file already in use condition -- ENQ failed

**Explanation:**
An attempt to open the Db2 Control File failed with an ENQ error. The data set is already open for output.

**User response:**
Verify that you are the only user attempting to access this file.

**FEC922E** File tailoring open returned the skeletal file or output file not allocated condition

**Explanation:**
An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

**User response:**
Verify that all required files are allocated prior to performing file tailoring.

**FEC923E** File tailoring open returned a severe error condition

**Explanation:**
An attempt to perform file tailoring failed because a severe error condition was encountered on open.

**User response:**
Verify that all required files are allocated and accessible prior to performing file tailoring.

**FEC924E** File tailoring open returned an unknown code -- severe error

**Explanation:**
An attempt to perform file tailoring failed because a severe error condition was encountered on open.

**User response:**
Verify that all required files are allocated and accessible prior to performing file tailoring.

**FEC925E** File tailoring close returned a file not open condition -- severe error

**Explanation:**
An attempt to perform file tailoring failed because a File-Not-Open condition was encountered on close.

**User response:**
Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.

**FEC926E** File tailoring close returned an output file in use condition

**Explanation:**
An attempt to perform file tailoring failed because an Output-File-In-Use condition was encountered on close.

**User response:**
Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.

**FEC927E** File tailoring close returned a skeletal file or output file not allocated condition

**Explanation:**
An attempt to close file tailoring failed because either a tailoring skeleton file or output file was not allocated.

**User response:**
Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.

**FEC928E** File tailoring close returned a severe error

**Explanation:**
An attempt to perform file tailoring failed because a severe error condition was encountered on close.

**User response:**
Verify that all required files are allocated and accessible prior to performing file tailoring.

**FEC929E** File tailoring close returned an unknown code -- severe error

**Explanation:**
An attempt to perform file tailoring failed because a severe error condition was encountered on close.

**User response:**
Verify that all required files are allocated and accessible prior to performing file tailoring.

**FEC930E** File tailoring close returned an output member exists in the output library and NOREPL was specified

**Explanation:**
An attempt to perform file tailoring failed because the close process could not replace the pre-existing tailored member in the output file.

**User response:**
Change the output member name to a new name or ensure that the output library allows for member replacement.

**FEC931E** File tailoring include returned a skeleton does not exist condition

**Explanation:**
An attempt to perform file tailoring failed because the tailoring process could not locate a required tailoring skeleton.

**User response:**
Assure that all required files are allocated to perform file tailoring.

**Explanation:**
An attempt to access a tailoring skeleton failed with an ENQ error (member-in-use).

**User response:**
Verify that all required tailoring files are allocated and that there are no other tailoring sessions running concurrently.

**FEC932E** File tailoring include returned a skeleton in use -- ENQ failed condition

**Explanation:**
An attempt to access a tailoring skeleton failed with an ENQ error (member-in-use).

**User response:**
Verify that all required tailoring files are allocated and accessible prior to performing file tailoring.

**FEC933E** File tailoring include returned a data truncation or skeleton library or output file not allocated condition

**Explanation:**
An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

**User response:**
Verify that all required files are allocated prior to performing file tailoring.

**FEC934E** File tailoring include returned a severe error condition

**Explanation:**
An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

**User response:**
Verify that all required files are allocated and accessible prior to performing file tailoring.

**FEC935E** File tailoring include returned an unknown condition -- severe error

**Explanation:**
An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

**User response:**
Verify that all required files are allocated and accessible prior to performing file tailoring.

**FEC936E** Allocation error - The ISPFILE DD is already allocated and cannot be deallocated - Process not completed

**Explanation:**
The ISPFILE DD allocation failed. The DD is already allocated and cannot be deallocated for this TSO session. The process did not complete successfully.

**User response:**
No action is required.

**FEC937E** Allocation Error - An error was encountered allocating the ISPWRK1 or ISPWRK2 DD - Process not completed

**Explanation:**
The ISPWRK1 or ISPWRK2 DD allocation failed.

**User response:**
Verify TSO session parameters are set correctly for your site prior to allocation of these DD statements. The process did not complete successfully.

**FEC938E** Field Required - The data set entered is a partitioned data set and the member name is required

**Explanation:**
A required field was not specified. The data set entered is a PDS (partitioned data set) and a member in this PDS must be referenced.

**User response:**
Enter a valid member name for PDS access.

**FEC939E** The only valid values are "T" for tracks and "C" for cylinders

**Explanation:**
You specified an invalid value. The only valid values are "T" for tracks and "C" for cylinders

**User response:**
Specify a valid value.

**FEC940E** The specified data set could not be found in the MVS catalog.

**Explanation:**
The specified data set could not be found in the MVS catalog.

**User response:**
Ensure that the data set name is correct.

**FEC941E** The RFIND key works only after a FIND character string is entered.

**Explanation:**
A repeat FIND (RFIND) was issued before a FIND command was issued. You must issue FIND before RFIND will work.

**User response:**
Issue FIND prior to attempting to issue RFIND.

**FEC942E** Invalid Sort number. Enter a valid digit.

**Explanation:**

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An invalid character was entered in the Srt column. Valid characters are the digits 1, 2, 3,... up to 9, or the number of sortable columns, whichever is less.

**User response:**
Specify a valid sort number.

**FEC943E**  
**Same Sort number entered twice**

**Explanation:**
The same sort number was entered for more than one column. The screen is positioned to the second instance. Sort sequence numbers must be unique.

**User response:**
Specify a valid sort number.

**FEC944E**  
**Sort sequence skips a number.**

**Explanation:**
The selected sorting sequence skips a number. This is not allowed. The screen is positioned to a selection whose number is lacking an immediate predecessor. The sort sequence is completely rebuilt from the Cmd (and Dir) information. Any previously existing sort sequence is entirely replaced. It is not added to or extended by the new entries.

**User response:**
Please specify a valid sort sequence that does not skip a number.

**FEC945E**  
**Invalid Dir entered. Must be A or D (ascending/descending).**

**Explanation:**
The selected sorting direction is invalid. Only A (ascending) or D (descending) can be specified. A blank indicates ascending (default).

**User response:**
Specify a valid sorting direction.

**FEC946E**  
**Dir not valid without Ord.**

**Explanation:**
A sorting direction was selected for a column that was not selected to be sorted. Sorting direction is only a valid choice for selected columns.

**User response:**
Select a sorting direction and order.

**FEC947E**  
**Max Sort Columns exceeded. Sorting first 10 columns.**

**Explanation:**
More columns were selected for sorting than are supported. Nine columns can be selected. Under certain circumstances the limit is less than nine, due to internal constraints. For example, sorting a date field can be implemented by three sorts of partial column fields. In that case, the column would count as three toward the maximum of nine, not one.

**User response:**
Specify the appropriate allowable maximum number of sort columns.

**FEC948E**  
**Fix Columns cannot exceed screen size.**

**Explanation:**
More columns were selected to be fixed than will fit on the screen.

**User response:**
Remove the (F) selection character from one or more columns.

**FEC950E**  
**Invalid selection character. "F" and "U" are valid.**

**Explanation:**
An invalid Cmd character was entered. Valid characters are F (fix) and U (unfix). Fix causes the column to move to the fixed area on the left side of the screen. Fixed columns do not scroll horizontally when LEFT or RIGHT scrolling commands are issued. Unfix moves the column out of the fixed area, and allows it to scroll horizontally when LEFT and RIGHT scroll commands are issued.

**User response:**
Either remove the invalid character or enter a valid one.

**FEC951E**  
**Invalid entry. Must be numeric.**

**Explanation:**
An invalid Cmd value was entered. Cmd values must be numeric. If the column is fixed, the number must be in the fixed range. If the column is not fixed, the number must be in the unfixed range.

**User response:**
Either remove the invalid number or enter a valid one.

**FEC952E**  
**Invalid entry for fixed column.**

**Explanation:**
An invalid Cmd value was entered for a fixed column. Valid selections for fixed column are up to the number of fixed columns.

**User response:**
Either remove the invalid number or enter a valid one.

**FEC953E**  
**Invalid entry for unfixed column.**

**Explanation:**
An invalid Cmd value was entered for an unfixed column. The number must be less than the number of columns, and greater than the number of fixed columns.

**User response:**
Either remove the invalid number or enter a valid one.

**FEC954E**  
**Invalid value entered for column size: non-numeric data.**
Explanation:
An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields.

User response:
Either remove the invalid number or enter a valid one.

FEC955E Invalid value entered for column size: out of range.

Explanation:
An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields. MIN is the smallest acceptable value. MAX is the largest acceptable value.

User response:
Either remove the invalid number or enter a valid one.

FEC956E Total fixed column sizes cannot exceed screen size.

Explanation:
The Cmd values entered would result in the sum of the fixed column sizes to exceed the screen size. This is not allowed. The fixed columns are those with an or in the Fix column. Fixed columns are always displayed, and so must fit on the screen.

User response:
Either change the fixed column sizes so that the total is less than the screen size or cancel to return to the previous panel.

FEC957E New configuration makes this column size invalid.

Explanation:
The requested column sizes make at least one unfixed column unable to be displayed. The cursor is positioned on the value where the problem was detected. The unfixed area on the screen would be too small to show the column where the cursor is placed.

User response
Do one of the following:

• Make the column where the cursor is smaller so that it can fit in the available unfixed area.
• Set it to its maximum size (width).
• Make the fixed area smaller.
• Cancel to return to the previous panel.

FEC958E Column does not fit in unfixed area in new configuration.

Explanation:
The requested column sizes would make the unfixed column where the cursor is positioned undisplayable. The unfixed area on the screen would be too small to show this column.

User response:
Shrink the fixed area by either unfixing columns or making fixed columns smaller. The column where the cursor is cannot be partially displayed (min-max) so its size cannot be changed.

FEC959E New configuration makes this column size invalid.

Explanation:
Fixing the requested columns would shrink the available area for unfixed columns unacceptably. One or more unfixed columns would not fit in the remaining unfixed area of the screen. The cursor is placed on a row that represents one such column. Therefore, the requested configuration is not allowed.

User response:
To change column sizes, cancel out of the CFIX function and invoke the CSIZE function. Either cancel to exit CFIX with no change or blank out one or more FIX selections until an allowable fixed size is reached.

FEC960E Invalid fixed selections. Would not leave enough space for this column.

Explanation:
Fixing the columns requested would make at least one unfixed column undisplayable. The cursor is positioned on the row that represents one such unfixed column, whose minimum displayable size would not fit in the available screen area.

User response
Shrink the requested fixed area by either:

• Requesting fewer fixed columns.
• Unfixing one or more fixed columns.
• Cancel out of CFIX and invoke CSIZE in order to shrink one or more fixed columns enough so that all unfixed columns have the space they require.

FEC962E Duplicate Cmd values entered.

Explanation:
Duplicate Cmd numbers were entered. The cursor points to the second instance of a Cmd value.

User response:
Either change this value, clear it, or exit the CORDER function.

FEC963E Cursor not on data element.

Explanation:
CEXPAND was issued and the cursor was not located on a valid (expandable) area. CEXPAND requires the cursor to be positioned on a data element (non-heading area) in the dynamic area of the display. Or CEXPAND can be issued specifying the row and column of the data element to expand.

User response:
Ensure the cursor is located on a valid (expandable) area prior to issuing the CEXPAND command.

FEC964E  Invalid scroll amount for CRIGHT. Must be numeric.

Explanation:
Invalid (non-numeric) parameter to CRIGHT specified. CRIGHT accepts one numeric parameter: the number of columns to scroll right. If no parameter is entered a value of 1 is assumed.

User response:
Specify a numeric parameter to the CRIGHT command.

FEC965E  Invalid scroll amount for CLEFT. Must be numeric.

Explanation:
Invalid (non-numeric) parameter to CLEFT specified. CLEFT accepts one numeric parameter: the number of columns to scroll left. If no parameter is entered, a value of 1 is assumed.

User response:
Specify a numeric parameter to the CLEFT command.

FEC966E  Invalid parameter to ICRIGHT; must be numeric.

Explanation:
A parameter to ICRIGHT is not numeric. ICRIGHT (inner column scroll right) accepts either zero, one, or two numeric parameters. ICRIGHT can be abbreviated as ICR.

User response:
Specify a valid, numeric parameter for ICRIGHT.

FEC967E  Parameter to ICRIGHT too long. Invalid.

Explanation:
A parameter to ICRIGHT is too long. ICRIGHT does not process more than eight digits in a parameter which is more than double any reasonable value.

User response:
Specify a parameter less than or equal to eight digits for ICRIGHT.

FEC968E  Parameter to ICRIGHT is zero. Invalid.

Explanation:
A parameter to ICRIGHT has the value zero. This is not supported.

User response:
Specify non-zero parameters to ICRIGHT.

FEC969E  ICRIGHT: unspecified column.

Explanation:
ICRIGHT was invoked with no parameters and the cursor is not positioned in the dynamic panel area.

User response:
Either put the cursor in the column that should be scrolled or specify the column by number. Column numbers can refer to visible columns (in the current display window) only. Number starts at 1, on the left side.

FEC971E  ICRIGHT: Column number specified is too big.

Explanation:
A column number parameter to ICRIGHT must be between 1 and the number of columns currently on the display screen.

User response:
To refer to a column by number you must first position the display window so that the desired column is visible.

FEC972E  Invalid parameter to ICLEFT; must be numeric.

Explanation:
A parameter to ICLEFT is not numeric. ICLEFT (inner column scroll left) accepts either zero, one, or two numeric parameters. ICLEFT can be abbreviated as ICL.

User response:
Specify a valid parameter for ICLEFT.

FEC973E  Parameter to ICLEFT too long. Invalid.

Explanation:
A parameter to ICLEFT is too long. ICLEFT does not process more than eight digits in a parameter which is more than double reasonable value.

User response:
Specify a parameter less than or equal to eight digits for ICLEFT.

FEC974E  Parameter to ICLEFT is zero. Invalid.

Explanation:
A parameter to ICLEFT has the value zero. This is not supported.

User response:
Specify a non-zero number for ICLEFT.

FEC975E  ICLEFT: unspecified column.

Explanation:
ICLEFT was invoked with no parameters and the cursor is not positioned in the dynamic panel area.

User response:
Either put the cursor in the column that should be scrolled or specify the column by number. Column numbers can refer to visible columns (in the current
display window) only. Numbering starts at 1 on the left side.

**FEC976E** Column selected not sortable. Sort selection list presented.

**Explanation:**
You cannot perform a SORT on the column you selected. Valid sort columns are displayed in the sort selection list.

**User response:**
Sort on one of the valid columns displayed in the selection list.

**FEC977E** ICLEFT: Column number specified is too big.

**Explanation:**
A column number parameter to ICLEFT must be between 1 and the number of columns currently on the display screen.

**User response:**
To refer to a column by number, you must first position the display window so that the desired column is visible.

**FEC978E** Invalid column number specified for SORT (not numeric).

**Explanation:**
Invalid column number parameter to CSORT specified (non-numeric).

**User response:**
Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

**FEC979E** Invalid column number specified. Too many digits.

**Explanation:**
Invalid parameter to CSORT specified. More than eight digits were specified. Parsing stops at eight digits.

**User response:**
Specify a column number parameter between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

**FEC980E** Invalid column number specified: zero.

**Explanation:**
Invalid parameter to CSORT was specified (zero).

**User response:**
Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

**FEC981E** Invalid column number specified: out of range.

**Explanation:**
Invalid parameter to CSORT was specified (zero).

**User response:**
Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending)

**FEC982E** Invalid view. View adjusted.

**Explanation:**
The current view was adjusted but not deleted. The saved view did not match the report requirements. This could be caused by the report changing or the view file getting corrupted.

**User response:**
The adjusted view will be used. You can issue CSET to modify the view.

**FEC983E** Invalid view. View deleted.

**Explanation:**
Invalid data was found in a view for this report. The view was deleted and contents ignored. This could be caused by the report changing or the view file getting corrupted.

**User response:**
You can issue CSET to create a view that will match current report.

**FEC984E** Unexpected return code from TBSTATS: rc

**Explanation:**
An unexpected failure issuing TBSTATS was received.

**User response:**
Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW to access the ISPF services guide for your version of z/OS.

**FEC985E** View Library not allocated.

**Explanation:**
A view input library has not been allocated. In order for a user to save and use report customizations that are created via the CSET command, ISPTABL and ISPTLIB must be allocated.

**User response:**
Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW to access the ISPF services guide for your version of z/OS.

**FEC986E** TBCREATE failed. RC=rc

**Explanation:**
TBCREATE was issued to create a view. It failed with a (hex) return code as indicated in the message.
User response:
Review ISPTLIB allocation and data set characteristics. Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW for information about ISPF messages and codes for your version of z/OS.

FEC987E  TBOPEN failed. RC=rc
Explanation:
TBOPEN was issued to open a view. It failed with a (hex) return code as indicated in the message.

User response:
Review ISPTLIB allocation and data set characteristics. Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW for information about ISPF messages and codes for your version of z/OS.

FEC988E  TBGET failed. RC=rc
Explanation:
A TBGET produced a return code (as indicated in the message).

User response:
Review ISPTLIB allocation and data set characteristics. Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW for information about ISPF messages and codes for your version of z/OS.

FEC989E  TBMOD failed. RC=rc
Explanation:
A TBMOD produced an error and return code (as indicated in the message).

User response:
Review ISPTLIB allocation and data set characteristics. Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW for information about ISPF messages and codes for your version of z/OS.

FEC990E  TBCLOSE failed. RC=rc
Explanation:
TBCLOSE failed with a (hex) return code as indicated in the message.

User response:
Review ISPTLIB allocation and data set characteristics. Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW for information about ISPF messages and codes for your version of z/OS.

FEC991E  TBDELETE failed. RC=rc
Explanation:
TBDELETE failed with a (hex) return code as indicated in the message.

User response:
Review ISPTLIB allocation and data set characteristics. Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW for information about ISPF messages and codes for your version of z/OS.

FEC992E  Invalid selection.
Explanation:
A command that is not supported on this panel was selected.

User response:
Issue a valid command for the panel.

FEC993I  Permanent view not supported.
Explanation:
Db2 Query Monitor detected something that prevents views from being saved. The permanent view flag cannot be set to Y. The most likely cause of this is that either ISPTLIB or ISPTABL (or both) have not been properly allocated.

User response:
Review ISPTLIB allocation and data set characteristics. Refer to https://www.ibm.com/support/knowledgecenter/en/SSLTBW for information about ISPF messages and codes for your version of z/OS.

FEC994E  Invalid row number.
Explanation:
CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response:
Specify a valid parameter count for use with CEXPAND.

FEC995E  Invalid column number.
Explanation:
CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response:
Specify a valid parameter count for use with CEXPAND.

**FEC996E**  
Invalid digits.  

**Explanation:**  
CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.  

**User response:**  
Specify a valid parameter count for use with CEXPAND.

**FEC997E**  
Too many digits.  

**Explanation:**  
CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.  

**User response:**  
Specify a valid parameter count for use with CEXPAND.

**FEC998E**  
Zero parameter invalid.  

**Explanation:**  
CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.  

**User response:**  
Specify a non-zero parameter.

**FEC999E**  
Invalid parameter count: must be either two or zero parms.  

**Explanation:**  
CEXPAND was issued with an invalid number of parameters. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.  

**User response:**  
Specify a valid parameter count for use with CEXPAND.

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**CAE messages**

These message list contains explanations and user responses to the various CAE messages you might encounter when using DB2 Query Monitor.

**CQMC0001E**  
Unable to bind to any of the ports lowPort - highPort, exiting.  

**Explanation**  
None of the ports in the range specified were available to the CAE Agent address space for all of the LISTENER_ADDRESSES. The CAE Agent needs to be able to bind to the same port number for all of the LISTENER_ADDRESSES.

**User response**

Confirm that no other address spaces are listening on the specified ports. Confirm also that the CAE Agent address space is not prevented from listening to these ports by a network security configuration (such as port reservations).

If the port range contains only one or two ports, and if this message occurs when recycling the CAE Agent address space, it's possible that the listener ports are in a timeWait state that will clear in 2 minutes. This kind of problem can be avoided by increasing the number of ports available to the CAE Agent (we recommend 5).

The TCP messages in CQMC0905I will provide more information as to why each individual port bind failed.

**CQMC0003E**  
Invalid CQMCPRMS filename.  
filename, maybe bad member name? errno=92;  
abend.__syscode=abend.__syscode; abend.__rc=abend.__rc  

**Explanation**  
The CAE Agent was unable to open the specified PDS member.

**User response**

Correct the member name and restart the CAE Agent.
CQMC0004E  CQMCPRMS syntax error on line

**LINE NUMBER – ERROR DETAIL**

**Explanation**
The specified line of the CQMCPRMS file was badly formed in the manner described in the **ERROR DETAIL**.

**User response**
Correct the error and restart the CAE Agent.

CQMC0005E  Invalid keyword keyword

**Explanation**
The keyword that appears in the CQMCPRMS file is not a valid keyword.

**User response**
Check CQMCPRMS for keyword errors. Check the documentation for the valid keywords that can be used in CQMCPRMS and that are appropriate for the current level of maintenance of the CAE Agent. After correcting any errors, restart the CAE Agent.

CQMC0006E  Invalid server address address

**Explanation**
The **SERVER_ADDRESS** in CQMCPRMS is poorly formed.

**User response**
Correct the **SERVER_ADDRESS** and restart the CAE Agent.

CQMC0007I  Unable to connect to CAE Agent at port ispf_listener_port

**Explanation**
The CAE Agent was unable to establish a connection to the ISPF Client at the ISPF_LISTENER_PORT listed.

**User response**
Try the following actions to clear this message:
- Verify that the CAE Agent is running.
- In CQMCPRMS, verify that the ISPF_LISTENER_PORT parameter is correctly specified. If you make corrections to CQMCPRMS, restart the CAE Agent.

**Note:** The ISPF_LISTENER_PORT you specify must be available and cannot overlap with the ports you specify using the LISTENER_PORTS and SERVER_PORT parameters.

- If the port is correct, then check for any network issues (such as a firewall) that might affect connectivity between the CAE Agent and the ISPF Client to ensure that the changes are propagated.
- In the ISPF Client, access the IBM Db2 Query Monitor main menu. Type CLEARCAE in the option line and press Enter. Type a ? in the **DB2 QM Subsystem ID** field on the Db2 Query Monitor main menu and press Enter. Select a CAE Server for use with the current session of the ISPF interface by typing an S next to the appropriate line item and pressing Enter.

CQMC0008I  Connected to CAE Server, address address, port port

**Explanation**
Indicates that the CAE Agent successfully connected to the CAE Server.

**User response**
No response necessary.

CQMC0009I  Connection lost to CAE Server address address port port

**Explanation**
A communication problem happened while sending a "CAE Agent Active" message to the CAE Server.

**User response**
No response necessary. The CAE Agent will attempt to reconnect to the CAE Server, and if that fails the CAE Agent will issue another error message.

CQMC0010I  Connected to Backup CAE Server, address address, port port

**Explanation**
Indicates that the CAE Agent successfully connected to the CAE Server.

**User response**
No response necessary.

CQMC0012E  Connection lost to Backup CAE Server address address port port

**Error writing to socket for address address, closing socket socketDescriptor**
Explanation
A communication problem happened while sending a "CAE Agent Active" message to the CAE Backup Server.

User response
No response necessary. The CAE Agent will attempt to reconnect to the CAE Backup Server, and if that fails the CAE Agent will issue another error message.

CQMC0013I Unable to connect to Backup CAE Server at address address and port port

Explanation
The CAE Agent was unable to establish a connection to the CAE Server.

User response
Check that the CAE Backup Server is running. Check that the BACKUP_ADDRESS and BACKUP_PORT parameters are correct in the CQMCPRMS. If the address or port are incorrect, correct them and restart the CAE Agent. If the address and port are both correct, then check for any network issues (such as a firewall) that might affect connectivity between the CAE Agent and the CAE Backup Server.

CQMC0017E Unknown host address for Backup CAE Server

Explanation
The BACKUP_ADDRESS appeared not to be DNS name (e.g., it did not appear to be an IP Address because it was not a sequence of digits separated by dots), but could the address could not be resolved.

User response
Check that the BACKUP_ADDRESS is correct and that it can be resolved on the system the CAE Agent is running.

CQMC0018E Invalid backup server address address.

Explanation
The BACKUP_ADDRESS in CQMCPRMS is poorly formed.

User response
Correct the BACKUP_ADDRESS and restart the CAE Agent.

CQMC0019I Processed parameter parameterName value = parameterValue

Explanation
Indicates that the CAE Agent successfully processed the specification for that parameter in the CQMCPRMS file.

User response
No response necessary.

CQMC0020E Listener ports uninitialized

Explanation
The required parameter LISTENER_PORTS was missing from the CQMCPRMS.

User response
Provide a LISTENER_PORTS entry and restart the CAE Agent.

CQMC0021E Warning: server port port in the range of listener ports portLow - portHigh is not recommended.

Explanation
The SERVER_PORT lies in the range of LISTENER_PORTS. If you are running the CAE Server under USS, then there is a risk that the CAE Agent may attempt to connect to itself.

User response
Ensure that the SERVER_PORT does not lie in the range of LISTENER_PORTS.

CQMC0022E CQMCPRMS DATA ERROR - LISTENER PORT LOW first-port-number IS HIGHER THAN LISTENER PORT HIGH second-port-number

Explanation
The CQMCPRMS parameter, LISTENER_PORTS has been incorrectly configured.

User response
Correct the error and restart the CAE Agent.

CQMC0023E Invalid CQMCPRMS filename. filename errno=errno
Explanation
The CAE Agent was unable to open the specified data set.

User response
Correct the data set name and restart the CAE Agent.

CQMC0084E  No CAE server is chosen. Go to discovery panel to choose CAE server.

Explanation:
You have not selected a CAE Server.

User response:
For information about how to select a CAE Server, see “Selecting a CAE Server for ISPF view of data sharing group” on page 151.

CQMC0101E  No function found for id id

Explanation
An internal error has occurred.

User response
Confirm that the CAE Agent is at a maintenance level consistent with that of the CAE Server. If the maintenance is correct, contact customer support.

CQMC0102E  Error reading data from connection connectionID

Explanation
A network communication error occurred, or the CAE Server has terminated, or the CAE Server has terminated a connection due to some error.

User response
Check that the network connection between the CAE Agent and CAE Server is sound and that the CAE Server is still running. If the CAE Server is running and the network is sound, contact customer support.

CQMC0103I  Dispatcher unable to read from socket. Closing connection connectionID.

Explanation
A network communication error occurred, or the CAE Server has terminated, or the CAE Server has terminated a connection for some reason.

User response
No user response necessary. If this message displays when the CAE Server is up and when users are having trouble getting response from the Agent, it may be indicative of network trouble. If this is the case, examine the network connection for further diagnosis.

CQMC0104I  Dispatcher closing connection connectionID

Explanation
The CAE Agent is closing a connection to the CAE Server due to a prior error.

User response
No response necessary.

CQMC0105E  Bad dispatch code dispatchCode

Explanation
An internal error has occurred.

User response
Confirm that the CAE Agent is at a maintenance level consistent with that of the CAE Server. If the maintenance is correct, contact customer support.

CQMC0106E  BAD PROTOCOL VERSION. EXPECTED version1, RECEIVED version2 ON SOCKET socketNumber

Explanation
The CAE Agent received a message from the CAE Server that had the wrong protocol version number.

User response
Verify that the CAE Server and CAE Agent are both at the correct maintenance. If they are both at the correct maintenance, contact customer support and supply the CAE Agent JES output and the CAE Server logs that include the time when the error occurred.

CQMC0201E  Failed to send alert data to server on connection connectionID

Explanation
A communication error has occurred while sending alert data to the CAE Server.

User response
Check that the CAE Server is still running and that the network connection between the CAE Agent and CAE Server is OK.

CQMC0202E  TCP error message
Explanation
This provides the detail regarding the communication error shown in CQMC0201E.

User response
Review the documentation for the TCP error message to get more detail on the nature of the communication error. See CQMC0201E for more information.

CQMC0203I Error writing to socket for address address, closing socket socketDescriptor

Explanation
A communication problem happened while sending a “CAE Agent Active” message to the CAE Server or CAE backup server.

User response
No response necessary. The CAE Agent will attempt to reconnect to the CAE Server, and if that fails the CAE Agent will issue another error message.

CQMC0205I Can't send alerts for CQM Subsystem SSID. Ending alert collection.

Explanation
The CAE Server is no longer collecting alerts from the specified CQM Subsystem. This can either be because the CAE Server was terminated, or because a user requested that the CAE Server stop collecting alerts from this CQM Subsystem, or because the network connection from the CAE Server to the CAE Agent was dropped. In that last case the CAE Server will attempt to re-establish a connection with the CAE Agent. No alerts should be lost in that case.

User response
No response necessary.

CQMC0206I NEW ALERT THREAD DETECTED, SHUTTING DOWN OLD ALERT THREAD

Explanation
The CAE Agent and CAE Server have gotten out of sync with regard to collection of alerts (possibly due to a temporary loss of network connection), but have recovered.

User response
None. However, if it happens repeatedly, contact customer support and supply the CAE Agent JES output and the CAE Server logs that include the times when the errors occurred.

CQMC0207I STOPPING ALERT COLLECTION FOR CQM SUBSYSTEM cqm_ssid

Explanation
The CAE Agent has been asked to stop collecting alerts for the specified CQM subsystem, probably due to a user-initiated change in the monitoring in the CAE Server.

User response
None. However, if you believe this message was issued in error, contact customer support and supply the CAE Agent JES output and the CAE Server logs that include the time when the error occurred.

CQMC0208E FAILED TO SEND COMPLETE ALERT DATA TO SERVER ON CONNECTION

Explanation
The CAE Agent was unable to send all collected alert data to the CAE Server, due either to a network problem or due to an internal error in the CAE Server.

User response
If there were no network problems, contact customer support and supply the CAE Agent JES output and the CAE Server logs that include the time when the error occurred.

CQMC0209E ALERT COLLECTION TO cqmssid NOT STARTED DUE TO INITIALIZATION PROBLEM. RETURN CODE code

Explanation
The CAE Agent was unable to initialize an environment to be able to collect alert data from the Query Monitor subsystem, cqmssid. Refer to the return code in the message and the table below for more explanation information:
<table>
<thead>
<tr>
<th>Return code</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>QM SUBSYSTEM NOT DEFINED. The Query Monitor Subsystem indicated in the message (cqmssid) is not defined or it is not currently active.</td>
</tr>
<tr>
<td>20</td>
<td>AUTHORIZATION FAILED. The authid of the CAE Agent address space lacked sufficient authorization to collect alerts from the QM subsystem.</td>
</tr>
<tr>
<td>36</td>
<td>ABEND OCCURRED. An abend occurred in the CAE Agent during the attempt to initialize an environment to collect data from the QM Subsystem cqmssid.</td>
</tr>
<tr>
<td>40</td>
<td>QM SUBSYSTEM NOT ACTIVE. The QM subsystem named cqmssid is not currently active.</td>
</tr>
</tbody>
</table>

**User response**

Refer to the return code in the message and the table below for more user response information:

<table>
<thead>
<tr>
<th>Return code</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>QM SUBSYSTEM NOT DEFINED. Check that the Query Monitor Subsystem indicated in the message (cqmssid) is active and that it initialized fully. If the Query Monitor subsystem initialized properly and this message persists, contact IBM Software Support.</td>
</tr>
<tr>
<td>20</td>
<td>AUTHORIZATION FAILED: Ensure that the authid of the CAE Agent address space has access to all the necessary facility classes (e.g. CQM.ACCESS.**).</td>
</tr>
<tr>
<td>36</td>
<td>ABEND OCCURRED: Contact customer support</td>
</tr>
<tr>
<td>40</td>
<td>QM SUBSYSTEM NOT ACTIVE: Check that the QM Subsystem, cqmssid, is active, and that it initialized fully. If the QM Subsystem is initialized properly and this message persists, contact IBM Software Support.</td>
</tr>
</tbody>
</table>

**CQMC0402E**

Could not load CQM API module.
Check STEPLIB and APF authorizations

**Explanation**

The CAE Agent was unable to load the code necessary to retrieve data from CQM collectors.

**User response**

Check the STEPLIB for the CAE Agent to verify that the SCQMLOAD and SFECLOAD libraries used by the collectors on that system are in the STEPLIB. Check that both those libraries are APF Authorized.

**CQMC0403E**

Could not initialize the mutex

**Explanation**

An internal error occurred.

**User response**

Contact customer support.

**CQMC0404E**

Error sending header and qblk returnCode

**Explanation**

A communication error occurred while sending data from the CAE Agent to the CAE Server.
User response
Check that the CAE Server is running. Check the network connection between the CAE Agent and CAE Server.

CQMC0405E Unknown data structure type

dataStructureCode

Explanation
Ann internal error occurred.

User response
Check that the maintenance level of the CAE Server is compatible with the maintenance level of the CAE Agent. If they are compatible, contact customer support.

CQMC0406E Failed to send to send cleanup tail to server on connection connection

Explanation
A communication error occurred while sending data from the CAE Agent to the CAE Server.

User response
Check that the CAE Server is running. Check the network connection between the CAE Agent and CAE Server.

CQMC0407E Failed to send to send cleanup data to server on connection connection

Explanation
A communication error occurred while sending data from the CAE Agent to the CAE Server.

User response
Check that the CAE Server is running. Check the network connection between the CAE Agent and CAE Server.

CQMC0408E Protocol error in function

Explanation
An internal error occurred.

User response
Check that the maintenance level of the CAE Server is compatible with the maintenance level of the CAE Agent. If they are compatible, contact customer support.

CQMC0409E RecordType recordTypeCode not handled for list processing

Explanation
An internal error occurred.

User response
Check that the maintenance level of the CAE Server is compatible with the maintenance level of the CAE Agent. If they are compatible, contact customer support.

CQMC0410E Mutex init failed

Explanation
An internal error occurred.

User response
Contact customer support.

CQMC0411E Failed to get lock during environment processing

Explanation
An internal error occurred.

User response
Contact customer support.

CQMC0412E Failed to release lock during environment processing

Explanation
An internal error occurred.

User response
Contact customer support.

CQMC0413E Too many environments in use. Limit is limit

Explanation
Too many requests for data from the CQM Collector were active at the same time.

User response
If large numbers of users are making requests for a very large amount of data at the same time, consider using the DB2 offload facility for some of these kinds of requests. If the problem persists, restart the CAE Agent. If the problem continues to interfere with use of the product, contact customer support.
CQMC0414E Failed to set up environment for CQM_SSID with return code ReturnCode

Explanation
There was a problem initiating a conversation with the CQM collector identified with CQM_SSID.

User response
Confirm whether that collector is active. If the CQM collector is active when this message occurs, contact customer support.

CQMC0415I New environment for CQM_SSID. Persistent area memoryLocation, main address memoryLocation. Environment count count

Explanation
A new communication channel has been initialized to the CQM collector CQM_SSID. For each collector there will be one communication channel for each concurrently active data request to a given CQM collector, plus one for alert collection

User response
No response necessary.

CQMC0416E COMMUNICATION ERROR SENDING QBLK -1

Explanation
This error occurs when the CAE Agent is unable to send data to the CAE Server. This will usually be due to some network problem between the CAE Agent and the CAE Server. The problem can also occur if the CAE Server is unable to process data from the CAE Agent (for example if it is out of memory, or if the CAE Server has been shut down).

User response
1. Check with the network administrators that the network connection is healthy between the CAE Agent and the CAE Server.
2. Check that the CAE Server is still running.
3. Check the log of the CAE Server for OutOfMemory errors. If the CAE Server log contains OutOfMemoryErrors, restart the CAE Server. If the memory problems recur, contact customer support.

CQMC0510I Received console stop. Exiting

Explanation
The CAE Agent has been sent a stop command from the console and is exiting.

User response
No response necessary.

CQMC0511I Received modify request requestString

Explanation
The CAE Agent was sent a modify command from the console.

User response
No response necessary.

CQMC0512I Unknown modify string %s. Ignoring.

Explanation
The CAE Agent was sent a modify command from the console, but the contents of that command were not recognized by the CAE Agent.

User response
Correct the contents of the modify command and reissue the command.

CQMC0513I Unknown console command %d with string %s

Explanation
The CAE Agent was sent a command from the console, but the command was not recognized by the CAE Agent.
User response
Correct the contents of the command and reissue the command.

CQMC601E Configuration Name name exists in group group. Please choose a different name.

Explanation
You attempted to create a shared configuration in a group that already had a configuration with the same name.

User response
Choose a new name for the shared configuration.

CQMC602E Configuration Name name has been deleted from group. Please refresh your configuration lists.

Explanation
You attempted to use a shared configuration, but that configuration had been deleted by another user.

User response
Use the menu choice Tools > Refresh Configuration Lists to refresh the lists of configurations visible in the web client.

CQMC701E Baseline is no longer valid: reason

Explanation
The following are the reasons that the baseline may no longer be valid:
• The CAE can no longer retrieve data from a given source/target
• One or more of the intervals defined in the baseline has been removed.

User response
If the problem is with the source/target, the user should make that source/target available if possible. If the problem is with intervals, the user should see if the missing intervals can be restored. If neither of these responses are available to the user, they should edit the baseline to reflect currently available data, or not use that baseline.

CQMC0701E Unable to allocate byteCount bytes in function for connection connectionId

Explanation
There is an out of memory condition in the CAE Agent that was detected in function during processing for the connection connectionId.

User response
Take a dump of the CAE Agent address space, then recycle the CAE Agent Address Space. Provide to IBM customer support: that dump, along with the JES output of the job and a description of what use was being made of the CAE Agent at the time.

CQMC0800E FAILED TO ALLOCATE INTERNAL READER errorMessage

Explanation
The CAE Agent was unable to allocate a reader when submitting a job (via a “Command Action” with a script of type “CQM JCL”).

User response
Check that the CAE Agent address space has the proper RACF authority to submit jobs. Check that the CAE Agent steplibs are APF Authorized. Review the errorMessage for other information that might explain the problem.

CQMC0801E FAILED TO SUBMIT THE JOB

Explanation
The CAE Agent was unable to allocate a reader when submitting a job (via a “Command Action” with a script of type “CQM JCL”).

User response
Check that the CAE Agent address space has the proper RACF authority to submit jobs. Check that the CAE Agent steplibs are APF Authorized. Check the “Action History” in the “Action Console” of the CAE Client to find the action that failed (there should be one with an “Error Log” from about the time of this message) and check that the JCL was well formed.

CQMC0802E FAILED TO INITIALIZE JOB OUTPUT BUFFER

Explanation
The CAE Agent was unable to initialize the output buffer to retrieve job output when submitting a job.
User response
Check that the CAE Agent address space has the proper RACF authority to submit jobs. Check that the CAE Agent steplibs are APF Authorized.

CQMC0803E SYSOUT API CALL FAILURE RC RETURN CODE, SSOB RC SSOB RETURN CODE

Explanation
An error was received attempting to retrieve output from a job submitted by the CAE Agent.

User response
Check that the CAE Agent address space has the proper RACF authority to submit jobs. Check that the CAE Agent steplibs are APF Authorized. Check that there are no problems with the JES.

CQMC0803I primary/backup server (address:port) was turned off, connected to backup/primary server (address:port)

Explanation:
The CAE Server indicated in the message was turned off and connected to the backup or primary CAE Server (as indicated in the message).

User response:
No action is required.

CQMC0804E FAILED TO APPEND TO JOB OUTPUT BUFFER

Explanation
The CAE Agent was unable to capture some of the output from a job it submitted.

User response
Report the problem to customer support.

CQMC0805E sapi alloc error: %s

Explanation
Failed to allocate the Sysout API.

User response
Report the problem to customer support.

CQMC0903I CQMC0903I Build version versionString build buildNumber. (build timestamp)

Explanation
Version number, build number, and build timestamp information.

User response
No response necessary.

CQMC0904I Unable to bind to address:port.

Explanation
The CAE Agent was unable to listen at the specified port at the specified address. The CAE Agent will then try the next port.

User response
If the message is followed by a CQMC0905I, then no user response is necessary. If, instead there is a CQMC0001E, then follow the instructions for that message.

CQMC0905I TCP error message

Explanation
The CAE Agent indicated in the message was unable to listen at the specified port at the specified address. The CAE Agent will then try the next port.

User response
If this message is followed by message CQMC0906I, then no user response is required. If this message is followed by message CQMC0001E, then follow the instructions for that message. Also look up the documentation for the underlying TCP error message for information on how to address the bind errors.

CQMC0906I LISTENING ON PORT port, ADDRESSES addresses

Explanation
The CAE Agent has successfully started listening for incoming connections on the specified port at the specified I addresses.

User response
No response necessary.

CQMC0907E bad command command

Explanation
The z/OS console reject the command command from a CAE action as not being a valid command.
User response
Check the action that issued the command, and make sure the command is correctly entered in that action.

**CQMC0908E MCSOPER failure retcode=retcode reasoncode=reasoncode**

**Explanation**
There was a problem trying to create an MCS console to issue an operator command for a CAE action.

**User response**
Check that the system has sufficient resources to create a new MCS console. In addition, confirm that the authid of the CAE Agent has sufficient authority to create a new MCS console. If resources and authority are both sufficient, then contact customer support.

**CQMC0909E MGCRE failure retcode=retcode reasoncode=reasoncode**

**Explanation**
An operator command issued by a CAE action has failed to execute.

**User response**
Check that the system has sufficient resources to execute that command. For example, if the command was to start an address space, ensure the system has the resources to start an address space. In addition, confirm that the authid of the CAE Agent has sufficient authority to issue this command. If resources and authority are both sufficient, then contact customer support.

**CQMC0910E MCSOPMSG failure retcode=retcode reasoncode=reasoncode**

**Explanation**
The CAE has issued an operator command (as an “Action”), but has failed to retrieve the output in a timely manner.

**User response**
Call customer support, and supply the CAE Agent JES output and the CAE Server logs that include the time when the error occurred.

**CQMC0911E Timed out waiting for response for operator-command**

**Explanation**
The CAE has issued an operator command (as an “Action”), but has failed to retrieve the output in a timely manner.

**User response**
Check that the system has sufficient resources to execute that command. For example, if the command was to start an address space, ensure the system has the resources to start an address space. In addition, confirm that the authid of the CAE Agent has sufficient authority to issue this command. If resources and authority are both sufficient, then contact customer support.

**CQMC0920E BAD LISTENER ADDRESS address: address-resolution-error**

**Explanation**
The listener address address-resolution-error is not a valid network address to use for binding a listener socket.

**User response**
Make sure that the LISTENER_ADDRESSES parameter in CQMCPRMS is correctly configured and restart the CAE Agent. The error message tcperror should provide some clues as to what was wrong with the specific listener address.

**CQMC0921E FAILED TO CREATE SOCKET ON PORT port_number**

**Explanation**
The CAE Agent was unable to bind a listener socket to listen for connections from the CAE Server.

**User response**
Check that the port number is not already in use. Check that there are no restrictions (such as port list restrictions) that prevent the CAE Agent from listening on the port. This message should be followed with a tcperror message that should provide more details.

**CQMC0922E FAILED TO SET OPTIONS ON SOCKET socket_descriptor. ERROR return_code**

**Explanation**
The CAE Agent was unable to complete the initialization of the listener socket to receive connections from the CAE Server.

**User response**
The message should be followed by tcperror output that should provide more detail on the nature of the error. If you are unable to determine the correct...
response from this information, contact customer support and supply the CAE Agent JES output.

CQMC0950E  FAILED TO LOAD FUNCTION
  function_name

**Explanation**

The ISPF datasharing-group code was unable to load the function `function_name`

**User response**

Contact customer support.

CQMC0951E  Virtual storage was not obtained
  because reason-message

**Explanation**

The ISPF datasharing-group was unable to allocate sufficient memory to satisfy a user request

**User response**

Try to reduce the size of the response. For example, use filtering to reduce the size of the result set. In Activity Summaries, try to narrow the result set by using different drill downs. Perhaps use fewer intervals, if possible. If you really need a particular result set you may have to increase the TSO region size. If none of these measures can meet your needs, then contact customer support, and try to provide a description of exactly the kind of request you are making, with some indication of the expected size of the result set. Please also include a screenshot that shows the failed request.

CQMC1001E  CQM_VAR_HOME must be defined
  in the STDENV DD statement.

**Explanation**

CQM_VAR_HOME is not defined in the STDENV DD statement.

**User response**

Specify the appropriate CQM_VAR_HOME path in the STDENV DD statement. This path should indicate the HFS or ZFS directory where the configuration and data files from the CQMCXPXF are to be unpaxed to. This must match the CQM_VAR_HOME in the CQMCAESV PROC JCL (STDENV DD statement).

CQMC1002E  CQM_VAR_HOME value value does not exist

**Explanation**

The value specified for CQM_VAR_HOME does not exist.

**User response**

The CQM_VAR_HOME directory must be mounted read/write (including when the CAE Server is running) and all of its contents must be writable by the started task of the CAE Server. We recommend that all the files in the CQM_VAR_HOME directory be owned by the userid of the CAE Server. The CQM_VAR_HOME directory must have at least 250 MB of available space.

CQMC1003E  Errors found in configuration of
  STDENV variables. Exiting.

**Explanation**

There are errors in the STDENV variable definitions.

**User response**

Check your JCL to ensure the STDENV DD variables have been specified according to the restrictions cited in the CQMCUNPX or CQMCUPPT member.

CQMC1004E  CQMUNPX has already been run. If
  you want to overwrite all
  maintenance, use
  CQM_FORCE_UNPAX=Y

**Explanation**

You are attempting to run CQMUNPX and it has already been run.

**User response**

If you would like to re-run CQMUNPX and rewrite all the files in CQM_VAR_HOME (for example, if you want to restore to a previous maintenance level), add the CQM_FORCE_UNPAX=Y statement to CQMUNPX and resubmit the job.

CQMC1020E  CQMCUNPX has not been run. You
  must run CQMCUNPX first.

**Explanation**

You are attempting to run maintenance before installing the base files. You must first run the base unpax job, CQMCUNPX.

**User response**

Edit and run SCQMSAMP member CQMCUNPX according to the instructions in the member.
CQMC1021E CQM_CAE_CFG_PAX_PTF must be defined in the STDENV DD Statement

Explanation

CQM_CAE_CFG_PAX_PTF is not defined in the STDENV DD statement of CQMCUPPT.

User response

Edit CQMCUPPT so that CQM_CAE_CFG_PAX_PTF defines the data set and member.

CQMC1022E CQM_CAE_CFG_PAX must be defined in the STDENV DD Statement

Explanation

CQM_CAE_CFG_PAX is not defined in the STDENV DD statement of CQMCUNPX.

User response

Edit CQMCUNPX so that CQM_CAE_CFG_PAX defines the data set and member.

CQMC1030E Primary owner of files in CQM_VAR_HOME is user1 which differs from current user user2. Exiting.

Explanation

The migration job was started by user2 and this user does not own the files for the migration from CQM_VAR_HOME. This can cause unpredictable behavior when the new CAE Server is started because the CAE Server might not be able to access existing files or create new files.

User response

Either run the migration job under the same user used for running the CAE Server (recommended) or set the environment variable CQMMGRT_DISABLE_UID_CHK to TRUE to ignore the verification.

Note: Using the environment variable to ignore verification might result in files not being available for the CAE Server.

CQMC1031E The directory directory is not valid CQM_VAR_HOME that has been used by a CAE Server. Exiting.

Explanation

File Query+Monitor.wan does not exist in CQM_VAR_HOME. This might indicate that the CAE Server was never started from CQM_VAR_HOME.

User response

If CQM_VAR_HOME is the correct directory, then to complete migration set CQMMGRT_DISABLE_UID_CHK to TRUE. Ensure that you run the job under the same user that runs the CAE Server.

CQMC1032E Old certificate is incompatible with current CAE Server maintenance. Skipping. New certificate may be required.

Explanation

The certificate that you migrated or imported uses encryption algorithms no longer supported by all web browsers.

User response

Unless you obtain a new certificate, the CAE Server will use a default self-signed certificate that will result in error messages in your users' web browsers. To resolve this issue you should obtain a new certificate from your network security organization.

CQMC1033E Keystore import error error. Unable to add file file. Leaving in place

Explanation

Unexpected error error occurred during importing certificate(s) from file file.

User response

No action is required.

CQMC1034E Duplicate alias. file already exists. Skipping.

Explanation

Db2 Query Monitor is not able to import the certificate from file file because the keystore already has a certificate with that alias name.

User response

If you want to override the existing certificate with the alias name file in the keystore, you must add the variable CQM_CAE_TRUSTSTORE_OVERRIDE=Y to STDENV DD of the CQMICERT job. If you want to...
import the certificate from the file file with another alias name, you must choose another name for the file.

**CQMC2005E**  CAE SERVER ERROR

**Explanation**
An internal error has occurred on the CAE Server.

**User response**
Contact IBM Software Support. If possible, please provide:
- a screenshot of the CAE Browser Client showing the context of the error
- the CAE Server log that covers the time of the error
- the JES output from any CAE Agent that was involved

**CQMC2500E**  Abend S0C4-00000004 during query for data source source; access type accesstype; Effective User ID: id QM Subsystem name: qmid DB2 ssid: ssid

**Explanation**
An abend occurred in the CAE Agent during a call to retrieve data from Query Monitor subsystem qmid

**User response**
If this message is preceded by either a CQMC0209E or CQMC0414E, then address those messages first. If the problem occurs without being preceded by CQMC0209E or CQMC0414E, then contact customer support.

**CQMC2501E**  No agent found because: message

**Explanation**
The request failed because the request was unable to find a CAE Agent that could satisfy the request.

**User response**
Ensure that there is a CAE Agent running on each LPAR that has members of the currently selected data sharing group.

**CQMC2502E**  general CAE Agent error

**Explanation:**
A general error has occurred as described in the message.

**User response:**
Use the information in the message to diagnose and resolve the issue. If needed, Contact IBM Software Support for assistance.

Note that possible instances of the CQMC2502E message are as follows:
- CQMC2502E CAE Agent: AUTHORIZATION FAILED. Error from ssid at address. Function code code. Return Code = rc Reason Code = rs

For this instance, the explanation and user response would be:

**Explanation:** Authorization failed. A possible cause for this error could be that the userid under which the CAE Agent address space runs does not have read access to the Query Monitor Subsystem that users are trying to use.

**User Response:** Verify that the userid under which the CAE Agent address space is running has read access to the Query Monitor Subsystem users are going to get information from. For example CQM.ACCESS.**

Contact IBM Software Support if this is not the message you receive or you need additional information.

**CQMC2503E**  Unexpected Exception message

**Explanation**
The request to the remote agent failed to complete due to an unexpected error. The message will give more details on the nature of the error.

**User response**
Check that the CAE Agent has not stopped on any of the LPARS with members in the currently selected data sharing group. Check that there are no network problems between the CAE Server and any of the LPARS with members in the currently selected data sharing group. If all necessary CAE Agents are running and there are no network problems, contact customer support. Provide a screenshot of the panel showing the error, and provide the CAE Server log and all CAE Agent logs.

**CQMC2504E**  IO Error talking to remote agent: rmessage

**Explanation**
The request to the remote agent failed to complete due to an IO error between the CAE Server and the CAE Agent. The message will give more details on the nature of the IO error.

**User response**
Check that the CAE Agent has not stopped on any of the LPARS with members in the currently selected data sharing group.
data sharing group. Check that there are no network problems between the CAE Server and any of the LPARS with members in the currently selected data sharing group. If all necessary CAE Agents are running and there are no network problems, contact customer support. Provide a screenshot of the panel showing the error, and provide the CAE Server log and all CAE Agent logs.

**CQMC2505E**  IO Error retrieving data : message

**Explanation**
The request to the remote agent failed to complete due to an IO error between the CAE Server and the CAE Agent. The message will give more details on the nature of the IO error.

**User response**
Check that the CAE Agent has not stopped on any of the LPARS with members in the currently selected data sharing group. Check that there are no network problems between the CAE Server and any of the LPARS with members in the currently selected data sharing group. If all necessary CAE Agents are running and there are no network problems, contact customer support. Provide a screenshot of the panel showing the error, and provide the CAE Server log and all CAE Agent logs.

**CQMC2506E**  info is no longer available

**Explanation**
One user removed a filter, archive connection, baseline, etc. but another user tried to use the removed item at the same time. The info identifies the filter, archive connection, baseline, etc.

**User response**
User should exclude that configuration from request or recreate new.


**Explanation**
You attempted to select an inconsistent CAE Server for ISPF view of data sharing group.

**User response**
Select a CAE Server that is consistent with the ISPF client.

**CQMC2508E**  Exception during authentication

**Explanation**
The CAE Server can not get access to internal database in order to check authentication.

**User response**
Ensure the jdbcPort for the CAE Server is not used by other processes. If there is conflict, then restart the CAE Server with a different jdbcPort.

**CQMC2510E**  Incorrect Offload Format

**Explanation**
You attempted to use the old offload format.

**User response**
Use the current offload format.

**CQMC2513E**  An SQL error occurred while scheduling host variable collection

**Explanation**
The request to the containing the staging tables failed to complete due to an unexpected SQL error. The message provides details about the error.

**User response**
Check that the user has all the necessary access rights to modify the staging tables. Check that the staging tables are not corrupted or altered in any way. Check that the DB2 is up and running and its configuration is correct.

**CQMC2520W**  Incomplete results. Successful list. Failed list. Reason: details

**Explanation**
A data request was made to obtain data from multiple members of a data sharing group. The result set that was returned contained the requested data from the members in the successful list, but data could not be gathered from members in the failed list. The error from the first failing member is indicated at the end of the message.

**User response**
The most appropriate response depends on the reason shown in the message. For example, the most common error is that one of the requests ran out of memory, so the most common message might be:

481,626,000 bytes, which exceeded available memory 445,694,232 bytes on the server.

In this case, the possible responses might be to increase available memory to the CAE Server or to reduce the size of the request (by specifying some kind of filtering or by reducing the number of intervals requested).

Alternatively, if the reason indicates an ABEND, for example:

**CQMC2520W: INCOMPLETE RESULTS. SUCCESSFUL DB2S: DB2A, DB2B, DB2C, DB2D, DB2E. FAILED DB2S: DB2A. REASON: Abend S0C4-00000011 during query for datasource 0 (Unknown code); access type 0 (Unknown Access Type); Effective User ID: userid. QM Subsystem name: qmsssid ssid: DB2A**

Then you should attempt to reproduce the problem and send the SVC dump to IBM Software Support.

If you receive other messages or reasons you cannot resolve, contact IBM Software Support and provide the CAE Server log and the JES output for the CAE Agent that is providing access to the first of the FAILED DB2s.

**CQMC2540W**

*Staging tables using connection url1 are not in the monitored database url2. Therefore EXPLAIN information cannot be gathered for any static SQL in this workload.*

**Explanation**

EXPLAIN information cannot be gathered for any static SQL in the workload. The staging tables using the indicated connection are not in the monitored database.

**User response**

No action is required.

**CQMC2541E**

*Only number_successful of number_total queries have been inserted to staging tables.*

**Explanation**

The transaction log is full.

**User response**

If you are running the CAE Server on Windows, decrease the value of the com.rocketsoft.nm.qm.ipc.oqwt.OQWTJdbcWriter.commitInterval parameter. If you are running the CAE Server on USS, decrease the value of the CQM_OQWT_COMMIT_INTERVAL parameter.

**CQMC3000E**

*INTERNAL ERROR: error*

**Explanation**

An internal error has occurred.

**User response**

Contact IBM Software Support.

**CQMC3003I**

*LOADED CQMEOAPI AT address*

**Explanation**

CQMEOAPI has loaded.

**User response**

No action is required.

**CQMC3004W**

*STATIC STATEMENT id IN WORKLOAD id DOESN'T HAVE A STMT_ID, IGNORING*

**Explanation**

There are data validation errors in the staging table.

**User response**

The workload might have been corrupted or there might have been a problem with the query tuning client. Contact IBM Software Support.

**CQMC3005W**

*TEXT TOKEN IS NULL FOR A DYNAMIC STATEMENT id IN WL id, IGNORING*

**Explanation**

There are data validation errors in the staging table.

**User response**

The workload might have been corrupted or there might have been a problem with the query tuning client. Contact IBM Software Support.

**CQMC3006W**

*INVALID STATEMENT id IN WORKLOAD id: COLLECTALL IS FALSE AND HV COUNT IS ZERO, IGNORING*

**Explanation**

There are data validation errors in the staging table.

**User response**

The workload might have been corrupted or there might have been a problem with the query tuning client. Contact IBM Software Support.
CQMC3007W  SAMPLING RE-REQUESTED FOR WORKLOAD id WITHOUT CANCELLING IT FIRST, IGNORING

Explanation
There are data validation errors in the staging table.

User response
The workload might have been corrupted or there might have been a problem with the query tuning client. Contact IBM Software Support.

CQMC3008W  TRYING TO CANCEL AN UNKNOWN WORKLOAD id, IGNORING

Explanation
There are data validation errors in the staging table.

User response
The workload might have been corrupted or there might have been a problem with the query tuning client. Contact IBM Software Support.

CQMC3009E  PROBLEM ALLOCATING THE METADATA XML OBJECT

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3010E  PROBLEM CREATING THE METADATA XML OBJECT

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3011E  PROBLEM UPDATING THE STATEMENTS'S METADATA XML

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3012E  DB2 CONNECT FAILED, FN fn, RC rc, REASON reasoncode : error message

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3013E  DB2 CONNECT FAILED, SQL ERROR: dsntiar

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3015E  COULD NOT WRITE WORKLOAD id

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3016E  COULD NOT NOTE WORKLOAD CANCELLED, WORKLOAD id

Explanation
A DB2 connection error has occurred.
User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3017E  COULD NOT REPORT FAILURE, WORKLOAD id

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3018E  COULD NOT REPORT COLLECTION IN PROGRESS, WORKLOAD id

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3020E  DB2 DISCONNECT FAILED, FN fn, RC rc, REASON reasoncode : error message

Explanation
A DB2 connection error has occurred.

User response
Check that the staging table DB2 is up and running, the user has sufficient permissions, the extended optimization package is bound, and ensure that the staging tables are not corrupted.

CQMC3021E  CHECKING QUEUE FAILED FOR DB2 ssid, RC rc: errormessage

Explanation
Collector communication errors have occurred.

User response
Verify that the collector and the monitored DB2 are up and running and correctly configured.

CQMC3023I  'COLLECT ALL VARS' SAMPLING REQUESTED FOR number STATEMENTS WITH NO HOST VARS

Explanation
You have requested host variable sampling for statements with no host variables. This report summarizes what Db2 Query Monitor could not do.

User response
No action is required.

CQMC3024I  EO STARTED FOR DB2 ssid

Explanation
The message indicates that host variable started for the DB2 shown.

User response
No action is required.

CQMC3025I  EO STOPPED FOR DB2 ssid

Explanation
The message indicates that host variable collection stopped for the DB2 subsystem shown.

User response
No action is required.

CQMC3026W  FREE_DATA FAILED, RC rc errormessage

Explanation
Collector communication errors have occurred.

User response
Verify that the collector and the monitored DB2 subsystems are up and running and are correctly configured.

CQMC3028W  PREVIOUS EO SESSION DIDN'T DETACH THE QM MEMOBJ FOR DB2 ssid, DETACHING...

Explanation
The CAE Agent has detected that another instance of the CAE Agent that did not shut down correctly, leaving host variable collection enabled.
User response
Investigate the reasons why the CAE Agent was not terminated correctly.

**CQMC3029E** DETACH FAILED FOR DB2 ssid: errormessage

**Explanation**
Collector communication errors have occurred.

**User response**
Verify that the collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3030E** REPEATED ATTACH FAILED FOR DB2 ssid: errormessage

**Explanation**
Collector communication errors have occurred.

**User response**
Verify that the collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3031E** ATTACH FAILED FOR DB2 ssid: errormessage

**Explanation**
Collector communication errors have occurred.

**User response**
Verify that the collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3032W** CLEANING UP AN ORPHANED STATEMENT AT address FROM AN EARLIER EO SESSION

**Explanation**
The CAE Agent has detected that another instance of the CAE Agent that did not shut down correctly, leaving host variable collection enabled.

**User response**
Investigate the reasons why the CAE Agent was not terminated correctly.

**CQMC3033E** CAN'T START SAMPLING, INVALID STATE, DB2 ssid: error

**Explanation**
A Db2 Data Access Common Collector communication error occurred.

**User response**
Verify that the Db2 Data Access Common Collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3034W** PAUSING EO FAILED FOR DB2 ssid: error

**Explanation**
A Db2 Data Access Common Collector communication error occurred.

**User response**
Verify that the Db2 Data Access Common Collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3035W** CLEANING UP EO MEMOBJ FAILED FOR DB2 ssid: error

**Explanation**
A Db2 Data Access Common Collector communication error occurred.

**User response**
Verify that the Db2 Data Access Common Collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3036W** PREVIOUS EO SESSION DIDN'T CLEAN UP THE EO MEMOBJ FOR DB2 ssid, STOPPING AND CLEANING UP

**Explanation**
The CAE Agent has detected that another instance of the CAE Agent that did not shut down correctly, leaving host variable collection enabled.

**User response**
Investigate the reasons why the CAE Agent was not terminated correctly.

**CQMC3037W** STOP FAILED FOR DB2 ssid: error

**Explanation**
A Db2 Data Access Common Collector communication error occurred.
Verify that the Db2 Data Access Common Collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3038W**  
CLEANUP FAILED FOR DB2 ssid: **error**

**Explanation**
A Db2 Data Access Common Collector communication error occurred.

**User response**
Verify that the Db2 Data Access Common Collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3039E**  
REPEATED INIT FAILED FOR DB2 ssid: **error**

**Explanation**
A Db2 Data Access Common Collector communication error occurred.

**User response**
Verify that the Db2 Data Access Common Collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3040E**  
CREATING EO MEMOBJ FAILED FOR DB2 ssid: **error**

**Explanation**
A Db2 Data Access Common Collector communication error occurred.

**User response**
Verify that the Db2 Data Access Common Collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3042E**  
STARTING EO FAILED FOR DB2 ssid: **error**

**Explanation**
A Db2 Data Access Common Collector communication error occurred.

**User response**
Verify that the Db2 Data Access Common Collector and the monitored DB2 subsystems are up and running and correctly configured.

**CQMC3045W**  
DETACH QM MEMORY FAILED FOR DB2 ssid: **error**

**Explanation**
The CAE Agent has detected that another instance of the CAE Agent that did not shut down correctly, leaving host variable collection enabled.

**User response**
Investigate the reasons why the CAE Agent was not terminated correctly.

**CQMC3100W**  
INTERNAL ERROR: **error**

**Explanation**
An internal error has occurred.

**User response**
Contact IBM Software Support.

**CQMC9901E**  
Error. Server cannot run with Java version **required_version**. CAE Server will not start.

**Explanation**
The Java version specified for the CQM_JAVA parameter is not a supported version.

**User response**
Verify that the correct version of Java is installed and that the CQM_JAVA parameter defined for the CAE Server STDEVN DD statement specifies the correct version. For more information, see “CAE requirements” on page 29 and “CAE Server parameters - CQMCAESV - USS” on page 542.

**CQMC9902E**  
Note: Sever was tested with Java test_version (A Java with version specified_version was specified by CQM_JAVA=cqm_java).

**Explanation**
You specified a Java that has a version number higher than the version that was used to test the CAE Server.

**User response**
Verify that the correct version of Java is installed and that the CQM_JAVA parameter defined for the CAE Server STDEVN DD statement specifies the correct version. For more information, see “CAE requirements” on page 29 and “CAE Server parameters - CQMCAESV - USS” on page 542.
Tools Customizer messages

Use the information in these messages to help you diagnose and solve Tools Customizer problems.

**CCQB000I** The product parameter data was saved in the data store.

**Explanation:**
Changes that were made to the product parameters were saved in the data store.

**System action:**
None.

**User response:**
No action is required.

**CCQB001I** The DB2 parameter data was saved in the data store.

**Explanation:**
Changes that were made to the Db2 parameters were saved in the data store.

**System action:**
None.

**User response:**
No action is required.

**CCQB002I** The LPAR parameter data was saved in the data store.

**Explanation:**
Changes that were made to the LPAR parameters were saved in the data store.

**System action:**
None.

**User response:**
No action is required.

**CCQB003E** At least one step must be selected in a selected task. The selected task is task_description.

**Explanation:**
When a task is selected, at least one step must be selected. A selected step is missing from the specified task.

**System action:**
Processing stops.

**User response:**
Select a step in the specified task or deselect the task.

**CCQB004I** The required information to run the Discover EXEC was saved in the data store.

**Explanation:**
The data store contains all the information that is required to run the Discover EXEC.

**System action:**
None.

**CCQB005E** The conflicting values for the parameter_name parameter must be resolved before the information can be saved.

**Explanation:**
Two values for one parameter conflict with each other, and they must be resolved to save the information.

**System action:**
Processing stops.

**User response:**
Resolve the conflicting values for the parameter.

**CCQB006E** One row must be selected.

**Explanation:**
One row in the table must be selected.

**System action:**
Processing stops.

**User response:**
Select one row.

**CCQB007E** Only one row can be selected.

**Explanation:**
Multiple rows in the table are selected, but only one row is allowed to be selected.

**System action:**
Processing stops.

**User response:**
Select only one row.

**CCQC000I** The jobs have been customized on the selected DB2 entries.

**Explanation:**
The jobs were customized on the Db2 entries that were selected.

**System action:**
None.

**User response:**
Press Enter to clear the message.

**CCQC001W** The jobs were not generated on one or more of the selected DB2 entries. Press PF3 to check the Db2 entries that were not customized.

**Explanation:**
The product was not customized on one or more of the Db2 entries that were selected.

**System action:**

---

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User response:
Press PF3 to see the Db2 entries on which the product was not customized. The status of these Db2 entries is Errors in Customization.

CCQC002I The edit session was started automatically because values for required parameters are missing or must be verified.

Explanation:
If product, LPAR parameters, or Db2 parameters are not defined or if parameter definitions must be verified, an editing session for the undefined or unverified parameters starts automatically.

System action:
None.

User response:
Define values for all required product, LPAR parameters, or Db2 parameters.

CCQC003W The template_name template in the library_name metadata library does not contain any parameters.

Explanation:
The specified template does not have parameters.

System action:
None.

User response:
No action is required.

CCQC004S The value of the "type" attribute for the template_name template in the library_name metadata library does not match the value that was previously specified. The value is value_name, and the previously specified value is value_name.

Explanation:
The value of the "type" attribute must match the value that was previously specified.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQC005S The template_name template exceeds the number of allowed templates for a customization sequence. The template is in the library_name metadata library.

Explanation:
The customization sequence can process only number templates. The specified template cannot be processed because the customization sequence already contains the maximum number of templates.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQC006E The jobs could not be generated for the group_attach_name Db2 group attach name.

Explanation:
The customization jobs could not be generated for the specified Db2 group attach name.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQC007E The jobs could not be generated for the subsystem_ID Db2 subsystem.

Explanation:
The customization jobs could not be generated for the specified Db2 subsystem.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQC008E The jobs could not be generated for the member_name Db2 member.

Explanation:
The customization jobs could not be generated for the specified Db2 member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQC009S The jobs were not generated for the DB2 entries.

Explanation:
One or more errors occurred while customization jobs were being generated for the selected Db2 entries.

System action:
Processing stops.
User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQC010S  The template_name template could not be accessed in the library_name metadata library.

Explanation:
The specified template could not be accessed because the user does not have RACF access to the data set, the data set has incorrect data characteristics, or the data set is not cataloged.

System action:
Processing stops.

User response:
Ensure that you have RACF access to the data set, that the characteristics are correct according to the specifications of the product that you are customizing, and that the data set is cataloged. If the problem persists, contact IBM Software Support.

CCQC011S  The template_name template could not be written to the library_name customization library.

Explanation:
The specified template could not be accessed because the user does not have RACF access to the data set, the data set has incorrect data characteristics, or the data set is not cataloged.

System action:
Processing stops.

User response:
Ensure that you have RACF access to the data set, that the characteristics are correct according to the specifications of the product that you are customizing, and that the data set is cataloged. If the problem persists, contact IBM Software Support.

CCQC012W  The job card was generated with default values because the JOB keyword was missing.

Explanation:
Default values were used to generate the job card because the JOB keyword was not specified in the first line of the job card.

System action:
The job card was generated with default values.

User response:
No action is required. To generate the job card with your own values, add the JOB keyword in the first line of the job card.

CCQC013W  The job card was generated with the default value for the programmer name because the specified programmer name exceeded 20 characters.

Explanation:
Default values were used to generate the job card because the specified programmer name contained too many characters.

System action:
The job card was generated with default values.

User response:
No action is required. To generate the job card with your own values, add a valid programmer name in the job card. A valid programmer name is 1 - 20 characters.

CCQC014W  The job card was generated with default values because the JOB keyword was not followed by a space.

Explanation:
Default values were used to generate the job card because a space did not follow the JOB keyword.

System action:
The job card was generated with default values.

User response:
No action is required. To generate the job card with your own values, add a space after the JOB keyword in the job card.

CCQC015S  The template_name template in the library_name metadata library contains the following file-tailoring control statement: statement_name. This control statement is not valid in a template_type template.

Explanation:
The template_type template cannot contain the specified type of file-tailoring control statement.

System action:
The job card was generated with default values.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQC016S  The )DOT file-tailoring control statement exceeded the number of allowed occurrences for the template_name template in the library_name metadata library.

Explanation:
The )DOT file-tailoring control statement can occur only a limited number of times in the specified template.
CCQC017S  The nested )DOT file-tailoring control statements exceeded the number of allowed occurrences in the template_name template in the library_name metadata library.

Explanation: Nested )DOT file-tailoring control statements can occur only number times.

System action: Processing stops.


CCQC018S  The template_name template in the library_name metadata library is not valid because it does not contain any data.

Explanation: The specified template is missing required data.

System action: Processing stops.


CCQC019S  The template_name template in the library_name metadata library is not valid because an )ENDDOT file-tailoring control statement is missing.

Explanation: A )ENDDOT file-tailoring control statement is required in the specified template.

System action: Processing stops.


CCQC021S  The template_name template in the library_name metadata library is not valid because the template must start with the parameter_name job card parameter.

Explanation: The specified template must start with the specified job card parameter.

System action: Processing stops.


CCQC022S  The parameters used in a )DOT file-tailoring control statement exceeded the number of allowed parameters in the template_name template. The template is in the library_name metadata library. The error occurs in )DOT section section_number.

Explanation: A )DOT file-tailoring control statement can contain only a limited number of parameters.

System action: Processing stops.


CCQC023S  The )DOT file-tailoring control statement must include the table-name table name in the template_name template. The template is in the library_name metadata library. The error occurs in )DOT section section_number.

Explanation: The )DOT file-tailoring control statement is missing a required table name.

System action: Processing stops.


CCQC024S  ISPF file tailoring failed for the template_name template in the library_name metadata library.

Explanation: An error occurred during ISPF file tailoring for the specified template.

System action: Processing stops.

User response: Review the Tools Customizer-generated trace data set and the ISPF file tailoring trace data set. To create an
ISPF file tailoring trace data set, complete the following steps:

1. Run Tools Customizer until the error is about to occur.
2. Specify the ISPFTTRC command, and press Enter.
3. Issue the Tools Customizer command that issues the error.
4. Specify the ISPFTTRC command, and press Enter.

The ISPF file tailoring trace data set is created. It adheres to the following naming convention: 
TSO_ID.ISPFT.TRACE, where TSO_ID is the TSO user ID that is being used.

If the problem persists, gather the following information and contact IBM Software Support.

- A screen capture of the Tools Customizer error. Ensure that the complete error message is displayed by pressing PF1.
- The Tools Customizer trace data set. It adheres to the following naming convention: 
TSO_ID.CCQ.TRACE, where TSO_ID is the TSO user ID that is running Tools Customizer.
- The ISPF file tailoring trace data set.

CCQC025I  Customized jobs do not exist because they have not been generated.

Explanation: The list of customized jobs cannot be displayed because the product has not been customized for any Db2 entries.

System action: None.

User response: Complete the steps to customize a product. Customized jobs are generated when all required product, LPAR parameters, and Db2 parameters are defined and at least one Db2 entry on which to customize the product has been selected.

CCQC026S  The value of the "customized" attribute for the parameter_name parameter in the library_name metadata library template does not match the value that was previously specified. The value is value_name, and the previously specified value is value_name.

Explanation: The value for the "customized" attribute for a parameter must match the value that was previously specified.

System action: Processing stops.

User response:

CCQC027S  The job_name customization job was not found in the library_name customization library.

Explanation: The selected customization job does not exist in the customization library.

System action: Processing stops.

User response:

CCQC028S  The library_name customization library was not found.

Explanation: The customization library does not exist.

System action: Processing stops.

User response:

CCQC029I  The customization jobs were generated for Product_name.

Explanation: The customization jobs were generated for the specific product.

System action: None.

User response: No action is required.

CCQC030S  The customization jobs cannot be generated because at least one DB2 entry must be associated with this product.

Explanation: The product that you are customizing requires at least one Db2 entry to be associated with it before customization jobs can be generated.

System action: None.

User response: Associate a Db2 entry with the product that you are customizing, and regenerate the jobs.

CCQC031I  The jobs were generated for the associated DB2 entries.

Explanation:
The customization jobs were generated for the Db2 entries that are associated with the product.

**System action:**
None.

**User response:**
No action is required.

---

**CCQC032S** The customization jobs were not generated for Product_name.

**Explanation:**
A severe error occurred while the jobs were being generated for the specified product.

**System action:**
None.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQC033S** The customization_library_name has no customized jobs.

**Explanation:**
The specified customization library cannot be browsed or edited because it is empty.

**System action:**
None.

**User response:**
Generate customization jobs for the specified library, and browse or edit the library again.

---

**CCQC034S** The specified operation is not allowed.

**Explanation:**
Issuing commands against customization jobs from the customization library from an ISPF browse or edit session that was started on the Finish Product Customization panel is restricted.

**System action:**
None.

**User response:**
To make changes to customization jobs, follow the steps for recustomization.

---

**CCQC035E** Before you generate customization jobs, edit the product parameters to select one or more tasks or steps, and then issue the G line command or the GENERATEALL command again.

**Explanation:**
One or more tasks or steps must be selected before customization jobs can be generated.

**System action:**
None.

**User response:**
Edit the product parameters to select one or more tasks or steps. Then, issue the G line command or the GENERATEALL command again.

---

**CCQC036E** Before you exit the Product Parameters panel, you must select one or more tasks or steps to generate customization jobs or issue the CANCEL command.

**Explanation:**
One or more tasks or steps must be selected to generate customization jobs or the CANCEL command must be issued before you can exit the Product Parameters panel.

**System action:**
None.

**User response:**
Select one or more tasks or steps, or issue the CANCEL command.

---

**CCQC037W** The customization information was not found.

**Explanation:**
To use the JOBLIST command, the customization jobs must be regenerated by using the GENERATEALL command or the G line command.

**System action:**
None.

**User response:**
Issue the GENERATEALL command or the G line command to generate the customization jobs.

---

**CCQC038W** The customization information cannot be accessed because the customization_member customization member is being used.

**Explanation:**
The customization member that was specified on NNN is currently being used.

**System action:**
None.

**User response:**
Determine why the customization member is in use, release it, and redo the work.

---

**CCQC039I** The VERIFY/VERIFYOFF command is not active in Generate mode.

**Explanation:**
The VERIFY/VERIFYOFF command is not active in Generate mode because all values saved in Generate mode must already have been verified.
System action: None.

User response: No action is required.

**CCQD000W** The member_name environment index member is not valid. The PL/I XML parser issued the following exception warning code: code_number.

**Explanation:**
While determining if the specified environment index member is valid, the PL/I XML parser issued an exception warning code.

**System action:** Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the warning.

**CCQD001S** The member_name environment index member is not valid. The PL/I XML parser issued the following exception error code: code_number.

**Explanation:**
While determining if the specified environment index member is valid, the PL/I XML parser issued an exception error code.

**System action:** Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the error.

**CCQD002S** The XML structure of the member_name environment index member is not valid. The element_name element is unknown.

**Explanation:**
The specified environment index member contains an unknown element.

**System action:** Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD003S** The XML structure of the member_name environment index member is not valid. Content is not allowed for the element_name element, but content was found.

**Explanation:**
Content was found in an element that cannot contain content.

**System action:** Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD004S** The XML structure of the member_name environment index member is not valid. Content is required for the element_name element, but content was not found.

**Explanation:**
The specified element does not contain required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD005S** The XML structure of the member_name environment index member is not valid. The content length for the element_name element exceeds maximum_number characters.

**Explanation:**
The specified element contains too many characters.

**System action:** Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD006S** The XML structure of the member_name environment index member is not valid. The element_name element cannot occur more than maximum_number times.

**Explanation:**
The specified element occurs too many times in the environment index member.

**System action:** Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
**CCQD007S** The XML structure of the member_name environment index member is not valid. The element_name element must occur at least minimum_number times.

Explanation: The specified element does not occur enough times in the environment index member.

System action: Processing stops.


**CCQD008S** The XML structure of the member_name environment index member is not valid. The attribute_name attribute in the element_name element cannot occur more than maximum_number times.

Explanation: The specified attribute occurs too many times in the environment index member.

System action: Processing stops.


**CCQD009S** The XML structure of the member_name environment index member is not valid. The attribute_name attribute in the element_name element must occur at least minimum_number times.

Explanation: The specified attribute does not occur enough times in the environment index member.

System action: Processing stops.


**CCQD010S** The XML structure of the member_name environment index member is not valid. Content is not allowed for the attribute_name attribute in the element_name element, but content was found.

Explanation: Content was found in an attribute that cannot contain content. The name of the attribute and the name of the element that contains it are indicated in the message text.

System action: Processing stops.


**CCQD011S** The XML structure of the member_name environment index member is not valid. Content is required for the attribute_name attribute in the element_name element, but content was not found.

Explanation: An attribute does not contain required content. The name of the attribute and the name of the element that contains it are indicated in the message text.

System action: Processing stops.


**CCQD012S** The XML structure of the member_name environment index member is not valid. The content length for the element_name element exceeds maximum_number characters.

Explanation: An element contains too many characters. The name of the element and the maximum number of allowed characters are indicated in the message text.

System action: Processing stops.


**CCQD013S** The XML structure of the member_name environment index member is not valid. The attribute_name attribute in the element_name element is unknown.

Explanation: The environment index member contains an unknown attribute. The name of the unknown attribute and the name of the element that contains it are indicated in the message text.

System action: Processing stops.
User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD050S  The following LPAR serial number is duplicated in the environment index member: serial_number.

Explanation:
The environment index member contains duplicate LPAR serial numbers. The duplicate serial number is indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD051S  The following DB2 serial number is duplicated in the environment index member: serial_number.

Explanation:
The environment index member contains duplicate DB2 serial numbers. The duplicate serial number is indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD052S  The following DB2 group attach name is duplicated in the environment index member: group_attach_name.

Explanation:
The environment index member contains duplicate group attach names.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD053S  The reference to the following DB2 subsystem for a DB2 group attach name is duplicated in the environment index member: subsystem_ID.

Explanation:
The environment index member contains duplicate references to a DB2 subsystem for a DB2 group attach name.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD054S  The reference to the following DB2 subsystem for the LPAR_name LPAR is duplicated in the environment index member: subsystem_ID.

Explanation:
The environment index member contains duplicate references to a DB2 subsystem for an LPAR. The duplicate subsystem ID is indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD055S  The following DB2 group attach name was not found in the environment index member: group_attach_name.

Explanation:
A group attach name that is referenced by a DB2 member does not exist in the environment index member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD056S  The following LPAR was not found in the environment index member: LPAR_name.

Explanation:
The LPAR does not exist in the environment index member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD057S  The following LPAR is duplicated in the environment index member: LPAR_name.

Explanation:
The environment index member contains duplicate LPARs. The name of the duplicate LPAR name is indicated in the message text.

System action:
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD100W**

The **member_name** product index member is not valid. The PL/I XML parser issued the following exception warning code: **code_number**.

**Explanation:**
While determining if the product index member is valid, the PL/I XML parser issued the specified exception warning code.

**System action:**
Processing continues.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the specified exception warning code.

**CCQD101S**

The **member_name** product index member is not valid. The PL/I XML parser issued the following exception error code: **code_number**.

**Explanation:**
While determining if the product index member is valid, the PL/I XML parser issued the specified exception error code.

**System action:**
Processing continues.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the specified exception error code. Ensure that the Tools Customizer data store data set DCB is the same as the sample SCCQSAMP(CCQCDATS) data set DCB.

**CCQD102S**

The XML structure of the **member_name** product index member is not valid. The **element_name** element is unknown.

**Explanation:**
The specified product index member contains an unknown element.

**System action:**
Processing continues.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD103S**

The XML structure of the **member_name** product index member is not valid. Content is not allowed for the **element_name** element, but content was found.

**Explanation:**
Content was found for an element that cannot contain content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD104S**

The XML structure of the **member_name** product index member is not valid. Content is required for the **element_name** element, but content was not found.

**Explanation:**
The specified element does not contain required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD105S**

The XML structure of the **member_name** product index member is not valid. The content length for the **element_name** element exceeds **maximum_number** characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQD106S**

The XML structure of the **member_name** product index member is not valid. The **element_name** element cannot occur more than **maximum_number** times.

**Explanation:**
The specified element occurs too many times in the product index member.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQD107S** The XML structure of the 
*member_name* product index 
member is not valid. The 
*element_name* element must occur 
at least *minimum_number* times.

**Explanation:** 
The specified element does not occur enough times in 
the product index member.

**System action:** 
Processing stops.

**User response:** 
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQD108S** The XML structure of the 
*member_name* product index 
member is not valid. The 
*attribute_name* attribute in the 
*element_name* element cannot 
occur more than 
*maximum_number* times.

**Explanation:** 
An attribute occurs too many times. The name of the 
attribute and the element that contains it are indicated 
in the message text.

**System action:** 
Processing stops.

**User response:** 
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQD109S** The XML structure of the 
*member_name* product index 
member is not valid. The 
*attribute_name* attribute in the 
*element_name* element must occur 
at least *minimum_number* times.

**Explanation:** 
The specified attribute does not occur enough times in 
the product index member.

**System action:** 
Processing stops.

**User response:** 
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQD110S** The XML structure of the 
*member_name* product index 
member is not valid. Content is not 
allowed for the 
*attribute_name* attribute in the 
*element_name* element, but content was found.

**Explanation:** 
An attribute cannot contain content. The name of the 
attribute and the element that contains it are indicated 
in the message text.

**System action:** 
Processing stops.

**User response:** 
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQD111S** The XML structure of the 
*member_name* product index 
member is not valid. Content is 
required for the 
*attribute_name* attribute in the 
*element_name* element, but content was not 
found.

**Explanation:** 
An attribute requires content. The name of the 
attribute and the name of the element that contains it 
are indicated in the message text.

**System action:** 
Processing stops.

**User response:** 
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQD112S** The XML structure of the 
*member_name* product index 
member is not valid. The content 
length for the 
*element_name* element exceeds 
*maximum_number* characters.

**Explanation:** 
The specified element contains too many characters.

**System action:** 
Processing stops.

**User response:** 
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQD113S** The XML structure of the 
*member_name* product index 
member is not valid. The 
*attribute_name* attribute in the 
*element_name* element is unknown.

**Explanation:** 
The specified attribute in the product index member is 
unknown.

**System action:** 
Processing stops.

**User response:** 

See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD118S  The content of the member_name product index member is not valid. The configuration_ID configuration ID for the configuration-name configuration name is not unique.

Explaination:
The content of the member_name product index member is not valid. The configuration_ID configuration ID for the configuration-name configuration name is not unique.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD120S  The content of the member_name product index member is not valid. The pack ID pack_ID that is referenced by product prefix product_prefix in the metadata library library_name could not be found.

Explaination:
The specified pack ID could not be found in the metadata library.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD121I  The specified pack contains the component_name, which was previously specified as a stand-alone product.

Explaination:
The specified component of the pack was previously specified as a stand-alone product.

System action:
None.

User response:
No action is required.

CCQD122I  The specified component metadata library was previously specified as part of the pack_name.

Explaination:
The specified metadata library for the component was previously specified as part of a pack.

System action:
None.

User response:
No action is required.

CCQD123E  The customization library name library_name is being used by another product or component. Specify another customization library qualifier on the Tools Customizer Settings panel.

Explaination:
A different product or component is using the specified customization library.

System action:
None.

User response:
Specify another customization library qualifier on the Tools Customizer Settings panel.

CCQD124E  The customization library library_name is in use by another metadata library.

Explaination:
A different product or component is using the specified customization library. Specify another metadata library in the Workplace panel.

System action:
None.

User response:
Specify another customization library qualifier in the Tools Customizer Settings panel.

CCQD300W  The member_name product environment member is not valid. The PL/I XML parser issued the following exception warning code: code_number.

Explaination:
While determining if the product environment member is valid, the PL/I XML parser issued the specified exception warning code.

System action:
Processing continues.

User response:
See the Enterprise PL/I for z/OS Programming Guide for more information about the specified exception warning code.

CCQD301S  The member_name product environment member is not valid. The PL/I XML parser issued the following exception error code: code_number.

Explaination:
While determining if the product environment member is valid, the PL/I XML parser issued the specified exception error code.
System action:  
Processing stops.

User response:  
See the Enterprise PL/I for z/OS Programming Guide for more information about the specified exception error code.

CCQD302S  The XML structure of the member_name product environment member is not valid.  
The element_name element is unknown.

Explanation:  
The specified product environment member contains an unknown element.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQD303S  The XML structure of the member_name product environment member is not valid.  
Content is not allowed for the element_name element, but content was found.

Explanation:  
Content was found for an element that cannot contain content.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQD304S  The XML structure of the member_name product environment member is not valid.  
Content is required for the element_name element, but content was not found.

Explanation:  
The specified element does not contain required content.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQD305S  The XML structure of the member_name product environment member is not valid.  
The content length for the element_name element exceeds maximum_number characters.

Explanation:  
The specified element contains too many characters.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQD306S  The XML structure of the member_name product environment member is not valid.  
The element_name element cannot occur more than maximum_number times.

Explanation:  
The specified element occurs too many times in the product environment member.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQD307S  The XML structure of the member_name product environment member is not valid.  
The element_name element must occur at least minimum_number times.

Explanation:  
The specified element does not occur enough times in the product environment member.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQD308S  The XML structure of the member_name product environment member is not valid.  
The attribute_name attribute in the element_name element cannot occur more than maximum_number times.

Explanation:  
The specified attribute occurs too many times.  
The name of the attribute and the element that contains it are indicated in the message text.

System action:  
Processing stops.
User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQD309S The XML structure of the
member_name product
environment member is not valid.
The attribute_name attribute in the
element_name element must
occur at least minimum_number
times.

Explanation:
The specified attribute does not occur enough times in
the product environment member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQD310S The XML structure of the
member_name product
environment member is not valid.
Content is not allowed for the
attribute_name attribute in the
element_name element, but
content was found.

Explanation:
The specified attribute cannot contain content. The
name of the attribute and the element that contains it
are indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQD311S The XML structure of the
member_name product
environment member is not valid.
Content is required for the
attribute_name attribute in the
element_name element, but
content was not found.

Explanation:
The specified attribute requires content. The name of
the attribute and the name of the element that
contains it are indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQD312S The XML structure of the
member_name product
environment member is not valid.
The content length for the
element_name element exceeds
maximum_number characters.

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQD313S The XML structure of the
member_name product
environment member is not valid.
The attribute_name attribute in the
element_name element is
unknown.

Explanation:
The specified attribute in the product environment
member is unknown.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQD350I The subsystem_ID Db2 subsystem
is associated with this product.

Explanation:
The specified Db2 subsystem was added and saved in
the Tools Customizer data store for the product to be
customized.

System action:
Processing continues.

User response:
No action is required.

CCQD351I The member_name Db2 member
for the group_attach_name Db2
group attach name is associated
with this product.

Explanation:
The specified Db2 member for the group attach name
was added and saved in the Tools Customizer data
store for the product to be customized.

System action:
Processing continues.

User response:
No action is required.
CCQD352I  The group_attach_name Db2 group attach name is associated with this product.

Explanation: The specified Db2 group attach name was added and saved in the Tools Customizer data store for the product to be customized.

System action: Processing continues.

User response: No action is required.

CCQD353E  The subsystem_ID Db2 subsystem is already associated with this product.

Explanation: The specified Db2 subsystem cannot be added for the product to be customized because it already exists in the product environment in the data store.

System action: None.

User response: Ensure that the Db2 subsystem is specified correctly. If the problem persists, contact IBM Software Support.

CCQD354E  The member_name Db2 member for the group_attach_name Db2 group attach name is already associated with this product.

Explanation: The specified Db2 member for the group attach name cannot be added for the product to be customized because it already exists in the product environment in the data store.

System action: None.

User response: Ensure that the Db2 group attach name is specified correctly. If the problem persists, contact IBM Software Support.

CCQD355E  The group_attach_name Db2 group attach name is already associated with this product.

Explanation: The specified Db2 group attach name cannot be added for the product to be customized because it already exists in the product environment in the data store.

System action: Processing stops.

User response: No action is required.

CCQD356S  The library_name metadata library is already associated with the maximum number of allowed Db2 entries for this product.

Explanation: The specified metadata library cannot be associated with more Db2 entries because it is already associated with the number of Db2 entries that are allowed.

System action: Processing stops.

User response: Delete an associated Db2 entry, and associate the specified library with another Db2 entry again.

CCQD357I  The subsystem_ID Db2 subsystem is unassociated with this product.

Explanation: The specified Db2 SSID was unassociated with the product that you are customizing.

System action: Processing continues.

User response: No action is required.

CCQD358I  The member_name Db2 member for the group_attach_name Db2 group attach name is unassociated with this product.

Explanation: The specified Db2 member for the Db2 group attach name was unassociated with the product that you are customizing.

System action: Processing continues.

User response: No action is required.

CCQD359I  The group_attach_name Db2 group attach name is unassociated with this product.

Explanation: The specified Db2 group attach name was unassociated with the product that you are customizing.

System action: Processing continues.

User response: No action is required.
The specified subsystem and metadata library are not associated with each other.

System action:
None.

User response:
Ensure that the subsystem and the metadata library are associated. If the problem persists, contact IBM Software Support.

The specified Db2 data sharing group member for the group attach name and metadata library are not associated with each other.

System action:
None.

User response:
Ensure that the Db2 data sharing group member for the group attach name and the metadata library are associated. If the problem persists, contact IBM Software Support.

The specified Db2 group attach name and metadata library are not associated with each other.

System action:
None.

User response:
Ensure that the Db2 group attach name and the metadata library are associated. If the problem persists, contact IBM Software Support.

While determining if the specified member is valid, the PL/I XML parser issued an exception warning code.

System action:
Processing stops.

User response:
See the Enterprise PL/I for z/OS Programming Guide for more information about the warning.

While determining if the specified member is valid, the PL/I XML parser issued an exception error code.

System action:
Processing stops.

User response:
See the Enterprise PL/I for z/OS Programming Guide for more information about the error.

Tools Customizer could not find the specified data store data set.

System action:
None.

User response:
No action is required.

Tools Customizer created the specified data set because it could not be found.

System action:
None.

User response:
No action is required.

Tools Customizer cannot write to the specified data set.

System action:
None.

**User response:**
Ensure that the data set is writable.

**Explanation:**
The data_set_name data store data set could not be opened with the disposition_type disposition.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The specified DB2 entry already exists in the list of Db2 entries and is already associated with the current product.

**System action:**
None.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry already exists in the list of Db2 entries to be associated.

**System action:**
None.

**User response:**
Specify a different Db2 entry.

**Explanation:**
An error occurred while a DB2 entry was being created.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry has already been created and associated with the product that you want to customize.

**System action:**
None.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry has already been created and associated with the product that you want to customize.

**System action:**
None.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 entry.

**Explanation:**
The DB2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

**System action:**
Processing stops.
System action:  
None.

User response:  
Specify a different Db2 entry.

CCQD516E  
The specified DB2 entry already exists in the list of Db2 entries on the Associate DB2 Entry with Product panel but is not associated with the current product.

Explanation:  
The Db2 entry exists, but it must be associated with the product to be customized.

System action:  
None.

User response:  
Specify a different Db2 entry.

CCQD517S  
An error occurred while a DB2 entry was being copied.

Explanation:  
A severe error occurred while a Db2 entry was being copied.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQD518E  
A value is required for a DB2 subsystem, a Db2 group attach name, or both before they can be copied.

Explanation:  
Required information is missing. A Db2 subsystem, a Db2 group attach name, or both must be specified.

System action:  
None.

User response:  
Specify a Db2 subsystem, a Db2 group attach name, or both.

CCQD519I  
The DB2 entry was copied.

Explanation:  
The Db2 entry was copied and saved in the Tools Customizer data store.

System action:  
None.

User response:  
No action is required.

CCQD520S  
The DB2 entry was copied to the list of Db2 entries but was not associated because the product is already associated with the allowed number of Db2 entries.

Explanation:  
The Db2 entry was not completely copied because a product can be associated with only 1200 Db2 entries.

System action:  
Processing stops.

User response:  
Remove a Db2 entry from the list, and copy the specified Db2 entry again.

CCQD521E  
Line_command is not a valid line command.

Explanation:  
The specified line command is not valid. Valid line commands are on the panel.

System action:  
Processing stops.

User response:  
Specify a valid line command.

CCQD522E  
The subsystem_ID Db2 subsystem ID occurs more than once in the list. Each row must be unique.

Explanation:  
The specified Db2 subsystem ID can be used only once.

System action:  
Processing stops.

User response:  
Specify a different Db2 subsystem ID.

CCQD523E  
The group_attach_name Db2 group attach name occurs more than once in the list. Each row must be unique.

Explanation:  
The specified Db2 group attach name can be used only once.

System action:  
Processing stops.

User response:  
Specify a different Db2 group attach name.

CCQD524E  
The member_name Db2 member for the Db2 group attach name occurs more than once in the list. Each row must be unique.

Explanation:  
No action is required.
The specified Db2 member for the Db2 group attach name can be used only once.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 member for the Db2 group attach name.

**CCQD525I** The DB2 entries were created.

**User response:**
No action is required.

**CCQD526E** The subsystem_ID Db2 subsystem ID occurs more than once in the list. Each Db2 subsystem ID must be unique.

**Explanation:**
The specified Db2 subsystem ID can be used only once.

**System action:**
Processing stops.

**User response:**
Specify a different Db2 subsystem ID.

**CCQD527I** DB2 group attach names cannot be created during the copy process.

**Explanation:**
The ability to create Db2 group attach names is not available during the copy process.

**System action:**
None.

**User response:**
Create Db2 group attach names by issuing the CREATE command on the Customizer Workplace panel.

**CCQD528E** The metadata_library metadata library is already associated with number Db2 entries. The maximum number of associated Db2 entries for this metadata library is 256.

**Explanation:**
A metadata library can be associated with a maximum of 256 Db2 entries. The specified metadata library is already associated with 256.

**System action:**
Processing stops.

**User response:**
Remove an existing association between the specified metadata library and a Db2 entry, and associate the specified the metadata library with another entry.

**CCQD529I** At least one row is required.

**CCQD560E** The subsystem_ID Db2 subsystem already exists and is associated with the current product on the Customizer Workplace panel.

**Explanation:**
The specified Db2 subsystem exists and is associated with the product that you are customizing.

**System action:**
None.

**User response:**
Specify another Db2 subsystem.

**CCQD561E** The member_name Db2 member for the group_attach_name Db2 group attach name already exists and is associated with the current product on the Customizer Workplace panel.

**Explanation:**
The specified Db2 data sharing group for the Db2 group attach name already exists and is associated with the product that you are customizing.

**System action:**
None.

**User response:**
Specify another Db2 subsystem.

**CCQD562E** The group_attach_name Db2 group attach name already exists and is associated with the current product on the Customizer Workplace panel.

**Explanation:**
The specified Db2 group attach name exists and is associated with the product that you are customizing. The subsystem is in the table on the Customizer Workplace panel.

**System action:**
None.

**User response:**
Specify another Db2 group attach name.

**CCQD563E** A value is required for a DB2 subsystem, a Db2 group attach name, or both before they can be created.

**Explanation:**
A Db2 subsystem, a Db2 group attach name, or both are not specified so one or both of them cannot be created.

**System action:**
None.

**User response:**
Specify a value for the Db2 subsystem, the Db2 group attach name, or both.

**CCQD565E** The subsystem_ID Db2 subsystem already exists in the list of Db2 entries and is already associated with the current product.

**Explanation:**
The specified subsystem is already associated.

**System action:**
None.

**User response:**
Specify a different Db2 subsystem.

**CCQD566E** The member_name Db2 member for the group_attach_name Db2 group attach name already exists in the list of Db2 entries and is already associated with the current product.

**Explanation:**
The specified Db2 member is already associated.

**System action:**
None.

**User response:**
Specify a different Db2 member.

**CCQD567E** The group_attach_name Db2 group attach name already exists in the list of Db2 entries and is already associated with the current product.

**Explanation:**
The specified Db2 group attach name is already associated.

**System action:**
None.

**User response:**
Specify another Db2 group attach name.

**CCQD568I** product_name is not associated with a DB2 entry.

**Explanation:**
The product that you are trying to customize is not associated with a Db2 entry. Before a product can be customized, it must be associated with at least one Db2 entry.

**System action:**
None.

**User response:**
Associate one or more Db2 entries with the product.

**CCQD569I** The product_name product configuration is not associated with a DB2 entry.

**Explanation:**
The configuration for the specified product is not associated with a Db2 entry.

**System action:**
None.

**User response:**
Associate one or more Db2 entries with the configuration.

**CCQD577W** The mode_name Db2 mode of the subsystem_ID Db2 subsystem is not supported by the product.

**Explanation:**
The product does not support the specified Db2 mode.

**System action:**
None.

**User response:**
Specify a supported Db2 mode.

**CCQD578W** The mode_name Db2 mode of the member_name Db2 member for the Db2 group is not supported by the product.

**Explanation:**
The product does not support the specified Db2 mode.

**System action:**
None.

**User response:**
Specify a supported Db2 mode.

**CCQD579W** The mode_name Db2 mode of the group_name Db2 group attach name is not supported by the product.

**Explanation:**
The product does not support the specified Db2 mode.

**System action:**
None.

**User response:**
Specify a supported Db2 mode.

**CCQD580S** The subsystem_ID Db2 subsystem was copied to the list of Db2 entries but was not associated because the product is already associated with the allowed number of Db2 entries.

**Explanation:**
The copied Db2 subsystem was not associated with the product because the product is associated with the maximum number of Db2 entries.

**System action:**
None.

**User response:**
Remove an associated Db2 entry and associate the product with the copied Db2 subsystem.

---

**CCQD581S**
The member_name Db2 member for the group_attach_name Db2 group attach name was copied to the list of Db2 entries but was not associated because the product is already associated with the allowed number of Db2 entries.

**Explanation:**
The copied Db2 member for the Db2 group attach name was not associated with the product because the product is associated with the maximum number of Db2 entries.

**System action:**
None.

**User response:**
Remove an associated Db2 entry and associate the product with the copied Db2 member.

---

**CCQD582S**
The group_attach_name Db2 group attach name was copied to the list of Db2 entries but was not associated because the product is already associated with the allowed number of Db2 entries.

**Explanation:**
The copied Db2 group attach name was not associated with the product because the product is associated with the maximum number of Db2 entries.

**System action:**
None.

**User response:**
Remove an associated Db2 entry and associate the product with the copied Db2 group attach name.

---

**CCQD583I**
The from_DB2 Db2 subsystem was copied to the to_DB2 subsystem.

**System action:**
None.

**User response:**
No action is required.

---

**CCQD584I**
The member_name Db2 member for the group_attach_name Db2 group attach name is copied to the subsystem_ID Db2 subsystem.

**System action:**
None.

**User response:**
No action is required.

---

**CCQD585I**
The group_attach_name Db2 group attach name cannot be copied because a Db2 member is required.

**Explanation:**
The specified Db2 group attach name was not copied because a Db2 member was missing.

**System action:**
None.

**User response:**
No action is required.

---

**CCQD586S**
The current LPAR is LPAR_name, but the data store contains information about the LPAR_name LPAR. You must use the LPAR_name LPAR to customize the product.

**Explanation:**
The LPAR that is stored in the data store data set must be used to customize the product.

**System action:**
Processing stops.

**User response:**
Use the LPAR that is stored in the data store data set.

---

**CCQD587W**
The level_number Db2 level of the subsystem_name Db2 subsystem is not supported by the product.

**Explanation:**
The product does not support the specified Db2 level.

**System action:**
Processing continues.

**User response:**
Specify a supported level of Db2.

---

**CCQD588W**
The level_number Db2 level of the member_name Db2 member of the group_name Db2 group is not supported by the product.

**Explanation:**
The product does not support the specified Db2 level.

**System action:**
Processing continues.

**User response:**
Specify a supported level of Db2.
The level_number Db2 level of the group_name Db2 group attach name is not supported by the product.

Explanation:  
The product does not support the specified Db2 level. 

System action:  
Processing continues.

User response:  
Specify a supported level of Db2.

The subsystem_ID Db2 subsystem was deleted.

User response:  
No action is required.

The member_name Db2 for the group_attach_name Db2 group attach name was deleted.

User response:  
No action is required.

The group_attach_name Db2 group attach name was deleted.

User response:  
No action is required.

The subsystem_ID Db2 subsystem was not deleted.

Explanation:  
An internal error occurred while the specified Db2 subsystem was being deleted. 

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The member_name product customization member is not valid. The PL/I XML parser issued the following exception warning code: code_number.

Explanation:  
While determining if the XML structure of the product customization member is valid, the PL/I XML parser issued an exception warning code.

System action:  
Processing continues.

User response:  
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

The member_name product customization member is not valid. The PL/I XML parser issued the following exception error code: code_number.

Explanation:  
While determining if the XML structure of the product customization member is valid, the PL/I XML parser issued an exception error code.

System action:  
Processing stops.

User response:  
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception error code.

The XML structure of the member_name product customization member is not valid. The element_name element is unknown.

Explanation:  
The data store member contains an unknown element.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The XML structure of the member_name product customization member is not
valid. Content is not allowed for the element_name element, but content was found.

**Explanation:**
The specified element cannot contain content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

CCQD604S  The XML structure of the member_name product customization member is not valid. Content is required for the element_name element, but content was not found.

**Explanation:**
The specified element is missing required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

CCQD605S  The XML structure of the member_name product customization member is not valid. The content length for the element_name element exceeds maximum_number characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

CCQD606S  The XML structure of the member_name product customization member is not valid. The element_name element cannot occur more than maximum_number times.

**Explanation:**
The specified element occurs too many times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

CCQD607S  The XML structure of the member_name product customization member is not valid. The element_name element must occur at least minimum_number times.

**Explanation:**
The specified element does not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

CCQD608S  The XML structure of the member_name product customization member is not valid. The attribute_name attribute in the element_name element cannot occur more than maximum_number times.

**Explanation:**
The specified attribute occurs too many times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

CCQD609S  The XML structure of the member_name product customization member is not valid. The attribute_name attribute in the element_name element must occur at least minimum_number times.

**Explanation:**
The specified attribute does not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

CCQD610S  The XML structure of the member_name product customization member is not valid. Content is not allowed for the attribute_name attribute in the element_name element, but content was found.

**Explanation:**
The specified attribute cannot contain content.
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Message</th>
<th>System action</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCQD611S</td>
<td>The XML structure of the <code>member_name</code> product customization member is not valid. Content is required for the <code>attribute_name</code> attribute in the <code>element_name</code> element, but content was not found.</td>
<td>Processing stops.</td>
<td>See “Gathering diagnostic information” on page 742. Contact IBM Software Support.</td>
</tr>
</tbody>
</table>
No action is required. To stop this message from being issued, remove the extra values from the Db2 parameter.

**CCQD800W** The member_name LPAR data member is not valid. The PL/I XML parser issued the following exception warning code: code_number.

**Explanation:**
While determining if the XML structure of the LPAR data member is valid, the PL/I XML parser issued an exception warning code.

**System action:**
Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

**CCQD801S** The member_name LPAR data member is not valid. The PL/I XML parser issued the following exception error code: code_number.

**Explanation:**
While determining if the XML structure of the LPAR data member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception error code.

**CCQD850W** The value_number value in the LPAR parameter parameter_name was skipped because only maximum_number values are allowed.

**Explanation:**
The specified value was skipped because it exceeds the number of allowed values in the LPAR parameter.

**System action:**
Processing continues.

**User response:**
No action is required. To stop this message from being issued, remove the extra values from the LPAR parameter.

**CCQD851I** The subsystem_ID Db2 subsystem is copied to the member_name Db2 member for the group_attach_name Db2 group attach name.

**User response:**
No action is required.

**CCQD852I** The member_name Db2 member for the group_attach_name Db2 group attach name is copied to the member_name Db2 member for the group_attach_name Db2 group attach name.

**User response:**
No action is required.

**CCQD854I** The member_name Db2 member for the group_attach_name Db2 group 'attach name is copied to multiple Db2 entries.

**User response:**
No action is required.

**CCQD900W** The member_name product data member is not valid. The PL/I XML parser issued the following exception warning code: code_number.

**Explanation:**
While determining if the XML structure of the product data member is valid, the PL/I XML parser issued an exception warning code.

**System action:**
Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

**CCQD901S** The member_name product data member is not valid. The PL/I XML parser issued the following exception error code: code_number.

**Explanation:**
While determining if the XML structure of the product data member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception error code.

**CCQD950W** The value_number value in the product parameter parameter_name was skipped because only maximum_number values are allowed.

**Explanation:**
While determining if the XML structure of the product data member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.
The specified value was skipped because it exceeds the number of allowed values in the product parameter.

**System action:**
Processing continues.

**User response:**
No action is required. To stop this message from being issued, remove the extra values from the product parameter.

**CCQD960I**
The subsystem ID Db2 subsystem was changed to the member name Db2 member for the group attach name Db2 group attach name.

**User response:**
No action is required.

**CCQD961I**
The member name Db2 member for the group attach name Db2 group attach name was changed to the subsystem ID Db2 subsystem.

**User response:**
No action is required.

**CCQD962I**
The member name Db2 member for the group attach name Db2 group attach name was changed to the member name Db2 member for the group attach name Db2 group attach name.

**User response:**
No action is required.

**CCQD963E**
The DB2 group attach name cannot be blank when the Db2 subsystem ID is blank.

**Explanation:**
A Db2 group attach name, Db2 subsystem ID, or both must be specified.

**System action:**
Processing stops.

**User response:**
Specify a Db2 group attach name, Db2 subsystem ID, or both.

**CCQE000S**
The specified message field name or message message_id was not found.

**Explanation:**
An error occurred while displaying a message field name or the specified message.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQE001E**
An incorrect trace level was specified. Valid trace levels are 0 - 4.

**Explanation:**
A wrong trace level was specified. Valid trace levels are 0 - 4.

**System action:**
Processing stops.

**User response:**
Specify a valid trace level 0 - 4.

**CCQF028E**
An asterisk was improperly specified in a filter argument.

**Explanation:**
An asterisk, which is treated as data, is embedded in the filter arguments. A generic filter argument is specified by placing the asterisk in the last nonblank position of the argument. No rows match the filter arguments, so all rows will be shown.

**System action:**
Processing stops.

**User response:**
Specify a valid filter argument.

**CCQF029I**
More Db2 entries are associated with the specified product. All Db2 entries are listed.

**System action:**
None.

**User response:**
No action is required.

**CCQF080I**
The customized jobs for the product that you are customizing are stored in this data set.

**System action:**
None.

**User response:**
No action is required.

**CCQF081I**
The JCL must be browsed or edited.

**Explanation:**
You can either browse or edit the JCL.

**System action:**
None.

**User response:**
No action is required.
CCQF082E  The sort-command command has an invalid sort field or order. The valid fields are list-of-column-names. The valid sort orders are A (for ascending) or D (for descending).

Explanation: An invalid sort field or order was specified.
System action: Processing stops.
User response: Specify a valid sort field or order.

CCQF083E  The sort-command command is missing a sort field.

Explanation: A sort field must be specified.
System action: Processing stops.
User response: Specify a valid sort field.

CCQF084E  The sort-command command has more than two sort fields specified.

Explanation: The specified sort command included more than two sort fields. The sort command can have up to two fields specified.
System action: Processing stops.
User response: Specify only one or two sort fields.

CCQF085E  A sort order was specified incorrectly in the sort-command command. A sort order can be specified only after a field name.

Explanation: Valid orders are A (for ascending) or D (for descending).
System action: Processing stops.
User response: Specify a valid sort order after a field name.

CCQF086E  The sort-command command has an invalid sort field. The valid fields are list-of-the-table-column-names.

Explanation: An invalid sort field was specified.
System action: Processing stops.
User response: Specify a valid sort field.

CCQF087E  The sort-command command has an invalid sort order. The valid orders are A (for ascending) or D (for descending).

Explanation: An invalid sort order was specified.
System action: Processing stops.
User response: Specify a valid sort order.

CCQF088E  No row match the specified filter argument. All rows are shown.

Explanation: No rows match the selected values.
System action: Processing stops.
User response: Specify a matched value for filtering.

CCQF089I  Type the search arguments to filter objects. A generic filter argument is a search argument of the form AA*.

Explanation: In a generic filter argument, only the characters up to the asterisk (*) are compared. The * must be placed in the last nonblank position of the argument. Asterisks embedded in the argument are treated as data.
System action: None.
User response: No action is required.

CCQF110I  To show the panel instructions section, specify a slash (/). To hide the panel instructions section, remove the slash.

System action: None.
User response: No action is required.

CCQF111I  To show the Products to Customize section, specify a slash (/). To hide the Products to Customize section, remove the slash. The Product to Customize section can be shown or hidden.

System action: None.
User response: No action is required.
only on the Customizer Workplace panel.

System action:
None.

User response:
No action is required.

CCQF110I To show the panel instructions section, specify a slash (/). To hide the panel instructions section, remove the slash.

System action:
None.

User response:
No action is required.

CCQF112I To show the Usage Notes section, specify a slash (/). To hide the Usage Notes section, remove the slash. The Usage Notes section can be shown only on the Product Parameters, LPAR Parameters, and DB2 Parameters panels.

System action:
None.

User response:
No action is required.

CCQF113I The specified values have been saved.

System action:
None.

User response:
No action is required.

CCQF114I Displays the Panel Display Options panel. Use this panel to select which information to display on panels.

System action:
None.

User response:
No action is required.

CCQF116I The fully qualified name of the data set into which you want to copy the current user profile. If the data set name exceeds 42 characters, enclose the name in quotation marks. ALTER or UPDATE authorization to this data set is required.

System action:
None.

User response:
No action is required.

CCQF117I The volume name in which the data set will reside. If left blank, the volume name will be decided by the system.

System action:
None.

User response:
Change the user settings.

CCQH001W The specified option option_name is not valid.

Explanation:
The option that was specified is not a valid option on the panel.

System action:
Tools Customizer stops.

User response:
Specify a valid option on the panel.

CCQH006W Before you customize a product, verify your user settings.

Explanation:
The user settings must be verified before a product can be customized.

System action:
Tools Customizer stops.

User response:
Verify the user settings.

CCQH007E Check the user settings. One or more current values are not valid.

Explanation:
one or more of the values in the user settings is not valid.

System action:
Tools Customizer stops.

User response:
Ensure that the specified values for the user settings are valid.

CCQH008W Before you use Tools Customizer, you must select option 0 to verify your user settings.

Explanation:
The user settings must be changed before a product can be customized.

System action:
Tools Customizer stops.

User response:
Change the user settings.
You must select option 0 to change your user settings.

**Explanation:**
User settings must be changed before a product can be customized.

**System action:**
Tools Customizer stops.

**User response:**
Change the user settings.

The XML structure of the member_name Db2 parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: code_number.

**Explanation:**
While determining if the Db2 parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

**System action:**
Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

The XML structure of the member_name Db2 parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: code_number.

**Explanation:**
While determining if the Db2 parameter metadata member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing stops.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception error code.

The XML structure of the member_name Db2 parameter metadata member is not valid. The content length for the element_name element cannot exceed maximum_number characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception error code.

The XML structure of the member_name Db2 parameter metadata member is not valid. The content length for the element_name element must be at least minimum_number characters.

**Explanation:**
The specified element in the Db2 parameter metadata member is unknown.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
The specified element does not contain enough characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
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<tbody>
<tr>
<td>CCQI007S</td>
<td>The XML structure of the member_name Db2 parameter metadata member is not valid. The element_name element must occur at least minimum_number times.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified element does not occur enough times.</td>
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<td>CCQI008S</td>
<td>The XML structure of the member_name Db2 parameter metadata member is not valid. The attribute_name attribute in the element_name element cannot occur more than maximum_number times.</td>
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<td><strong>Explanation:</strong></td>
<td>The specified attribute occurs too many times.</td>
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<td>The specified attribute is missing required content.</td>
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<tr>
<td>CCQI013S</td>
<td>The XML structure of the member_name Db2 parameter metadata member is not valid. The attribute_name attribute in the element_name element is unknown.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified attribute in the Db2 parameter metadata member is unknown.</td>
</tr>
</tbody>
</table>

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

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### User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

#### CCQI014S
The content of the member_name Db2 parameter metadata member is not valid because the value of the element_name element is incorrect. The value is value_name.

**Explanation:**
The specified value of the element is not a valid value.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

#### CCQI015S
The content of the DB2 parameter metadata member is not valid because the value of the attribute_name attribute in the element_name element is incorrect. The value of the attribute is value_name.

**Explanation:**
The specified value of the attribute is not a valid value.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

#### CCQI016S
The content of the DB2 parameter metadata member is not valid because the data type of the element_name element is incorrect. The value is value_name.

**Explanation:**
The specified data type is not a valid data type.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

#### CCQI050S
The member_name Db2 parameter metadata member was not found in the data_set_name data set.

**Explanation:**
Tools Customizer could not find the specified Db2 parameter metadata member.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

#### CCQI051S
The parameter_name LPAR parameter in the template_name template does not have associated metadata in the member_name LPAR parameter metadata member.

**Explanation:**
The specified template does not contain metadata for an LPAR parameter. The name of the LPAR parameter metadata member, the name of the LPAR parameter, and the name of the template are indicated in the message text.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

#### CCQI052S
The parameter_name product parameter in the template_name template does not have associated metadata in the member_name product parameter metadata member.

**Explanation:**
The specified template does not contain metadata for a product parameter. The name of the product parameter metadata member, the name of the product parameter, and the name of the template are indicated in the message text.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
The following metadata data set was not found: data_set_name.

Explanation:
Tools Customizer could not find the specified metadata data set.

System action:
Processing stops.

User response:
Ensure that the metadata data set is specified correctly. If the problem persists, contact IBM Software Support.

The following metadata data set could not be opened: data_set_name.

Explanation:
Tools Customizer could not open the specified LPAR metadata data set.

System action:
Processing stops.

User response:
Ensure the metadata data set was specified correctly.

The CCQ$$DB2 Db2 parameter metadata member was not found in the data_set_name Tools Customizer metadata data set.

Explanation:
Tools Customizer could not find the Db2 parameter metadata member in the specified Tools Customizer metadata data set.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The CC$$LPR LPAR parameter metadata member was not found in the data_set_name data set.

Explanation:
Tools Customizer could not find the specified LPAR parameter metadata member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The member_name product parameter metadata member was not found in the data_set_name data set.

Explanation:
Associated metadata is missing for the specified Db2 parameter in a task.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

Product_name does not have any Db2 parameters.

Explanation:
Db2 parameters are not required to customize the specified product.

System action:
Processing continues.

User response:
No action is required.

Product_name does not have any LPAR parameters.

Explanation:
LPAR parameters are not required to customize the specified product.

System action:
Processing continues.

User response:
No action is required.

The parameter_name Db2 parameter in the task_description task condition does not have associated metadata in the member_name Db2 parameter metadata member.

Explanation:
Associated metadata is missing for the specified Db2 parameter in a task.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The parameter_name LPAR parameter in the task_description task condition does not have associated metadata in the member_name LPAR parameter metadata member.

Explanation:
Associated metadata is missing for the specified LPAR parameter in a task.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQI062S  
The parameter_name product parameter in the task_description task condition does not have associated metadata in the member_name product parameter metadata member.

Explanation:  
Associated metadata is missing for the specified product parameter in a task.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQI063S  
The parameter_name Db2 parameter in the task_description task and the step_description step does not have associated metadata in the member_name Db2 parameter metadata member.

Explanation:  
Associated metadata is missing for the specified Db2 parameter in a task and step.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQI064S  
The parameter_name LPAR parameter in the task_description task and the step_description step does not have associated metadata in the member_name LPAR parameter metadata member.

Explanation:  
Associated metadata is missing for the specified LPAR parameter in a task and step.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQI065S  
The parameter_name product parameter in the task_description task and the step_description step does not have associated metadata in the member_name product parameter metadata member.

Explanation:  
Associated metadata is missing for the specified parameter in a task and step.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQI066S  
The parameter_name Db2 parameter in the task_description task, step_description step, and template_name template condition does not have associated metadata in the member_name Db2 parameter metadata member.

Explanation:  
Associated metadata is missing for the specified Db2 parameter in a task, step, and template.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQI067S  
The parameter_name LPAR parameter in the task_description task, step_description step, and template_name template condition does not have associated metadata in the member_name LPAR parameter metadata member.

Explanation:  
Associated metadata is missing for the specified LPAR parameter in a task, step, and template.

System action:  
Processing stops.

User response:  
See “Gathering diagnostic information” on page 742.  
Contact IBM Software Support.

CCQI068S  
The parameter_name product parameter in the task_description task, step_description step, and template_name template condition does not have associated metadata in the member_name product parameter metadata member.

Explanation:  
Associated metadata is missing for the specified product parameter in a task, step, and template.
Associated metadata is missing for the specified product parameter in a task, step, and template.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI069S**
Product metadata does not support multiple configurations, but the **template_name** product template contains the **parameter_name** parameter. Enable multiple configurations support for this product, and try again.

**Explanation:**
The specified template contains a parameter for multiple configurations, but the product is not enabled to support multiple configurations.

**System action:**
Processing stops.

**User response:**
Enable multiple configurations support, and try again.

---

**CCQI070E**
The **parameter_name** Db2 parameter metadata member is not valid. The default length for the **parameter-element_name** parameter element exceeds the length of the parameter. The default length is **default_length**, and the specified length is **specified_length**. The default length will be truncated accordingly.

**Explanation:**
The specified length cannot be shorter than the default length.

**System action:**
Processing stops.

**User response:**
Enable multiple configurations support, and try again.

---

**CCQI071E**
The **parameter_name** LPAR parameter metadata member is not valid. The default length for the **parameter-element_name** parameter element exceeds the length of the parameter. The default length is **default_length**, and the specified length is **specified_length**. The default length will be truncated accordingly.

**Explanation:**
The specified length cannot be shorter than the default length.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI072E**
The **parameter_name** product parameter metadata member is not valid. The default length for the **parameter-element_name** parameter element exceeds the length of the parameter. The default length is **default_length**, and the specified length is **specified_length**. The default length will be truncated accordingly.

**Explanation:**
The specified length cannot be shorter than the default length.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI073S**
The XML structure of the **member_name** Db2 parameter metadata member is not valid. The following value of the **attribute_name** attribute in the **element_name** element already exists: **value_name**.

**Explanation:**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI074S**
The XML structure of the **member_name** LPAR parameter metadata member is not valid. The following value of the **attribute_name** attribute in the **element_name** element already exists: **value_name**.

**Explanation:**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI075S**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI076S**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI077S**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI078S**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI080S**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI081S**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI082S**
The specified value already exists for an attribute.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
element is incorrect. The value of the attribute is value_name.

Explanation:
The specified value for an attribute in the product parameter metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI088I The command command is not active in BROWSE mode.

Explanation:
The specified command can be entered only in Edit mode.

System action:
Processing continues.

User response:
Put the panel in Edit mode and reissue the command.

CCQI089I The command command is already active.

System action:
Processing continues.

User response:
No action required.

CCQI090S The product-defined Db2 parameter parameter_name in the member_name parameter metadata member references the section_ID section ID, but this ID does not exist in either the parameter metadata member or the Db2 parameter metadata member.

Explanation:
A section that does not exist in the parameter metadata member or the Db2 parameter metadata member is being referenced by the specified Db2 parameter.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI091S The product-defined LPAR parameter parameter_name in the member_name parameter metadata member references the section_ID section ID, but this ID does not exist in either the parameter metadata member or the LPAR parameter metadata member.

Explanation:
A section that does not exist in the parameter metadata member or the LPAR parameter metadata member is being referenced by the specified LPAR parameter.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI092S The overridden Db2 parameter parameter_name in the member_name parameter metadata member does not exist in the Db2 parameter metadata member.

Explanation:
The specified parameter does not exist.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI093S The overridden LPAR parameter parameter_name in the member_name parameter metadata member does not exist in the LPAR parameter metadata member.

Explanation:
The specified parameter does not exist.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI094S The CCQ$$PRD product customization parameter metadata member was not found in the data_set_name data set.

Explanation:
The specified data set must contain the CCQ$$PRD product customization parameter metadata member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
CCQI100W The XML structure of the member_name LPAR parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: code_number.

Explanation:
While determining if the LPAR parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:
Processing continues.

User response:
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

CCQI101S The XML structure of the member_name LPAR parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: code_number.

Explanation:
While determining if the LPAR parameter metadata member is valid, the PL/I XML parser issued an exception error code.

System action:
Processing stops.

User response:
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

CCQI102S The XML structure of the member_name LPAR parameter metadata member is not valid. The element_name element is unknown.

Explanation:
The specified element in the LPAR parameter metadata member is unknown.

System action:
Processing stops.

User response:
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

CCQI103S The XML structure of the member_name LPAR parameter metadata member is not valid. Content is not allowed for the element_name element, but content was found.

Explanation:
The specified element cannot contain content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI104S The XML structure of the member_name LPAR parameter metadata member is not valid. Content is required for the element_name element, but content was not found.

Explanation:
The specified element requires content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI105S The XML structure of the member_name LPAR parameter metadata member is not valid. The content length for the element_name element cannot exceed maximum_number characters.

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI106S The XML structure of the member_name LPAR parameter metadata member is not valid. The content length for the element_name element must be at least minimum_number characters.

Explanation:
The specified element does not contain enough characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI107S The XML structure of the member_name LPAR parameter metadata member is not valid. The
**element_name** element must occur at least **minimum_number** times.

**Explanation:**
The specified element does not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

<table>
<thead>
<tr>
<th>CCQI108S</th>
<th>The XML structure of the <strong>member_name</strong> LPAR parameter metadata member is not valid. The <strong>attribute_name</strong> attribute in the <strong>element_name</strong> element cannot occur more than <strong>maximum_number</strong> times.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified attribute occurs too many times.</td>
</tr>
<tr>
<td><strong>System action:</strong></td>
<td>Processing stops.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
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</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified attribute did not occur enough times.</td>
</tr>
<tr>
<td><strong>System action:</strong></td>
<td>Processing stops.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>See “Gathering diagnostic information” on page 742. Contact IBM Software Support.</td>
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</table>

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<tr>
<th>CCQI110S</th>
<th>The XML structure of the <strong>member_name</strong> LPAR parameter metadata member is not valid. Content is not allowed for the <strong>attribute_name</strong> attribute in the <strong>element_name</strong> element, but content was found.</th>
</tr>
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<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified attribute cannot have content.</td>
</tr>
<tr>
<td><strong>System action:</strong></td>
<td>Processing stops.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>See “Gathering diagnostic information” on page 742. Contact IBM Software Support.</td>
</tr>
</tbody>
</table>

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<tr>
<th>CCQI111S</th>
<th>The XML structure of the <strong>member_name</strong> LPAR parameter metadata member is not valid. Content is required for the <strong>attribute_name</strong> attribute in the <strong>element_name</strong> element, but content was not found.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified attribute is missing required content.</td>
</tr>
<tr>
<td><strong>System action:</strong></td>
<td>Processing stops.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>See “Gathering diagnostic information” on page 742. Contact IBM Software Support.</td>
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</tbody>
</table>

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<tr>
<th>CCQI112S</th>
<th>The XML structure of the <strong>member_name</strong> LPAR parameter metadata member is not valid. The <strong>element_name</strong> element cannot exceed <strong>maximum_number</strong> characters.</th>
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<tr>
<td><strong>Explanation:</strong></td>
<td>The specified element contains too many characters.</td>
</tr>
<tr>
<td><strong>System action:</strong></td>
<td>Processing stops.</td>
</tr>
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<td><strong>User response:</strong></td>
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</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified attribute in the LPAR parameter metadata member is unknown.</td>
</tr>
<tr>
<td><strong>System action:</strong></td>
<td>Processing stops.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>See “Gathering diagnostic information” on page 742. Contact IBM Software Support.</td>
</tr>
</tbody>
</table>

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<tr>
<th>CCQI114S</th>
<th>The content of the <strong>member_name</strong> LPAR parameter metadata member is not valid because the value of the <strong>element_name</strong> element is incorrect. The value is <strong>value_name</strong>.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td></td>
</tr>
</tbody>
</table>
The specified value for an element in the LPAR parameter metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI115S The content of the member_name LPAR parameter metadata member is not valid because the value of the attribute_name attribute in the element_name element is incorrect. The value of the attribute is value_name.

Explanation:
The specified value for an attribute in the LPAR parameter metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI116S The content of the member_name LPAR parameter metadata member is not valid because the data type of the element_name element is incorrect. The value is value_name.

Explanation:
The specified data type value for an element in the LPAR parameter metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI117S The content of the member_name LPAR parameter metadata member is not valid because the data type of the attribute_name attribute in the element_name element is incorrect. The value is value_name.

Explanation:
The specified data type value for an attribute in the LPAR parameter metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI120S The XML structure of the member_name Db2 parameter metadata member is not valid. The element_name element in the parameter_name parameter contains duplicate values for the element_name element. The duplicate value is value_name.

Explanation:
An element contains the specified duplicate value.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI121S The XML structure of the member_name LPAR parameter metadata member is not valid. The element_name element in the parameter_name parameter contains duplicate values for the element_name element. The duplicate value is value_name.

Explanation:
An element contains the specified duplicate value.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI122S The XML structure of the member_name parameter metadata member is not valid. The element_name element in the parameter_name parameter contains duplicate values for the element_name element. The duplicate value is value_name.

Explanation:
An element contains the specified duplicate value.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI123S The XML structure of the member_name discover metadata member is not valid. The element_name element in the parameter_name parameter contains duplicate values for the element_name element. The duplicate value is value_name.

Explanation:
An element contains the specified duplicate value.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
An element contains the specified duplicate value.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

The XML structure of the member_name product customization parameter metadata member is not valid. The element_name element contains duplicate values for the element_name element. The duplicate value is value_name.

Explanation:
The specified element contains the specified duplicate value.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

The specified element in the information metadata member is not valid. The element name element is unknown.

Explanation:
The specified element in the information metadata member is unknown.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

The XML structure of the member_name information metadata member is not valid. Content is not allowed for the element_name element, but content was found.

Explanation:
The specified element cannot contain content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

The XML structure of the member_name information metadata member is not valid. Content is required for the element_name element, but content was not found.

Explanation:
The specified element requires content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

The XML structure of the member_name information metadata member is not valid. The content length for the element_name element cannot exceed maximum_number characters.

Explanation:
The content length for the element_name element exceeds the maximum_number characters.

System action:
Processing stops.

User response:
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.
**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI206S**
The XML structure of the member_name information metadata member is not valid. The content length for the element_name element must be at least minimum_number characters.

**Explanation:**
The specified element does not contain enough characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI207S**
The XML structure of the member_name information metadata member is not valid. The element_name element must occur at least minimum_number times.

**Explanation:**
The specified element does not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI208S**
The XML structure of the member_name information metadata member is not valid. The attribute_name attribute in the element_name element cannot occur more than maximum_number times.

**Explanation:**
The specified attribute occurs too many times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI209S**
The XML structure of the member_name information metadata member is not valid. The attribute_name attribute in the element_name element must occur at least minimum_number times.

**Explanation:**
The specified attribute did not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI210S**
The XML structure of the member_name information metadata member is not valid. Content is not allowed for the attribute_name attribute in the element_name element, but content was found.

**Explanation:**
The specified attribute cannot have content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI211S**
The XML structure of the member_name information metadata member is not valid. Content is required for the attribute_name attribute in the element_name element, but content was not found.

**Explanation:**
The specified attribute is missing required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI212S**
The XML structure of the member_name information metadata member is not valid. The content length for the element_name element cannot exceed maximum_number characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.
User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI213S  The XML structure of the member_name information metadata member is not valid. The attribute_name attribute in the element_name element is unknown.

Explanation:
The specified attribute in the information metadata member is unknown.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI214S  The content of the member_name information metadata member is not valid because the value of the element_name element is incorrect. The value is value_name.

Explanation:
The specified value for an element in the information metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI215S  The content of the member_name information metadata member is not valid because the value of the attribute_name attribute in the element_name element is incorrect. The value is value_name.

Explanation:
The specified value for an attribute in the information metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI216S  The content of the member_name information metadata member is not valid because the data type of the element_name element is incorrect. The value is value_name.

Explanation:
The specified data type value for an element in the information metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI217S  The content of the member_name information metadata member is not valid because the data type of the attribute_name attribute in the element_name element is incorrect. The value is value_name.

Explanation:
The specified data type value for an attribute in the information metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI218S  The content of the member_name information metadata member is not valid. The length of the value_name value of the attribute_name attribute is longer than the value_name value of the attribute_name attribute.

Explanation:
The first specified value cannot be longer than the second specified value.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI219S  The content of the member_name information metadata member is not valid. The value_name value of the attribute_name attribute contains the value_name value.

Explanation:
The first specified value cannot be longer than the second specified value.

System action:
Processing stops.
User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI220S  The XML structure of the member_name information metadata member is not valid. Content for the attribute_name attribute in the element_name element exceed maximum_number characters.

Explanation:
The specified attribute contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQI2220S  The XML structure of the member_name information metadata member is not valid. The value that is specified for the Db2 Level already exists. The value is value_name.

Explanation:
The specified value already exists.

System action:
Processing stops.

User response:
Specify a different Db2 level. If the problem persists, contact IBM Software Support.

CCQI223S  The XML structure of the member_name information metadata member is not valid. The value that is specified for the Db2 Mode already exists. The value is value_name.

Explanation:
The specified value already exists.

System action:
Processing stops.

User response:
Specify a different Db2 mode. If the problem persists, contact IBM Software Support.

CCQI224S  The XML structure of the member_name information metadata member is not valid. The value that is specified for the Db2 Mode already exists. The value is value_name.

Explanation:
The specified value already exists.

System action:
Processing stops.

User response:
Specify a different Db2 mode. If the problem persists, contact IBM Software Support.

CCQI2250S  The information metadata member was not found in the data_set_name data set.

Explanation:
Tools Customizer could not find the information metadata member in the specified data set.

System action:
Processing stops.

CCQI300W  The XML structure of the member_name sequence metadata

User response:
If this message was issued on the Specify the Metadata Library (CCQPHLQ) panel, specify the product metadata library. The name of this library is hlq.SCQMDENU.
Do not specify the Tools Customizer metadata library, which is hlq.SCCQDENU.

If the problem persists, identify the name of the Tools Customizer trace data set and contact IBM Software Support.

CCQI251E  The member_name member was not accessible in the data_set_name data set.

Explanation:
The specified member could not be accessed in the data set.

System action:
Processing stops.

User response:
Specify the correct metadata library.

CCQI252S  The information metadata member was not found in the library_name component metadata library that is part of the library_name pack metadata library. The name of the pack is pack_name.

Explanation:
The specified component metadata library does not contain the information metadata member.

System action:
Processing stops.

User response:
Specify the correct metadata library.

CCQI253E  The library_name Tools Customizer metadata library is not current. Update the metadata library on the Tools Customizer Settings panel.

Explanation:
The specified metadata library is not current.

System action:
Processing stops.

User response:
Specify a current metadata library on the Tools Customizer Settings panel.

CCQI300W  The XML structure of the member_name sequence metadata
member is not valid. The PL/I XML parser issued the following exception warning code: `code_number`.

**Explanation:**
While determining if the sequence metadata member is valid, the PL/I XML parser issued an exception warning code.

**System action:**
Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

---

**CCQI301S** The XML structure of the `member_name` sequence metadata member is not valid. The PL/I XML parser issued the following exception error code: `code_number`.

**Explanation:**
While determining if the sequence metadata member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing stops.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception error code, and contact IBM Software Support.

---

**CCQI302S** The XML structure of the `member_name` sequence metadata member is not valid. The `element_name` element is unknown.

**Explanation:**
The specified element in the sequence metadata member is unknown.

**System action:**
Processing stops.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception error code, and contact IBM Software Support.

---

**CCQI303S** The XML structure of the `member_name` sequence metadata member is not valid. Content is not allowed for the `element_name` element, but content was found.

**Explanation:**
The specified element cannot contain content.

**System action:**
Processing stops.

---

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI304S** The XML structure of the `member_name` sequence metadata member is not valid. Content is required for the `element_name` element, but content was not found.

**Explanation:**
The specified element is missing required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI305S** The XML structure of the `member_name` sequence metadata member is not valid. Content length for the `element_name` element cannot exceed `maximum_number` characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI306S** The XML structure of the `member_name` sequence metadata member is not valid. The `element_name` element cannot occur more than `maximum_number` times.

**Explanation:**
The specified element occurs too many times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI307S** The XML structure of the `member_name` sequence metadata member is not valid. The `element_name` element must occur at least `minimum_number` times.

**Explanation:**
The specified element does not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

---

**CCQI308S** The XML structure of the `member_name` sequence metadata member is not valid. The `attribute_name` attribute in the `element_name` element cannot occur more than `maximum_number` times.

**Explanation:**
The specified attribute occurs too many times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

---

**CCQI309S** The XML structure of the `member_name` sequence metadata member is not valid. The `attribute_name` attribute in the `element_name` element must occur at least `minimum_number` times.

**Explanation:**
The specified attribute does not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

---

**CCQI310S** The XML structure of the `member_name` sequence metadata member is not valid. Content is not allowed for the `attribute_name` attribute in the `element_name` element, but content was found.

**Explanation:**
The specified attribute cannot contain content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

---

**CCQI311S** The XML structure of the `member_name` sequence metadata member is not valid. Content is required for the `attribute_name` attribute in the `element_name` element, but content was not found.

**Explanation:**
The specified attribute is missing required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

---

**CCQI312S** The XML structure of the `member_name` sequence metadata member is not valid. The content length for the `element_name` element cannot exceed `maximum_number` characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

---

**CCQI313S** The XML structure of the `member_name` sequence metadata member is not valid. The `attribute_name` attribute in the `element_name` element is unknown.

**Explanation:**
The specified attribute in the sequence metadata member is unknown.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

---

**CCQI314S** The content of the `member_name` sequence metadata member is not valid because the value of the `element_name` element is incorrect. The value is `value_name`.

**Explanation:**
The specified value for an element in the sequence metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

---

**CCQI315S** The content of the `member_name` sequence metadata member is not valid.
valid because the value of the attribute_name attribute in the element_name element is incorrect. The value is value_name.

Explanation:
The specified value for an attribute in the sequence metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI316S The content of the member_name sequence metadata member is not valid because the data type of the element_name element is incorrect. The value is value_name.

Explanation:
The specified data type value for an element in the sequence metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI317S The content of the member_name sequence metadata member is not valid because the data type of the attribute_name attribute in the element_name element is incorrect. The value is value_name.

Explanation:
The specified data type value for an attribute in the sequence metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI350S The XML structure of the member_name sequence metadata member is not valid because the value of the attribute_name attribute in the element_name element is incorrect. The value is value_name.

Explanation:
A specified value for an attribute in the sequence metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI351S The member_name sequence metadata member was not found in the data_set_name metadata data set.

Explanation:
Tools Customizer could not find the specified sequence metadata member in the metadata data set.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI352S The template_name product template was not found in the data_set_name metadata data set.

Explanation:
Tools Customizer could not find the specified product template in the data set.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI353S The sequence metadata member was not found in the data_set_name component data set that is part of the data_set_name pack.

Explanation:
Tools Customizer could not find the sequence metadata member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI360S The XML structure of the member_name sequence metadata member is not valid. The value of the attribute_name attribute in the element_name element already exists.

Explanation:
The specified attribute contains a value that already exists.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI361S**
The XML structure of the *member_name* sequence metadata member is not valid. The condition element on the *level_type* level already contains a relational operator.

**Explanation:**
A relational operator already exists for the condition element on the specified level.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI362S**
The XML structure of the *member_name* sequence metadata member is not valid. The condition element on the *level_type* level must contain only one content string or content number element.

**Explanation:**
Only one content string element or content number element can be contained in the condition element on the specified level.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI363S**
The XML structure of the *member_name* sequence metadata member is not valid. The condition element in the *element_name* element with the *attribute_name* attribute must contain either the content string element or the content number element.

**Explanation:**
Either the content string element or the content number element must be in the condition element.

**System action:**
Processing stops.

**User response:**
Contact IBM Software Support.

**CCQI400W**
The XML structure of the *member_name* parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.

**Explanation:**
While determining the parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

**System action:**
Processing continues.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

**CCQI401S**
The XML structure of the *member_name* parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.

**Explanation:**
While determining if the parameter metadata member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing stops.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

**CCQI402S**
The XML structure of the *member_name* parameter metadata member is not valid. The *element_name* element is unknown.

**Explanation:**
The specified element in the parameter metadata member is unknown.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI403S**
The XML structure of the *member_name* parameter metadata member is not valid. Content is not allowed for the *element_name* element, but content was found.

**Explanation:**
The specified element cannot contain content.
The XML structure of the member_name parameter metadata member is not valid. Content is required for the element_name element, but content was not found.

Explanation:
The specified element requires content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI405S

The XML structure of the member_name parameter metadata member is not valid. The content length for the element_name element cannot exceed maximum_number characters.

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI406S

The XML structure of the member_name parameter metadata member is not valid. The content length for the element_name element must be at least minimum_number characters.

Explanation:
The specified element does not contain enough characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI407S

The XML structure of the member_name parameter metadata member is not valid. The element_name element must occur at least minimum_number times.

Explanation:
The specified element does not occur enough times.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI408S

The XML structure of the member_name parameter metadata member is not valid. The attribute_name attribute in the element_name element cannot occur more than maximum_number times.

Explanation:
The specified attribute occurs too many times.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI409S

The XML structure of the member_name parameter metadata member is not valid. The attribute_name attribute in the element_name element must occur at least minimum_number times.

Explanation:
The specified attribute does not occur enough times.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI410S

The XML structure of the member_name parameter metadata member is not valid. Content is not allowed for the attribute_name attribute in the element_name element, but content was found.

Explanation:
The specified attribute cannot have content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQI411S**
The XML structure of the *member_name* parameter metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.

**Explanation:**
The specified attribute is missing required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI412S**
The XML structure of the *member_name* parameter metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI413S**
The XML structure of the *member_name* parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.

**Explanation:**
The specified attribute in the parameter metadata member is unknown.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI414S**
The content of the *member_name* parameter metadata member is not valid because the value of the *element_name* element is incorrect. The value is *value_name*.

**Explanation:**
The specified value for an element in the parameter metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI415S**
The content of the *member_name* parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.

**Explanation:**
The specified value for an attribute in the parameter metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI416S**
The content of the *member_name* parameter metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.

**Explanation:**
The specified data type value for an element in the parameter metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI417S**
The content of the *member_name* parameter metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.

**Explanation:**
The specified data type value for an attribute in the parameter metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
CCQI420S  The XML structure of the member_name parameter metadata member is not valid. The element_name element is unknown for the overridden Db2 parameter.

Explanation:

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI421S  The XML structure of the member_name parameter metadata member is not valid. The element_name element is unknown for the overridden LPAR parameter.

Explanation:

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI422S  The XML structure of the member_name parameter metadata member is not valid. The attribute_name attribute in the element_name element is unknown for the overridden Db2 parameter.

Explanation:

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI423S  The XML structure of the member_name parameter metadata member is not valid. The attribute_name attribute in the element_name element is unknown for the overridden LPAR parameter.

Explanation:

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI450S  The member_name product parameter metadata member was not found in the data_set_name data set.

Explanation:

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI510W  The data_set_name data store data set does not exist.

Explanation:

System action:
Processing continues.

User response:
Ensure that the data store data set exists.

CCQI511S  The data_set_name data store data set cannot be opened by using the disposition_type disposition.

Explanation:

System action:
Processing continues.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI512S  The data_set_name data store data set cannot be opened by using the option-type option.

Explanation:

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI600W  The XML structure of the member_name product customization parameter metadata member is not valid. The PL/I XML parser issued the
following exception warning code: 
*code_number*.

**Explanation:**
While determining if the product customization parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

**System action:**
Processing continues.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the warning.

---

**CCQI601S**
The XML structure of the *member_name* product customization parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: 
*code_number*.

**Explanation:**
While determining if the product customization parameter metadata member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing continues.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the warning.

---

**CCQI602S**
The XML structure of the *member_name* product customization parameter metadata member is not valid. The *element_name* element is unknown.

**Explanation:**
The specified product customization parameter metadata member contains an unknown element.

**System action:**
Processing continues.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the warning.

---

**CCQI603S**
The XML structure of the *member_name* product customization parameter metadata member is not valid. Content is not allowed for the *element_name* element, but content was found.

**Explanation:**
Content was found in an element that cannot contain content.

---

**CCQI604S**
The XML structure of the *member_name* product customization parameter metadata member is not valid. Content is required for the *element_name* element, but content was not found.

**Explanation:**
The specified element does not contain required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI605S**
The XML structure of the *member_name* product customization parameter metadata member is not valid. The content length for the *element_name* element 'cannot exceed *maximum_number* characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI606S**
The XML structure of the *member_name* product customization parameter metadata member is not valid. The *element_name* element cannot occur more than *maximum_number* times.

**Explanation:**
The specified element occurs too many times in the product customization parameter metadata member.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
CCQI607S  The XML structure of the member_name product customization parameter metadata member is not valid. The element_name element must occur at least minimum_number times.

Explanation:
The specified element does not occur enough times in the product customization parameter metadata member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI608S  The XML structure of the member_name product customization parameter metadata member is not valid. The attribute_name attribute in the element_name element cannot occur more than maximum_number times.

Explanation:
The specified attribute occurs too many times in the product customization parameter metadata member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI609S  The XML structure of the member_name product customization parameter metadata member is not valid. The attribute_name attribute in the element_name element must occur at least minimum_number times.

Explanation:
The specified attribute does not occur enough times in the product customization parameter metadata member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI610S  The XML structure of the member_name product customization parameter metadata member is not valid.

Content is not allowed for the attribute_name attribute in the element_name element, but content was found.

Explanation:
Content was found in an element that cannot contain content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI611S  The XML structure of the member_name product customization parameter metadata member is not valid. Content is required for the attribute_name attribute in the element_name element, but content was not found.

Explanation:
The specified attribute does not contain required content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI612S  The XML structure of the member_name product customization parameter metadata member is not valid. The content length for the attribute_name attribute in the element_name element cannot exceed maximum_number characters.

Explanation:
The specified attribute contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI613S  The XML structure of the member_name product customization parameter metadata member is not valid. The attribute_name attribute in the element_name element is unknown.

Explanation:
The specified attribute is unknown.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
Explanation:
The specified product customization parameter metadata member contains an unknown attribute.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI614S

The XML structure of the member_name product customization parameter metadata member is not valid. The value of the element_name element is not valid. The value value_name.

Explanation:
The specified value of the element is not a valid value.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI615S

The XML structure of the member_name product customization parameter metadata member is not valid. The value of the attribute_name attribute for the element_name element is not valid. The value is value_name.

Explanation:
The specified value of an attribute already exists.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI616S

The XML structure of the member_name product customization parameter metadata member is not valid. The data type of the element_name element is 'not valid. The value of the element is value_name.

Explanation:
The specified data type is not a valid data type.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQI617S

The XML structure of the member_name product customization parameter metadata member is not valid. The data type of the attribute_name attribute for the element_name element is not valid. The value of the attribute is value_name.

Explanation:
The specified data type is not a valid data type.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
the *element_name* parameter element exceeds the length of the parameter. The default length is *default_length*, and the specified length is *specified_length*. The default length will be truncated accordingly.

**Explanation:**
The specified length cannot be shorter than the default length.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI653S**
The content of the *member_name* product customization parameter metadata member is not valid. The value of the *attribute_name* attribute in the *element_name* element is not valid. The value of the attribute is *value_name*.

**Explanation:**
The specified value of the attribute is not a valid value.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

While determining if the specified solution pack metadata member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing stops.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the error.

**CCQI702S**
The XML structure of the *member_name* solution pack metadata member is not valid. The *element_name* element is unknown.

**Explanation:**
The specified solution pack metadata member contains an unknown element.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI703S**
The XML structure of the *member_name* solution pack metadata member is not valid. Content is not allowed for the *element_name* element, but content was found

**Explanation:**
Content was found in an element that cannot contain content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQI704S**
The XML structure of the *member_name* solution pack metadata member is not valid. Content is required for the *element_name* element, but content was not found.

**Explanation:**
The specified element does not contain required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
The XML structure of the solution pack metadata member is not valid. The content length for the element cannot exceed maximum characters.

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The XML structure of the solution pack metadata member is not valid. The element cannot occur more than maximum times.

Explanation:
The specified element occurs too many times.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The XML structure of the solution pack metadata member is not valid. The element must occur at least minimum times.

Explanation:
The specified element does not occur enough times.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The XML structure of the solution pack metadata member is not valid. The attribute cannot have content.

Explanation:
The specified attribute cannot have content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The XML structure of the solution pack metadata member is not valid. Content is required for the attribute attribute in the element, but content was not found.

Explanation:
The specified attribute is missing content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
**Explanation:**
The specified attribute contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

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**CCQI713S**
The XML structure of the `member_name` solution pack metadata member is not valid. The `attribute_name` attribute in the `element_name` element is unknown.

**Explanation:**
The specified attribute in the solution pack metadata member is unknown.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI714S**
The XML structure of the `member_name` solution pack metadata member is not valid because the value of the `element_name` element is incorrect. The value is `value_name`.

**Explanation:**
The specified value of the element is not a valid value.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI715S**
The XML structure of the `member_name` solution pack metadata member is not valid because the value of the `attribute_name` attribute in the `element_name` element is incorrect. The value of the attribute is `value_name`.

**Explanation:**
The specified value of the attribute is not a valid value.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI716S**
The XML structure of the `member_name` solution pack metadata member is not valid because the data type of the `element_name` element is incorrect. The value is `value_name`.

**Explanation:**
The specified data type is not a valid data type.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI717S**
The XML structure of the `member_name` solution pack metadata member is not valid because the data type of the `attribute_name` attribute in the `element_name` element is incorrect. The value of the attribute is `value_name`.

**Explanation:**
The specified data type is not a valid data type.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI720S**
The XML structure of the `member_name` solution pack metadata member is not valid because the data type of the `element_name` element is incorrect. The value of the `attribute_name` attribute in the `element_name` element is incorrect. The value of the attribute is `value_name`.

**Explanation:**
The specified value of the attribute is not a valid value.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

---

**CCQI750S**
The solution pack metadata member was not found in the `library_name` metadata library.

**Explanation:**
Tools Customizer could not find the solution pack metadata member in the specified library.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQI751S**
The version in the `library_name` solution pack metadata library is different than the version in the `library_name` component metadata library. The name of the pack is `pack_name`, and the name of the component is `component_name`.

**Explanation:**
The version in the solution pack metadata library does not match the version in the component metadata library.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQI752S**
The release in the `library_name` solution pack metadata library is different than the release in the `library_name` component metadata library. The name of the pack is `pack_name`, and the name of the component is `component_name`.

**Explanation:**
The release in the solution pack metadata library does not match the release in the component metadata library.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQI753S**
The modification level in the `library_name` solution pack metadata library is different than the modification level in the `library_name` component metadata library. The name of the pack is `pack_name`, and the name of the component is `component_name`.

**Explanation:**
The modification level in the solution pack metadata library does not match the modification level in the component metadata library.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQI755S**
The XML structure of the `member_name` parameter metadata member is not valid. When a default value is not specified in the metadata member, the "required" attribute with a value of "true" cannot be specified.

**System action:**
Processing stops.

**User response:**
Contact IBM Software Support.

**CCQM002E**
The `command_name` line command is not valid: .

**Explanation:**
The specified line command is not valid.

**System action:**
Processing continues.

**User response:**
Specify a valid line command on the panel.

**CCQO000W**
The XML structure of the `member_name` discover parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: `code_number`.

**Explanation:**
While determining if the discover parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

**System action:**
Processing continues.

**User response:**
See the Enterprise PL/I for z/OS Programming Guide for more information about the exception warning code.

**CCQO001S**
The XML structure of the `member_name` discover parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: `code_number`.

**Explanation:**

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While determining if the Discover metadata member is valid, the PL/I XML parser issued an exception error code.

**System action:**
Processing stops.

**User response:**
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code. Contact IBM Software Support.

**CCQ0002S** The XML structure of the *member_name* discover parameter metadata member is not valid. The *element_name* element is unknown.

**Explanation:**
The specified element in the discover parameter metadata member is unknown.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0003S** The XML structure of the *member_name* discover parameter metadata member is not valid. Content is not allowed for the *element_name* element, but content was found.

**Explanation:**
The specified element cannot contain content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0004S** The XML structure of the *member_name* discover parameter metadata member is not valid. Content is required for the *element_name* element, but content was not found.

**Explanation:**
The specified element is missing required content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0005S** The XML structure of the *member_name* discover parameter metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.

**Explanation:**
The specified element contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0006S** The XML structure of the *member_name* discover parameter metadata member is not valid. The *element_name* element cannot occur more than *maximum_number* times.

**Explanation:**
The specified element occurs too many times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0007S** The XML structure of the *member_name* discover parameter metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.

**Explanation:**
The specified element does not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0008S** The XML structure of the *member_name* discover parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.

**Explanation:**
The specified attribute occurs too many times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

**CCQ0009S**  The XML structure of the *member_name* discover parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.

**Explanation:**
The specified attribute does not occur enough times.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0010S**  The XML structure of the *member_name* discover parameter metadata member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.

**Explanation:**
The specified attribute cannot contain content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0011S**  The XML structure of the *member_name* discover parameter metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.

**Explanation:**
The specified attribute requires content.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0012S**  The XML structure of the *member_name* discover parameter metadata member is not valid. The content length for the *attribute_name* attribute in the *element_name* element in the cannot exceed *maximum_number* characters.

**Explanation:**
The specified attribute contains too many characters.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0013S**  The XML structure of the *member_name* discover parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.

**Explanation:**
The specified attribute is unknown.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0014S**  The content of the *member_name* discover parameter metadata member is not valid because the value of the *element_name* element is incorrect. The value is *value_name*.

**Explanation:**
The specified value for an element in the discover parameter metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

**CCQ0015S**  The content of the *member_name* discover parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.

**Explanation:**
The specified value for an attribute in the discover parameter metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.
CCQO016S  The content of the **member_name**
discover parameter metadata
member is not valid because the
data type of the **element_name**
element is incorrect. The value is **value_name**.

**Explanation:**
The specified data type value for an element in the
discover parameter metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQO017S  The content of the **member_name**
product parameter metadata
member is not valid because the
data type of the **attribute_name**
attribute in the **element_name**
element is incorrect. The value is **value_name**.

**Explanation:**
The specified data type value for an attribute in the
product parameter metadata member is not valid.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742.
Contact IBM Software Support.

CCQO050S  The **data_set_name** Discover REXX
EXEC data set could not be
initialized or was not found.

**Explanation:**
Tools Customizer could not find or could not initialize
the specified Discover REXX EXEC data set.

**System action:**
Processing stops.

**User response:**
Ensure that the specified Discover data set was specified
correctly.

CCQO051W  The **data_sharing_group_ID** data
sharing group ID cannot contain
more than four characters.

**Explanation:**
The specified data sharing group ID contains too many
characters.

**System action:**
Processing continues.

**User response:**
Ensure that the specified data sharing group ID does not exceed
four characters.

CCQO052S  The **REXX_EXEC_name** Discover
REXX EXEC was not found in the
**data_set_name** Discover data set.

**Explanation:**
Tools Customizer could not find the Discover REXX
EXEC in the specified data set.

**System action:**
Processing stops.

**User response:**
Ensure that the specified LPAR name does not exceed
four characters.

CCQO053W  The **LPAR_name** LPAR name
cannot contain more than eight
characters.

**Explanation:**
The specified LPAR name contains too many
characters.

**System action:**
Processing continues.

**User response:**
Ensure that the specified LPAR name does not exceed
eight characters.

CCQO054W  The **subsystem_ID** Db2 SSID
cannot contain more than four
characters. The record was not
processed.

**Explanation:**
The specified Db2 SSID contains too many characters.

**System action:**
Processing continues.

**User response:**
Ensure that the specified Db2 SSID does not exceed
four characters.

CCQO055W  The **parameter_name** Db2 group
attach name parameter is in the
**record_name** Discover record, but
a Db2 group attach name was not
specified. The record was not
processed.

**Explanation:**
The Discover record contains a data sharing group
parameter, but a Db2 group attach name was not
specified.

**System action:**
Processing continues.

**User response:**
Ensure that information is specified correctly on the
Discover Customized Product Information panel.
CCQO056W  The parameter_name Db2 parameter in the record_name Discover record did not have a Db2 group attach name or a Db2 SSID. The record was not processed.

Explanation:
The Discover record did not have a Db2 group attach name or a Db2 subsystem ID in the Db2 parameter.

System action:
Processing continues.

User response:
Ensure that information is specified correctly on the Discover Customized Product Information panel.

CCQO057W  The Discover EXEC could not find the parameter_name parameter in the metadata for the product to be customized. The record was not processed.

Explanation:
The specified parameter could not be found in the metadata for the product to be customized.

System action:
Processing continues.

User response:
Ensure that information is specified correctly on the Discover Customized Product Information panel.

CCQO058W  The parameter_name product parameter name in the record_type Discover record does not start with CCQ_LPR_, CCQ_DB2_, or CCQ_PRD_. The record was not processed.

Explanation:
The parameter in the record does not start with CCQ_DB2_, CCQ_LPAR_, or CCQ_PRD_.

System action:
Processing continues.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQO059W  The parameter_name product parameter cannot contain more than 72 characters. The record was not processed.

Explanation:
The specified product parameter contains too many characters.

System action:
Processing continues.

User response:
Ensure that the specified product parameter does not exceed 72 characters.

CCQO060W  The record_name Discover record from the REXX EXEC output must start with the following record type: record_type. The record was not processed.

Explanation:
A Discover record from the REXX EXEC output must start with the specified Db2 record type.

System action:
Processing continues.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQO061I  If you do not have a previously customized version of the product, do not run the Discover EXEC. Press END to go to the Customizer Workplace panel.

Explanation:
This message is issued when you customize a product for the first time. It prompts you to use the Discover EXEC to discover data from a previous customization of the specified product.

System action:
Processing continues.

User response:
Tip: Using the Discover EXEC saves time and reduces errors that can occur when parameters are specified manually. If you want to use the Discover EXEC, specify the required information on the Discover Customized Product Information panel. Otherwise, press End to continue without discovering data from a previous customization of the product.

CCQO062W  The Discover EXEC could not find the following parameter_name parameter in the Db2 metadata. The record was not processed.

Explanation:
The specified parameter is missing in the Db2 metadata.

System action:
Processing continues.

User response:
If this parameter is required, contact IBM Software Support.

CCQO064W  The Discover-record Discover record did not have a parameter
name. The record was not processed.

Explanation:
A parameter name was missing in the Discover record.

System action:
Processing continues.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQO065W
The value for the parameter_name parameter is ignored because it has more than maximum_number characters, which is the maximum length that is defined in the metadata. The value is parameter_value.

Explanation:
The specified value exceeded the maximum allowed length, which was defined in the metadata. Tools Customizer truncated the extra characters.

System action:
Processing continues.

User response:
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

CCQO066W
The record_name Discover record from the Discover REXX EXEC output does not have a parameter value. The record was not processed.

Explanation:
The Discover record was missing a parameter value from the Discover EXEC output.

System action:
Processing continues.

User response:
Ensure that information was specified correctly on the Discover Customized Product Information panel.

CCQO067W
The parameter_name parameter is defined in the metadata to support one value, but more than one value was found. The last value was used.

Explanation:
The definition of the parameter in the metadata supports one value, but more than one value was specified. Only the last value was used.

System action:
Processing continues.

User response:

Ensure that information was specified correctly on the Discover Customized Product Information panel.

CCQO068W
The value of the parameter_name parameter is ignored because the parameter is defined as internal=true. The value is value_name.

Explanation:
The specified value of the parameter is ignored because it is defined as internal=true.

System action:
Processing continues.

User response:
Ensure that information was specified correctly on the Discover Customized Product Information panel.

CCQO069W
The Discover EXEC did not find the parameter_name parameter in the LPAR metadata. The record was not processed.

Explanation:
The specified parameter is missing from the LPAR metadata.

System action:
Processing continues.

User response:
Ensure that information was specified correctly on the Discover Customized Product Information panel.

CCQO070W
The record_type Discover record contains an incorrect delimiter between the Environment section and the Data section. The record was not processed.

Explanation:
Tools Customizer found an incorrect delimiter between the Environment section and the Data section.

System action:
None.

User response:
No action is required.

CCQO071W
The member_name member could not be found in the data_set_name Discover data set.

Explanation:
Tools Customizer could not find the specified Discover data set.

System action:
None.

User response:
No action is required.
The member_name discover metadata member was not found in the data_set_name metadata data set.

**Explanation:**
Tools Customizer could not find the specified metadata member in the data set.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

The member_name discover metadata member was not valid because the default length for the element_name parameter element exceeds the length of the parameter. The default length is default_length, and the specified length is specified_length. The default length will be truncated accordingly.

**Explanation:**
The default length for the specified parameter element is longer than the parameter.

**System action:**
Processing continues.

**User response:**
No action is required.

The content of the member_name discover metadata member is not valid. The value of the attribute_name attribute in the element_name element is not valid. The value of the attribute is value_name.

**Explanation:**
The specified value is not valid.

**System action:**
Processing stops.

**User response:**
No action is required.

The configuration_ID configuration ID in the record_name Discover record is incorrect. The record was not processed.

**Explanation:**
The specified configuration ID was not found in the data_set_name component data set that is part of the data_set_name pack.

**System action:**
Processing stops.

**User response:**
See “Gathering diagnostic information” on page 742. Contact IBM Software Support.

Additional configurations were discovered and saved in the data store. All Db2 entries associated with this configuration are listed.

**System action:**
None.

**User response:**
No action is required.

Product_name does not support the Discover process.

**Explanation:**
The specified product does not support the Discover process.

**System action:**
None.

**User response:**
No action is required.

The value of the mode_name Db2 mode is not valid for the level_name Db2 level.

**Explanation:**
The specified Db2 mode is not valid for the Db2 level.
System action: Processing stops.

User response: Specify a valid Db2 mode for the Db2 level.

CCQP001E The value of the mode_name Db2 mode is missing.

Explanation: The specified Db2 mode is not defined.

System action: Processing stops.

User response: Specify a value for the Db2 mode.

CCQP002E The value of the mode_name Db2 level is missing.

Explanation: The specified Db2 level is not defined.

System action: Processing stops.

User response: Specify a valid value for the Db2 mode.

CCQP003E The value of the level_name Db2 level is not valid.

Explanation: The specified Db2 level does not have a valid name.

System action: Processing stops.

User response: Specify a valid value for the Db2 level.

CCQP004E The parameter_name parameter does not exist in the CCQ$$DB2 Db2 parameter metadata member.

Explanation: The CCQ$$DB2 Db2 parameter metadata member does not contain the specified parameter.

System action: Processing stops.


CCQP005E The value of the subsystem_ID Db2 SSID is missing.

Explanation: The specified Db2 SSID is not defined.

System action: Processing stops.

User response: Specify a valid value for the Db2 SSID.

CCQP006E The value of the group_attach_name Db2 group attach name is missing.

Explanation: The specified Db2 group attach name is not defined.

System action: Processing stops.

User response: Specify a valid Db2 group attach name.

CCQQ000E Specify a valid metadata library. Each qualifier of the library must start with an alphabetic character and must be 1-8 alphanumeric characters. The library name must be 1-44 characters.

Explanation: The metadata library was not specified in the correct format. The high-level qualifier must contain alphanumeric characters, and the first character cannot be numeric. The name cannot contain wildcard characters, such as asterisks (*) and percent signs (%).

System action: Tools Customizer prompts for the correct library name.

User response: Specify a library in the correct format. If the message was issued on the Specify the Metadata Library (CCQPHLQ) panel, specify the product metadata library. The name of this library is hlq.SCQMDENU. Do not specify the Tools Customizer metadata library, which is hlq.SCQDENU.

CCQQ001E The data_set_name data set name that was specified for the metadata library was not found.

Explanation: The data set does not exist, or the data set name was written in the incorrect format. The high-level qualifier must contain alphanumeric characters, and the first character cannot be numeric. The name cannot contain wildcard characters, such as asterisks (*) and percent signs (%).

System action: Tools Customizer prompts for the correct data set name.

User response: Specify a data set name in the correct format.

CCQQ002E The data set name that was specified for the library_name metadata library cannot be opened.

Explanation: The data set name that was specified for the library_name metadata library cannot be opened.
Tools Customizer could not open the data set.

System action:
Tools Customizer prompts for an available data set.

User response:
Ensure that the specified data set is available for Tools Customizer to open it.

CCQ003E  The data_set_name data set name that was specified for the metadata sample library is not valid. The data set must be in the following format: HLQ.SxxxSAMP.

Explanation:
The specified data set name was not specified in the correct format.

System action:
None.

User response:
Specify the data set name in the following format: HLQ .SxxxSAMP, where xxx is the three-character prefix for the product.

CCQ004E  The data_set_name data set is being used by another user. Try again when the data set is not being used.

Explanation:
Another user is using the specified data set.

System action:
None.

User response:
Ensure that the specified data set is not being used.

CCQ009E  The data_set_name data set name that was specified for the metadata library is not valid because the data set is empty.

Explanation:
The specified data set is empty.

System action:
Tools Customizer prompts for an available data set.

User response:
Ensure that the specified data set is available for Tools Customizer to open it.

CCQ011E  The library_name metadata library for the component that is part of the library_name pack was not found in the catalog. The name of the pack is pack_name, and the name of the component is component_name.

Explanation:
The specified metadata library is not in the catalog.

System action:
Tools Customizer could not open the data set.

System action:
None.

User response:
Specify another metadata library.

CCQ012E  The library_name metadata library for the component that is part of the library_name pack cannot be opened.

Explanation:
The specified metadata library cannot be opened.

System action:
None.

User response:
Ensure that the name of the library is specified correctly.

CCQS001I  Tools Customizer is being invoked for the first time or the previous ISPF session ended before Tools Customizer was exited. In both cases, the fields on this panel are populated with default values. Review these default values or specify new values to be used to customize products or packs.

Explanation:
When you customize a stand-alone product or a solution pack for the first time, or when an ISPF session unexpectedly ends before the ISPF profile is saved, you must specify or review your Tools Customizer user settings.

System action:
Processing stops.

User response:
Review and accept the default settings, or specify new settings.

CCQS002W  The data_set_name Discover data set could not be found.

Explanation:
Tools Customizer could not find the specified data set.

System action:
None.

User response:
Specify another data set that can be opened.
The data set will be allocated, and processing continues.

**User response:**
Ensure that the data set name is specified correctly because the data set will be allocated with this name after the values are saved.

<table>
<thead>
<tr>
<th>CCQS003W</th>
<th>The data_set_name Discover data set was not found so it was created.</th>
</tr>
</thead>
</table>

**Explanation:**
Tools Customizer could not find the specified data set.

**System action:**
Processing continues.

**User response:**
Ensure that the data set name is specified correctly.

<table>
<thead>
<tr>
<th>CCQS004I</th>
<th>The settings were saved.</th>
</tr>
</thead>
</table>

**Explanation:**
The settings that you changed were saved.

**System action:**
Processing continues.

**User response:**
No action is required.

<table>
<thead>
<tr>
<th>CCQS006W</th>
<th>The length of a qualifier for the data_set_name customization library data set exceeds 26 characters.</th>
</tr>
</thead>
</table>

**Explanation:**
The qualifier for the customization library data set is too long. The qualifier cannot exceed 26 characters.

**System action:**
Processing continues.

**User response:**
Specify a qualifier that is 26 characters or less.

<table>
<thead>
<tr>
<th>CCQS007E</th>
<th>The discover data set data_set_name could not be opened with the option-type option.</th>
</tr>
</thead>
</table>

**Explanation:**
The specified option could not open the Discover data set.

**System action:**
None.

**User response:**
Specify a valid option for the group attach option.

<table>
<thead>
<tr>
<th>CCQS008E</th>
<th>The Discover data set data_set_name exists on a different volume.</th>
</tr>
</thead>
</table>

**Explanation:**
The specified Discover data set must exist on the same volume as where it was created.

**System action:**
Processing continues.

**User response:**
Specify a different Discover data set name.

<table>
<thead>
<tr>
<th>CCQS010E</th>
<th>The customization library qualifier is not valid.</th>
</tr>
</thead>
</table>

**Explanation:**
The customization library qualifier that was specified is not valid.

**System action:**
None.

**User response:**
Specify a valid qualifier for the customization library.

<table>
<thead>
<tr>
<th>CCQS011E</th>
<th>The group attach option is not valid.</th>
</tr>
</thead>
</table>

**Explanation:**
The group attach option that was specified is not valid.

**System action:**
None.

**User response:**
Specify a valid option for the group attach option.

<table>
<thead>
<tr>
<th>CCQS012E</th>
<th>The Tools Customizer metadata library is not valid.</th>
</tr>
</thead>
</table>

**Explanation:**
The metadata library that was specified is not a valid data set.

**System action:**
None.

**User response:**
Specify a valid data set for the metadata library.

<table>
<thead>
<tr>
<th>CCQS013E</th>
<th>The Discover data set is not valid.</th>
</tr>
</thead>
</table>

**Explanation:**
The Discover data set that was specified is not a valid data set.

**System action:**
None.

**User response:**
Specify a valid Discover data set.

<table>
<thead>
<tr>
<th>CCQS014E</th>
<th>The data store data set is not valid.</th>
</tr>
</thead>
</table>

**Explanation:**
The data set that was specified is not a valid data set.

**System action:**
None.

**User response:**
Specify a valid data store data set.

**CCQS015E** Tools Customizer is already running.

**Explanation:**
A session of Tools Customizer is already running in your environment. Only one Tools Customizer session is allowed.

**System action:**
None.

**User response:**
The trace data set is being used. Free the trace data set, and start Tools Customizer again.

**CCQS018E** Information on the first line of the job card exceeds 57 characters.

**Explanation:**
The first line of the job card can contain only 57 characters. This character limit includes a continuation character.

**System action:**
Tools Customizer clears the first line of the job card.

**User response:**
Specify information that does not exceed 57 characters on the first line of the job card.

**CCQS019E** The required trace data set, *data_set_name*, is currently not accessible.

**Explanation:**
The trace data set must be accessible.

**System action:**
Processing stops.

**User response:**
Ensure that the trace data set is accessible.

**CCQS020E** An error occurred while the customization library data set was being created. ALTER authority on the high-level qualifier for the customization library data set is required.

**Explanation:**
To create the customization library data set, ALTER authority on the specified high-level qualifier must be granted.

**System action:**
None.

**User response:**
Ensure that ALTER authority for the specified customization library data set is granted.

**CCQS021E** The value *value_name* in the field that contains the cursor position is not valid.

**Explanation:**
The specified value is not valid.

**CCQS022E** An error occurred while the customization library data set was being opened. UPDATE authority on the high-level qualifier for the customization library data set is required.

**Explanation:**
To open the customization library data set, UPDATE authority on the specified high-level qualifier must be granted.

**System action:**
None.

**User response:**
Ensure that UPDATE authority for the specified customization library data set is granted.

**CCQS023E** An error occurred while the customization library data set was being opened. UPDATE authority on the high-level qualifier for the customization library data set is required.

**Explanation:**
To open the customization library data set, UPDATE authority on the specified high-level qualifier must be granted.

**System action:**
None.

**User response:**
Ensure that UPDATE authority for the specified customization library data set is granted, or specify a different high-level qualifier for the customization library data set on the Tools Customizer Settings panel.

**CCQS024E** An error occurred while the customization library data set was being created. ALTER authority on the high-level qualifier for the customization library data set is required.

**Explanation:**
To create the customization library data set, ALTER authority on the specified high-level qualifier must be granted.

**System action:**
None.

**User response:**
Ensure that ALTER authority for the specified customization library data set is granted, or specify a different high-level qualifier for the customization library data set on the **Tools Customizer Settings** panel.

**CCQS025I**
The display options were saved.

**System action:**
None.

**User response:**
No action is required.

**CCQS026E**
The customization library data set `data_set_name` could not be opened because the requester does not have UPDATE authority on this data set.

**Explanation:**
Users must have UPDATE authority to open the customization library data set. Users must have UPDATE authority to open the customization library data set.

**System action:**
None.

**User response:**
Ensure that UPDATE authority for the specified customization library data set is granted or specify a different high-level qualifier for the customization library data set on the **Tools Customizer Settings** panel.

**CCQS027E**
The customization library data set `data_set_name` could not be created because the requester does not have ALTER authority on this data set.

**Explanation:**
To create the customization library data set, ALTER authority on the data set must be granted.

**System action:**
Processing stops.

**User response:**
Ensure that ALTER authority for the specific customization library data set is granted, or specify a different high-level qualifier for the customization library data set on the **Tools Customizer Settings** panel.

**CCQS029E**
The customization library data set is not valid. Enter a valid data set name or use the Tools Customizer default: `data_set_name`.

**Explanation:**
The specified data set name is invalid.

**System action:**
Processing stops.

**User response:**
Specify a valid data set name.

**CCQS030E**
The following command is not a valid CREATE statement: `command_statement`.

**Explanation:**
The specified CREATE command statement is invalid because it contains blanks or alphabetic characters.

**System action:**
Processing stops.

**User response:**
Specify a valid CREATE command statement. The correct syntax is CREATE `nn`, where `nn` is 1 - 99.

**CCQS031E**
The following command is not a valid CREATE statement: `command_statement`. The number that can be specified with the CREATE command is 1 - 99.

**Explanation:**
The specified CREATE command statement is invalid because it contains either 0 or a number greater than 99.

**System action:**
Processing stops.

**User response:**
Specify a valid CREATE command statement. The correct syntax is CREATE `nn`, where `nn` is 1 - 99.

**CCQS033E**
A user profile cannot be copied into the same user profile.

**Explanation:**
The specified data set cannot be copied into user's own user profile.

**System action:**
Processing stops.

**User response:**
Enter a different data set name.

**CCQS034E**
The shared user profile data set `data_set_name` could not be created because the requester does not have UPDATE authority on this data set or because the
data set already exists in another volume serial.

Explanation:
To create a shared user profile data set, the requester must have update authority on the data set, and the specified data set name must be unique.

System action:
Processing stops.

User response:
Ensure that the requester has UPDATE authority on the data set and ensure that the data set name is unique.

CCQS035E The specified data set already has a user profile. Specify a different data set, or press Enter again to replace the existing user profile.

Explanation:
Pressing Enter overwrites the previous user profile for the specified data set with user’s own user profile.

System action:
Processing stops.

User response:
Specify a different data set name.

CCQS036E The customization library data_set_name already exists in volume and cannot be created in a different volume. Enter a different customization library name.

Explanation:
The same data set name cannot exist in a different volume.

System action:
Processing stops.

User response:
Specify a different data set name.

CCQS037E The data set name was either not specified or invalid.

Explanation:
The data set name specified does not follow the IBM data set name convention.

System action:
Processing stops.

User response:
Specify a valid data set name.

CCQS038E The specified data set cannot be used.

Explanation:
The specified data sets contain information that supports Tools Customizer, but this data set cannot be used.

System action:
Processing stops.

User response:
Specify a different data set.

CCQS039E The specified data set has an invalid record format.

Explanation:
The specified data set should be saved as a different record format. For example, the record format should be FB (Formated Block) but it is set to VB (Variable Block).

System action:
Processing stops.

User response:
Specify a valid record format.

CCQT000I The product configuration ID copied_configuration_ID was successfully copied from configuration_ID.

Explanation:
The specified configuration ID was copied.

System action:
None.

User response:
No action is required.

CCQT001E The command_name line command was specified more than once, which is not allowed.

Explanation:
The specified line command cannot be specified more than one time.

System action:
Processing stops.

User response:
Specify the line command only once.

CCQT002E The configuration_ID configuration ID already exists. Specify a different configuration ID.

Explanation:
The specified configuration ID exists.

System action:
Processing stops.

User response:
Ensure that the specified configuration ID is unique.
The product configuration ID was created.

**Explanation:**
The specified configuration ID was created.

**System action:**
None.

**User response:**
No action is required.

The product configuration ID was removed.

**Explanation:**
The specified configuration ID was removed.

**System action:**
None.

**User response:**
No action is required.

The product configuration ID is not valid. The product configuration ID cannot contain a colon (:).

**Explanation:**
The specified configuration ID contains a colon (:), but a colon is not valid.

**System action:**
Processing stops.

**User response:**
Specify a configuration ID that does not contain a colon.

The configuration ID configuration ID exists. Specify a different configuration ID.

**Explanation:**
The specified configuration ID exists.

**System action:**
Processing stops.

**User response:**
Specify another configuration ID.

The configuration ID configuration ID exists but was removed from the list of configurations. To use this configuration ID, you must restore it.

**Explanation:**
The specified configuration ID exists but was removed from the list of available configuration.

**System action:**
Processing stops.

**User response:**

Specify another configuration ID. To restore the specified configuration ID, issue the CREATE command, and specify the same configuration ID again.

The configuration ID configuration ID exceeds maximum number characters.

**Explanation:**
The specified configuration ID contains too many characters.

**System action:**
Processing stops.

**User response:**
Specify another configuration ID that does not exceed the maximum number of characters that was set by Db2 Query Monitor.

Create request for configuration ID configuration ID was cancelled by user.

**Explanation:**
The request to create the specified configuration was canceled.

**System action:**
Processing stops.

**User response:**
No action is required.

The configuration ID configuration ID was not copied.

**Explanation:**
The specified configuration was not copied.

**System action:**
Processing stops.

**User response:**
No action is required.

The configuration ID configuration ID was not removed.

**Explanation:**
The specified configuration was not removed.

**System action:**
Processing stops.

**User response:**
No action is required.

None of the configurations were copied or removed. All of the previously selected configurations are deselected.

**Explanation:**
The selected configurations were not copied or removed, and they are deselected.
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System action:
Processing stops.

User response:
No action is required.

CCQT014E  Specify Y or N and press Enter to continue, or press End to cancel.

Explanation:
A function requires input.

System action:
Processing stops.

User response:
To continue, specify Y or N and press Enter. Otherwise, press End to cancel.

CCQT015E  The command_name command is not allowed during the process of "Select" configuration line command.

Explanation:
The specified command is not allowed while the line command for selecting configurations is processing.

System action:
Processing stops.

User response:
Remove the specified line command.

CCQT016I  The configuration_ID configuration was not created

Explanation:
The specified configuration was not created.

System action:
Processing stops.

User response:
No action is required.

CCQT017I  The configuration_ID configuration was not copied.

Explanation:
The specified configuration was not copied.

System action:
Processing stops.

User response:
No action is required.

CCQT018E  Specify Y or N, and press Enter.

Explanation:
A function requires input.

System action:
Processing stops.

User response:
To continue, specify Y or N, and press Enter.

CCQT019I  The select configuration_ID configuration process ended.

Explanation:
The select process for the specified configuration is finished.

System action:
Processing stops.

User response:
No action is required.

CCQT020E  The configuration_ID configuration was not created because the data store was not accessible.

Explanation:
The specified configuration was not created because the data store could not be accessed.

System action:
Processing stops.

User response:
Ensure that the data store is accessible and create the configuration again.

CCQT021E  The configuration_ID configuration was not copied because the data store was not accessible.

Explanation:
The specified configuration was not copied because the data store could not be accessed.

System action:
Processing stops.

User response:
Ensure that the data store is accessible and copy the configuration again.

CCQT025I  The configuration_ID configuration was not updated.

Explanation:
The specified configuration was not updated because the edit process was canceled.

System action:
Processing stops.

User response:
No action is required.

CCQT027I  The product configuration ID has been updated from edit_from_id to edit_to_id.

System action:
Processing continues.

User response:
No action is required.
CCQT028I  The product configuration ID has been updated from edit_from_id to edit_to_id, and the description has been updated from edit_from_des to edit_to_des.

System action: Processing continues.
User response: No action is required.

CCQT029I  The product configuration description has been updated from edit_from_des to edit_to_des.

System action: Processing continues.
User response: No action is required.

CCQX001S  Product_name has already been customized by using values from data_set_name data store data set. Switch to the specified data store data set to continue customizing this product.

Explanation: The specified product was customized by using values from the specified data store data set.

System action: Processing stops.
User response: Use the specified data store data set to continue customizing the product.

CCQX002S  component_name has already been customized by using values from data_set_name data store data set. Switch to the specified data store data set to continue customizing this component.

Explanation: The specified component was customized by using values from the specified data store data set.

System action: Processing stops.
User response: Use the specified data store data set to continue customizing the component.

CCQX011I  Product_name was not found.

Explanation: The specified product was not found.

System action: Processing stops.
User response: Specify another product.

Gathering diagnostic information

Before you report a problem with Db2 Query Monitor to IBM Software Support, you need to gather the appropriate diagnostic information.

Procedure

Provide the following information for all Db2 Query Monitor problems:

• A clear description of the problem and the steps that are required to re-create the problem
• All messages that were issued as a result of the problem
• Product release number and the number of the last program temporary fix (PTF) that was installed
• The version of Db2/IMS that you are using and the type and version of the operating system that you are using
• Enter the MVS modify command: F taskname,DDX

Issue the DDX command for the Query Monitor Subsystem started task, taskname. This command includes information about the authorized program analysis reports (APARs) for important Db2 Query Monitor modules as well as diagnostic information in the Db2 Query Monitor job log. This job log should be provided.

Provide additional information based on the type of problem that you experienced:

For online abends, provide the following information:

• A screen capture of the panel that you were using when the abend occurred
• The job log from the TSO session that encountered the abend
• The job log from the server
• A description of the task that you were doing before the abend occurred

For errors in batch processing, provide the following information:
• The complete job log
• Print output
• Contents of the data sets that were used during the processing

For problems with the Tools Customizer trace data set name:
If you cannot allocate the trace data set, the trace data set runs out of space, or IBM Software Support asks for it, you will need to identify the name of the trace data set. The name of the trace data set depends on the prefix setting in the TSO profile. To identify the name of the trace data set, you must know the prefix setting.

• If PREFIX is set, the name of the trace data set is prefix.CCQ.TRACE, where prefix is the TSO prefix that you specified in the profile.
• If NOPREFIX is set, the name of the trace data set is user_ID.CCQ.TRACE, where user_ID is your TSO user ID.

NORUN parameter

The NORUN parameter, when present, instructs Db2 Query Monitor to perform a subset of its initialization. If NORUN is specified, then Db2 Query Monitor will initialize enough to enable users of the reporting BDC interfaces to view data created in prior intervals.

To use the NORUN parameter, you must modify your existing procs to include a parm on the proc start-up. To do so, locate the following lines in the existing SCQMSAMP member CQMPROC:

```
//CQMPROC PROC HILEVEL='CQM.V3.3',FECLEVEL='FEC.V1R3'
//**************************************************************
//* [several lines of comments...]
//**************************************************************
//CQMPROC EXEC PGM=CQM#MAIN,REGION=7M,DYNAMNBR=200,TIME=1440
```

Modify these as follows:

```
//CQMPROC PROC HILEVEL='CQM.V3.3',FECLEVEL='FEC.V1R3',OPTION=
//**************************************************************
//* [several lines of comments...]
//**************************************************************
//CQMPROC EXEC PGM=CQM#MAIN,REGION=7M,DYNAMNBR=200,TIME=1440,
//   PARM='&OPTION'
```

Once you have modified CQMPROC as described above, you can start up Db2 Query Monitor with the NORUN option as follows:

```
S CQMPROC,OPTION='SM,NORUN'
```

**Note:** You can start up Db2 Query Monitor normally by simply omitting the OPTION= on the S command.
Tools Customizer troubleshooting

Use this information to diagnose and correct problems that you experience with Tools Customizer.

Gathering diagnostic information

Before you report a problem with Tools Customizer to IBM Software Support, you need to gather the appropriate diagnostic information.

Procedure

Provide the following information for all Tools Customizer problems:

- A clear description of the problem and the steps that are required to re-create the problem
- Relevant screen captures
- All messages that were issued as a result of the problem
- Product release number and the number of the last program temporary fix (PTF) that was installed
- The version of Db2 that you are using and the type and version of the operating system that you are using
- The Tools Customizer trace data set
- The Tools Customizer data store data set and the high_level_qualifier.SCCQTENU data set

Determining the trace data set name

You will need to identify the name of the trace data set if you cannot allocate the trace data set, the trace data set runs out of space, or IBM Software Support asks for it.

The name of the trace data set depends on the prefix setting in the TSO profile. To identify the name of the trace data set, you must know the prefix setting.

- If PREFIX is set, the name of the trace data set is prefix.CCQ.TRACE, where prefix is the TSO prefix that you specified in the profile.
- If NOPREFIX is set, the name of the trace data set is user_ID.CCQ.TRACE, where user_ID is your TSO user ID.
Chapter 29. Tools Customizer reference

Before you use Tools Customizer, you should understand the Tools Customizer terminology and the data sets that Tools Customizer uses during customization.

Tools Customizer terminology and data sets

Before you use Tools Customizer, you should understand the Tools Customizer terminology and the data sets that Tools Customizer uses during customization.

Tools Customizer terminology

Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

Products and components

How an IBM Tool is packaged determines whether it is referred to as a product or as a component in the Tools Customizer documentation and interface. An IBM Tool that is ordered as a stand-alone entity (that is, not as part of a solution pack) is referred to as a product. An IBM Tool that is part of a solution pack is referred to as a component. Some IBM Tools are available in both formats; therefore, the same IBM Tool can be referred to as a product or as a component depending on how it is packaged.

Db2 entry

You can customize Db2 Query Monitor on one or more Db2 entries. A Db2 entry can be any of the following items:

Db2 subsystem

A distinct instance of a relational database management system (RDBMS) that is not part of a data sharing group. An example of a Db2 subsystem name is DB01.

Db2 group attach name

The name that is used by the TSO/batch attachment, the call attachment facility (CAF), DL/I batch, utilities, and the Resource Recovery Services attachment facility (RRSAF) as a generic attachment name. An example of a group attach name is DSG1.

Db2 data sharing member

A Db2 subsystem that is assigned by the cross-system coupling facility (XCF) to a data sharing group. An example of a Db2 data sharing member name is DB02.

Tools Customizer maintains the following lists of Db2 entries:

Associated list

The list of Db2 entries that are associated with Db2 Query Monitor. If the product to be customized requires Db2 entries, you can customize Db2 Query Monitor only on Db2 entries that are in the associated list. When you customize Db2 Query Monitor, this list is displayed in the DB2 Entries, Associations, and Parameter Status section of the Customizer Workplace panel.

You can add and copy Db2 entries to the associated list. When you add or copy Db2 entries to the associated list, the entries are associated with Db2 Query Monitor.

Master list

The list of all Db2 entries that are defined but are not associated with Db2 Query Monitor. Tools Customizer obtains information about these Db2 entries either from entries that were created manually or from the customizations of other products that were discovered. If you remove a Db2 entry from the associated list, the Db2 entry is added to the master list. When you create a new Db2 entry, it is added to the master list, and when you associate the new entry with Db2 Query
Monitor, it is removed from the master list and added to the associated list. The master list is displayed on the **Associate a DB2 Entry for Product** panel.

If the associated list does not have the Db2 entries on which you want to customize Db2 Query Monitor, you can associate existing entries from the master list to the associated list.

You can create new Db2 entries and copy existing entries to the master list.

**High-level qualifier**

The high-level qualifier is considered to be all of the qualifiers except the lowest level qualifier. A high-level qualifier includes a mid-level qualifier.

**Product parameters**

Parameters that are specific to Db2 Query Monitor. These parameters are defined by Db2 Query Monitor and are stored in a data member that is defined by Db2 Query Monitor.

**Db2 parameters**

Parameters for a Db2 entry. These parameters are defined by Tools Customizer and are stored in a Db2 parameter data member.

**Status type**

**Product, LPAR, and Db2 entry status type**

After you specify the product that you want to customize, the product, the LPAR, and the Db2 entries have a status. The status is partly based on whether required parameters are defined. For some products, LPAR parameters or Db2 parameters might not be required. In these cases, the status is Not Required.

To customize Db2 Query Monitor, all of the required parameters must be defined.

If required parameters for the the product parameters or Db2 parameters are not defined, the status of the parameters is Incomplete. Define values for parameters by manually editing them or by generating the customization jobs and specifying values for all of the required parameters that are displayed on the panels.

When values for all of the required parameters are defined, the status is Ready to Customize. Customization jobs can be generated only when all of the required parameters are defined and the status is Ready to Customize or Customized for the product parameters and Db2 parameters for the Db2 entries on which Db2 Query Monitor will be customized.

The following table shows the meaning of the status types. Each status is defined differently for each type of parameter.

<table>
<thead>
<tr>
<th>Status</th>
<th>Product</th>
<th>LPAR</th>
<th>Db2 entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete</td>
<td>The required product parameters are not defined.</td>
<td>The required parameters are not defined.</td>
<td>The required parameters are not defined.</td>
</tr>
<tr>
<td>Discovered</td>
<td>The product parameter definitions were discovered by using the product Discover EXEC.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Ready to Customize</td>
<td>The required product, is Ready to Customize or Customized for the LPAR and at least one associated Db2 entry. You can generate the customization jobs.</td>
<td>The required LPAR parameters are defined or LPAR parameters are not required.</td>
<td>The required Db2 parameters are defined or Db2 parameters are not required.</td>
</tr>
</tbody>
</table>
Table 48. Status types for the product, the LPAR, and the Db2 entries (continued)

<table>
<thead>
<tr>
<th>Status</th>
<th>Product</th>
<th>LPAR</th>
<th>Db2 entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify Values</td>
<td>The required product or component parameter values are defined but they</td>
<td>The required LPAR parameter values are defined, but they either have</td>
<td>The required Db2 parameter values are defined, but they either have not been</td>
</tr>
<tr>
<td></td>
<td>have not been verified or verification is not enabled on the Product</td>
<td>have not been verified or verification is not enabled on the LPAR</td>
<td>verified or verification is not enabled on the Db2 Parameters panel.</td>
</tr>
<tr>
<td></td>
<td>or Component Parameters panel.</td>
<td>Parameters panel.</td>
<td></td>
</tr>
<tr>
<td>Customized</td>
<td>The jobs are customized on the local LPAR.</td>
<td>The jobs are customized for the product or for all of the associated</td>
<td>The jobs are customized for the Db2 entry.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Db2 entries on the local LPAR.</td>
<td></td>
</tr>
<tr>
<td>Errors in Customization</td>
<td>N/A</td>
<td>N/A</td>
<td>Errors occurred while the customization jobs were being generated.</td>
</tr>
<tr>
<td>Not Required</td>
<td>N/A</td>
<td>LPAR parameters are not required.</td>
<td>Db2 parameters are not required.</td>
</tr>
</tbody>
</table>

**Related tasks**

Creating and associating Db2 entries
You can create new Db2 entries and associate them with Db2 Query Monitor.

Copying Db2 entries
You can copy associated and not associated Db2 entries to other Db2 entries or to new Db2 entries.

Removing Db2 entries
You can remove Db2 entries from the associated list.

**Data sets that Tools Customizer uses during customization**

Tools Customizer uses several unique data sets during the customization process. Familiarize yourself with these data sets before you begin to use Tools Customizer.

Several different data sets are required to customize Db2 Query Monitor with Tools Customizer. These data sets are supplied by Db2 Query Monitor, supplied by Tools Customizer, or allocated by Tools Customizer.

Db2 Query Monitor provides the following data sets:

**Metadata library**
Contains the metadata for the product to be customized. Tools Customizer uses the metadata to determine which tasks, steps, and parameters to display on the Product Parameters panel, the LPAR Parameters panel, and the DB2 Parameters panel. This data set also contains the templates that Tools Customizer uses to generate the customization jobs.

The metadata library naming convention is high_level_qualifier.SCQMDENU, where high_level_qualifier is all of the segments of the data set name except the lowest-level qualifier.

You specify the metadata library on the Specify the Metadata Library panel. READ access to this data set is required.

**Discover EXEC library**
Contains the Db2 Query Monitor Discover EXEC. When you customize Db2 Query Monitor, you can use the Discover EXEC to automatically retrieve and store product information, such as parameter values.
from an already customized product. Tools Customizer saves the discovered information in the data store.

The default name of the data set is the high-level qualifier for the metadata library plus a lowest-level qualifier. For Db2 Query Monitor, the lowest-level qualifier is SCQMDENU. You can change the default value on the Discover Customized Product Information panel. EXECUTE access to this data set is required.

Tools Customizer provides the following data sets:

**Tools Customizer metadata library**
Contains the metadata for the Db2 and LPAR parameters that are required to customize Db2 Query Monitor. Tools Customizer uses the metadata to determine which parameters to display on the DB2 Parameters panel and the LPAR Parameters panel. In addition, Tools Customizer uses information in the metadata library to determine whether additional Db2 and LPAR parameters need to be displayed on these panels. As you customize different products, different Db2 and LPAR parameters might need to be defined.

The default name of the data set is DB2TOOL.CCQ110.SCCQDENU. You can change the default value on the Tools Customizer Settings panel. EXECUTE access to this data set is required.

**Tools Customizer table library**
Stores information about jobs that are customized. Job information that is stored includes a description of the job, its member name and template name, the SSID, group attach name, and when the job was generated.

The default name of the data set is DB2TOOL.CCQ110.SCCQTENU. WRITE access to this data set is required.

Tools Customizer requires that the following data sets exist during the customization process. If the data sets do not exist, Tools Customizer automatically allocates them.

**Discover output data set**
Contains the output that is generated when you run the Db2 Query Monitor Discover EXEC. The Db2 Query Monitor Discover EXEC retrieves the metadata and values for the parameters from a previous customization of Db2 Query Monitor.

The default name of the data set is DB2TOOL.CCQ110.DISCOVER. You can change the default value on the Tools Customizer Settings panel or the Discover Customized Product Information panel. EXECUTE access to this data set is required.

**Data store data set**
Contains product, LPAR, and Db2 parameter values, and Db2 entry associations. Tools Customizer uses this data set to permanently store all information that is acquired about the product, Db2 subsystems or data sharing groups, and LPAR when you customize products on the local LPAR.

The default name of the data set is DB2TOOL.CCQ110.DASTOR. You can change the default value on the Tools Customizer Settings panel. WRITE access to this data set is required.

**Customization library**
Contains the customization jobs that Tools Customizer generates for Db2 Query Monitor.

Tools Customizer checks whether a customization library name was specified for more than one instance of the same version of the same product. If the same customization library name is specified for more than one product of the same version, the CCQD123E message is issued to prevent you from overwriting previously generated customization jobs. Ensure that you specify unique qualifier for the customization library for each instance of the product.

To customize Db2 Query Monitor, submit the members of the data set in the order in which they are displayed on the Finish Product Customization panel.

The data set naming convention is *hlq.$LPAR_name$.xyzvrm*, where:

- *hlq* is the value of the Customization library qualifier field on the Tools Customizer Settings panel (CCQSET)
• *LPAR_name* is the four-character LPAR name
• *xyzvm* is the three-letter product identifier with the version, release, and modification level

For example, the data set name might be DB2TOOL.PRODUCT.CUST.$MVS1$.XYZ410.

WRITE access to this data set is required.

Tools Customizer allocates the data sets for the discover output, the data store, and the customization library with the attributes that are shown in the following table:

<table>
<thead>
<tr>
<th>Data set</th>
<th>Organization</th>
<th>Record format</th>
<th>Record length</th>
<th>Block size</th>
<th>Data set name type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discover output data set</td>
<td>PO</td>
<td>Variable block</td>
<td>16383</td>
<td>32760</td>
<td>LIBRARY</td>
</tr>
<tr>
<td>Data store data set</td>
<td>PO</td>
<td>Variable block</td>
<td>16383</td>
<td>32760</td>
<td>LIBRARY</td>
</tr>
<tr>
<td>Product customization library</td>
<td>PO</td>
<td>Fixed block</td>
<td>80</td>
<td>32720</td>
<td>LIBRARY</td>
</tr>
</tbody>
</table>

Restrictions:

• Multiple users cannot simultaneously share the discover output data set, data store data set, Tools Customizer metadata library, and metadata library.
Reference information supports the tasks that you must complete to install, customize, and use Db2 Query Monitor.

Sample library members

The Db2 Query Monitor sample library (SCQMSAMP) includes the following sample jobs.

**CQM**
The CLIST that allocates the libraries used for Db2 Query Monitor.

**CQM#CTLF**
Creates the Db2 control file.

**CQM#RDSC**
Provides sample source code for the batch reporting process for CPU utilization by dynamic SQL. CQM#RDSC is optional and can be used to modify existing batch reports. The reports can be executed from the .QUERY data set (SCQMQRY) without having to alter the source programs.

**CQM#RDSE**
Provides sample source code for the batch reporting process for dynamic SQL statement elapsed. CQM#RDSE is optional and can be used to modify existing batch reports. The reports can be executed from the .QUERY data set (SCQMQRY) without having to alter the source programs.

**CQM#RDSG**
Provides sample source code for the batch reporting process for dynamic SQL statement getpage. CQM#RDSG is optional and can be used to modify existing batch reports. The reports can be executed from the .QUERY data set (SCQMQRY) without having to alter the source programs.

**CQM#RSSC**
Provides sample source code for the batch reporting process for CPU utilization by static SQL. CQM#RSSC is optional and can be used to modify existing batch reports. The reports can be executed from the .QUERY data set (SCQMQRY) without having to alter the source programs.

**CQM#RSSE**
Provides sample source code for the batch reporting process for static SQL statement elapsed. CQM#RSSE is optional and can be used to modify existing batch reports. The reports can be executed from the .QUERY data set (SCQMQRY) without having to alter the source programs.

**CQM#RSSG**
Provides sample source code for the batch reporting process for static SQL statement getpage. CQM#RSSG is optional and can be used to modify existing batch reports. The reports can be executed from the .QUERY data set (SCQMQRY) without having to alter the source programs.

**CQM#RSSO**
Provides sample source code for the batch reporting process for summary of objects. CQM#RSSG is optional and can be used to modify existing batch reports. The reports can be executed from the .QUERY data set (SCQMQRY) without having to alter the source programs.

**CQM@CNVT**
A LOAD utility job that loads the data from the Db2 Query Monitor Version V3.2 Performance History Database to the Db2 Query Monitor Version V3.3 tables. The utility statements in this job use the cross-loader function of the LOAD utility to copy data directly from the old tables to the new tables. This job must be run first and may be run repeatedly if necessary. If a failure occurs on one of the LOAD utility statements, rerunning the job will allow DSNUTILB to restart the utility at the proper place in the utility stream.

**CQM@LDB2**
Runs CQM@WDB2 (the Db2 Query Monitor offload program).
CQM@LIDA
Loads performance history data into IBM Db2 Analytics Accelerator.

CQM@LSTM
The CQM@LSTM program updates the statement type table. The inputs to the CQM@LSTM program are updated via the PTF maintenance stream as IBM adds additional SQL statement types.

CQM@NOCP
Sets the offload table spaces to NOCOPYPEND.

CQM@NRPB
Provides a sample of a Db2 bind and grant that gives Db2 access to use Db2 Query Monitor batch reporting for z/OS.

CQM@NRPT
Executes batch reports.

CQMADBI
Provides a sample EXEC to add Db2 Query Monitor to Db2 Administration Tool Launch Pad.

CQMBIND
Binds the plans that read the Db2 Catalog.

CQMCAE
The CAE Agent started task.

CQMCAESV
Starts the CAE Server on USS.

CQMCAEWDD
Starts the Watchdog process.

CQMCCERT
Creates a new certificate inside the certs directory of the directory defined by CQM_VAR_HOME. After you run CQMCCERT, you must then run CQMICERT on the newly created certificate to import the certificate. This enables the CAE Server to use the certificate you created with CQMCCERT. For more information about using and installing certificates with Db2 Query Monitor see “Certificates requirements - USS and Windows” on page 34 and “Installing a single CAE Server - Windows” on page 117.

CQMCLIST
The CLIST that allocates the libraries used for Db2 Query Monitor.

CQMCMDS
Provides a sample CLIST that holds the commands processed by the Interval Data Sets panel.

CQMCMGRT
Migrates user customizations for the CAE Server from the previous version to the current version.

CQMCTFL
Builds the VSAM control file used for holding Db2 subsystem ID information.

CQMCOMM
Describes Db2 Query Monitor fields as comments in the Db2 catalog.

CQMCPRSS
Provides a sample CQMCPRSS for CAE Agent startup.

CQMCRDB
Creates the Performance History Database.

CQMCSDDL
Creates the staging tables used by the integration between Db2 Query Monitor (Version 3.2 or higher) and Data Studio.

CQMCSMGT
Migrates the Db2 Query Monitor staging tables.

CQMCPX
Unpaxes the configuration and data files to the CQM_VAR_HOME directory.
CQMCUPPT
Extracts updates from CQMCPXPT to the configuration and data files that were installed to the CQM_VAR_HOME directory during the original Db2 Query Monitor V3.3 installation. To apply the updates, edit and run CQMCUPPT according to the instructions in the member.

**Note:** The CQMCUPPT job is cumulative and only needs to be run once to install the current maintenance level.

CQMDDL
Creates the Performance History Database objects.

CQMDDLST
Creates the Performance History Database objects for statement types and descriptions.

CQMDROP
Drops Performance History Database objects associated with Db2 Query Monitor.

CQMGRTB
Provides the DDL that grants authority to the Performance History Database objects.

CQMCCERT
Creates a new certificate inside the certs directory defined by CQM_VAR_HOME.

CQMECERT
Exports certificates from the certs directory inside the directory defined by CQM_VAR_HOME.

CQMHVBLD
This JCL assembles and links an user-defined function that translates numeric host variable text into readable format. After the CQMHVBLD job completes and before the WLM job starts, the following message is displayed: CONCATENATE CQM AND FEC LOADLIB TO THE STEPLIB OF WLM JOB.

CQMICERT
Imports certificates from the certs directory inside the directory defined by CQM_VAR_HOME. The name of the file in the certs directory is used as the host name in the certificates store for the CAE Server. For more information about using and installing certificates with Db2 Query Monitor see “Certificates requirements - USS and Windows” on page 34 and “Installing a single CAE Server - Windows” on page 117.

CQMIADD
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMIDAA
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMIDAAL
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMIDAD1
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMIDAD2
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMIDAM1
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMIDEL
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMIENBL
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.
CQMINDEX
Defines indexes for Performance History Database tables to help speed up queries.

CQMINTER
Allocates the intervals data set.

CQMLDTAS
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMMIDAA
For a description of this member, see “SCQMSAMP members for loading data to accelerator tables” on page 490.

CQMMSTR
Stops the Master Address Space. The Master Address Space can only be stopped if all products that use it have been stopped. If products are using the Master Address Space, it will not be stopped and Db2 Query Monitor issues the message CQM1044E.

CQMPARMS
Provides a sample of CQMPARMS for Db2 Query Monitor startup.

CQMPROC
The Db2 Query Monitor subsystem started task.

CQMPROFS
Allocates the CQMPROFS data set for Db2 Query Monitor.

CQMPYOM
Populates Db2 Query Monitor source files in the OMEGAMON distribution.

CQMQRY01
Verifies Performance History Database tables.

CQMUDDDL
Creates a stored procedure for Db2 Query Monitor.

CQMUDFHV
The source for the assembler program that implements the user-defined function to format the contents of the HOSTV_TEXT column.

SCQMSAMP members for loading data to accelerator tables
The following SCQMSAMP members are utility jobs or scripts that perform accelerator operations in batch. These members are not created in Tools Customizer.

CQMIADD
A REXX program to define accelerator shadow tables. Before running CQMIADD, you must first have an existing Db2 table. This REXX program is used by the CQMIDAD1 and CQMIDAM1 scripts.

CQMIDAA
Modifies the Performance History Database to make it compatible with IBM Db2 Analytics Accelerator for z/OS.
- When executed without parameters, the CQMIDAA DDL creates accelerator shadow tables.
- When executed with parameters, the CQMIDAA DDL creates accelerator-only tables.

To define accelerator-only tables, the macro requires the database name and Analytics Accelerator name.

The edit macro modifies the Performance History Database in the following ways:
- Removes all WITH DEFAULT clauses
- Converts SQL statement text tables CQM_SUMM_TEXT, CQM_EXCP_TEXT, and CQM_SQLCODE_TEXT tables to the EBCDIC encoding
- Changes the SQLTEXT column to VARCHAR(32000)
- Changes the ROW_ID column to SMALLINT
• Changes the buffer pool for the CQMMT1, CQMET1, and CQMST1 table spaces to BP32K
• For accelerator-only tables, removes all CREATE TABLESPACE statements and add the IN ACCELERATOR clause to all tables

The EBCDIC code page does not support all characters available in the Unicode code page. The conversion of the Unicode SQL Statement text collected from Db2 to EBCDIC might result in data loss. Dynamic SQL texts that are more than 32K are truncated if you load using the accelerator.

CQMIDAAL
Loads data from the Db2 Query Monitor V3.3 Performance History Database to the Db2 Query Monitor V3.3 accelerator shadow tables.

Note: When migrating from V3.2 accelerator shadow tables to V3.3 accelerator shadow tables, run CQMIDDAA before you run CQMIDAAL.

CQMIDAD1
Drops accelerator shadow tables and database. Can be used any time you want to drop accelerator objects.

CQMIDAD2
Drops accelerator only tables and database. Can be used any time you want to drop accelerator only objects.

CQMIDAM1
Moves data from old accelerator schema to new accelerator schema (accelerator shadow or accelerator-only tables) as long as the number and sequence of columns in old and new are the same.

Before running CQMIDAM1, make sure the new target database (#DBNEW#) and offload tables have been created using CQMDDL.
• If the target tables are accelerator-only tables, submit only the first step.
• If the target tables are accelerator shadow tables, submit the entire job. In this case, new accelerator shadow tables are loaded in ONLY mode (only accelerator tables are populated, Db2 tables remain empty).
• This job does not drop old tables. If you want to drop old tables and they are Db2 / accelerator-shadow tables, then use CQMIDAD1. If the tables are accelerator-only tables, use CQMIDAD2.

CQMIDAM2
Moves offloaded data from Db2 to accelerator.

CQMIDEL
A REXX program to drop accelerator shadow tables. This REXX program is used by the CQMIDAD1 and CQMIDAM1 scripts.

CQMIEBL
A REXX program to enable query acceleration for the accelerator shadow table by changing its state. This REXX program is used by the CQMIDAD1 and CQMIDAM1 scripts.

CQMMLDTAS
A REXX program to load data from the source tables in Db2 into the corresponding accelerator shadow tables.

CQMMDAAP
Migrates data from Db2 Query Monitor V3.2 accelerator-only tables to Db2 Query Monitor V3.3 accelerator-only tables. When you run CQMMDAAP and then CQMIDAAL, migrates data from Db2 Query Monitor V3.2 accelerator shadow tables to Db2 Query Monitor V3.3 accelerator shadow tables.

Note: Before submitting CQMMDAAP, make sure that the V3.3 offload Db2 tables are empty.
What's new in previous editions

This topic summarizes significant enhancements and changes to previous editions of Db2 Query Monitor documentation.

Previous updates

2018-08-21 edition - August 2018

Detection of duplicate SQLCODEs - PI95524
Db2 Query Monitor now includes the following new parameters that control the detection of duplicate SQLCODEs at the thread level or at the Db2 subsystem level:

- THREAD_SQLCODE_DUPLICATES and THREAD_SQLCODE_DUPLICATES_TIME
- DB2_SQLCODE_DUPLICATES and DB2_SQLCODE_DUPLICATES_TIME

For more information, see “Detecting a loop in an application” on page 538 and “Query Monitor Subsystem parameters - CQMPARMS” on page 493.

Required authorizations - PI98938
Updated information regarding required authorizations. Users who have READ authority on the CQMPROF data set can view monitoring profiles. For more information, see “Reviewing and setting proper authorizations” on page 55.

Optimizing responses for parallel statement alerts - PI93444
Added content that describes how to optimizing responses for parallel statement alerts. For more information, see “Optimizing responses for parallel statement alerts” on page 396.

Smarter Reorganization Recommendation - PI92519
Added content that describes the Smarter Reorganization Recommendation feature. For more information, see Chapter 24, “Smarter reorganization recommendations with Db2 Automation Tool and Db2 Query Monitor,” on page 459 and “Using the Reorganization Recommendation Monitor” on page 420.

When reorganization avoidance is in use, additional Db2 Query Monitor intervals might be produced automatically when they overlap the start or end of a performance window. For more information, see “Interval processing and reorganization recommendation” on page 463.

Show only selected intervals - PI93419
Added information about the Show Only Selected Intervals option. For more information, see “Selecting intervals” on page 367.

CAE server administration - PI94263
Added content that describes the new CAE server administration feature. For more information, see “CAE Server administration” on page 423.

Parallel threads - PI93444
Added information about the Parallel Threads optional alert key. For more information, see “Optional alert keys” on page 405.

New primary commands - PI90718
Added content that describes the CAE and BACKUPCAE primary commands that are supported on the QM Subsystem Discovery panel. Also adds new content that describes the BACKUP_CAE_SERVER_ADDRESS and BACKUP_CAE_SERVER_PORT parameters for CQMPARMS.

SQLID specification for single SQL statement - PI89058
Added support for SQLID specification for single SQL statement and SQL workload tuning. For more information, see “Tuning a single SQL query (tune button)” on page 373 and “Tuning an SQL workload (tune all)” on page 373.

New CAE server parameter - PI86148
Added CQM_CAE_CEE_RUNOPTS parameter for CAE Server to override LE runtime options. For more information, see “CAE Server parameters - CQMCAESV - USS” on page 542.
New and updated messages - PI91624, PI93420, PI90718, PI92519

• “CQM7015E” on page 631
• “CQMC1021E” on page 661
• “CQMC1022E” on page 661
• “CQMC1030E” on page 661
• “CQMC1031E” on page 661
• “CQMC1032W” on page 661
• “CQMC1033E” on page 661
• “CQMC1034E” on page 661
• “CQMC0007I” on page 650
• “CQMC0803I” on page 658
• “CQMC0084E” on page 652
• “CQM1020E” on page 606
• All new messages for the Smarter Reorganization Recommendation feature are issued by IBM Db2 Automation Tool for z/OS. For more information, see the IBM Db2 Automation Tool for z/OS documentation.

2017-12-22 edition - December 2017

Db2 Query Monitor and data sharing
Added a new section discussing Db2 Query Monitor and data sharing which consolidates and improves information previously in several locations. See “Db2 Query Monitor and data sharing” on page 16 for more information.

Batch reports do not support accelerated tables
Added the clarification that batch reports do not support accelerated tables. See “Batch reports” on page 781 for more information.

Compatibility (PI8405)
Added information about compatibility. See “Compatible releases and maintenance levels” on page 41 and “Upgrading from V3.2 to V3.3” on page 46 for more information.

Group attach name clarifications (PI79070)
Added clarification that if the Group attach name field is blank, this causes the Group attach name to be blanked-out for all other products that you customized using Tools Customizer. See “Worksheets: Gathering parameter values for Db2 Query Monitor” on page 66 for more information.

RACF FACILITY class profile requirements (PI80742, PI84055)
Updated RACF FACILITY class profile requirements. See “Reviewing and setting proper authorizations” on page 55 for more information.

New RACF facility class profile (PI85027)
Added a new RACF facility class profile CQM.ADMIN.FUNCTIONS for ADMIN functions. See “Reviewing and setting proper authorizations” on page 55 for more information.

New SCQMSAMP members (PI83232)
New SCQMSAMP members CQMIDAD1, CQMIDAD2, and CQMIDAM1 have been added to enable you to drop accelerator or AOT objects and move data. See “Sample library members” on page 749 for more information.

PF key settings (PI84994)
Clarified that Db2 Query Monitor initially sets PF5 to 'IFIND'. See “Modifying PF key settings” on page 189 for more information.

Updates to Product Parameters panel (PI89208)
Updated the Tools Customizer Product Parameters panel. See “Defining Db2 Query Monitor parameters” on page 103 for more information.
Resolving screen reader issues
Added information about how to resolve possible screen reader issues that might occur when using the CAE Browser Client. See “Disabling virtual PC cursor mode and protected mode when using screen readers” on page 39 for more information.

New OBJECT_TOKEN column (PI78847)
Added new OBJECT_TOKEN column to the SUMM_OBJECTS table. See “Performance History Database tables and column descriptions” on page 788 and “About Db2 Query Monitor’s Db2 tables” on page 470 for more information.

REGION parameter
Added clarification about how to set REGION parameter in CAE Server. See “CAE Server parameters - CQMCAESV - USS” on page 542 for more information.

New and updated messages (PI85027, PI80742, PI84055)
“CQM700E” on page 592, “CQM1033E” on page 607, “CQM1086E” on page 611

SC27-8803-01 edition - June 2017
Updated compatibility information
Updated information is provided regarding compatible releases and maintenance levels for products that use the Db2 Data Access Common Collector.

New CAE Agent and CAE Server parameters
Two new parameters were added:

CALLBACK_ADDRESS
This parameter specifies the IP address the CAE Server uses to respond to the CAE Agent. The IP address specified with this parameter is used instead of host names when the CAE Server sends meta data to query tuning clients.

CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME
This parameter instructs the CAE Server to use the IP address instead of the host name to send metadata to query tuning clients.

New KBML function
The following new KBML function was added:

formatTimestamp
Retrieves the timestamp as a UNIX time (number), patterns it as a string, and returns a formatted timestamp.

SC27-8803-00 edition - October 2016
New OPTKEY parameters (SCHEMA, CONNNAME, CONNTYPE, JOBNAME, PARALLEL)
The new OPTKEYS provide you with additional customization options for summarizing your query activity.

Display of key Db2 metrics on interval selection panels
Additional Db2 metrics are included on interval selection panels. Metrics include total elapsed time, total CPU time, total GETPAGES, total delay time, total SQL calls and the KEEP interval setting.

Support for dynamic configuration changes
New started task modify commands allow you to perform dynamic configuration changes without requiring that you stop and start the started task

Ability to offload performance history data for a specific range of intervals
Improvements to offload processing and parameters enables you to offload a specific range of intervals, thus giving you more control and better ability to customize the performance history data you offload to Db2.

Enhancements to LOAD cards generated by the offload to Db2 process
The new NOCOPYPEND option enables you to choose not to place the target table in COPY PENDING. Additionally, the INDEX(ALL) clause for the STATISTICS eliminates the need to do a RUNSTATS after you do a load since it keeps the statistics up to date. This new option has been added to enable you to collect index statistics when user-defined indexes have been added to the performance history schema.
Improved CORRID processing to enable OMEGAMON compatibility
Improved CORRID processing enables you to query related metrics between the Db2 Query Monitor performance history database and the OMEGMON repository.

CONTOKEN now shown on displays that include SECT# and STMT#
The new information shows the consistency token and package version for SQL activity.

More granular detail at collection level
You can now drill down from Db2 operational summaries to view summary counts for a single Db2 Collection ID.

Ability to offload performance history data to an alternate Db2 subsystem
You can use an alternate Db2 subsystem as the target for offload of the performance history database.

Db2 connection method now uses RRSAF
The Db2 connection method for the Query Monitor Subsystem, Performance History Database, and CAE components is now RRSAF, replacing CAF, which was used previously. This change enables Db2 authorization checking based on the user that is logged in when accessing remote data sharing members through the CAE. Note that the ISPF client still uses CAF for accessing Db2.

Option to view empty intervals
This feature enables you to view a condensed list of intervals and to remove empty intervals from the display by selecting an option on the interval panel.

Ability to keep or release intervals from interval display
This feature enables you to mark intervals they want to keep or release. This allows you to make exceptions to the RETAIN parameter by releasing specific intervals or to prevent an interval from rolling off.

IBM Db2 Analytics Accelerator eligibility metrics added to exception displays
When browsing exceptions, this feature enables you to easily identify the IBM Db2 Analytics Accelerator for z/OS on which SQL activity ran. This feature also enables you to locate exception activity that did not run on IBM Db2 Analytics Accelerator for z/OS and which you can make eligible in the future.

Improve usability of top-n feature
The new implementation allows you to navigate to the desired top-n filtered SQL drill down display more quickly.

Performance history schema updates to improve name and add columns
Db2 Query Monitor's schema has been updated for new columns and fields so that information is complete across the ISPF panels, CAE displays and the performance history database.

New parameter enables the deletion of empty interval performance history files and their corresponding interval records
The new parameter EMPTY_INTERVAL enables you to instruct the started task to remove any empty interval performance history files and your corresponding interval records.

Object collection at workload level
You can now specify object collection by workload using monitoring profiles. This feature enables you to avoid the high CPU overhead related to object collection.

CORRID and CORNAME navigation
You can now use CORRID and CORNAME to summarize your data.

HostVar selectivity support
You can improve the performance of your SQL statements based on knowledge of how those SQL statements are used in your production environment.

Improvements to CAE Browser Client UI
Improvements to TopN reports, charts, and user interface that improve ease of use of the CAE Browser Client.

New OPTKEY (SP) enables summarization by stored procedure name
You can now summarize the metrics gathered by Db2 Query Monitor based on stored procedure name.
Ability to limit collection of metrics to dynamic SQL, static SQL, or both
  Provides you who are not interested in gathering static SQL metrics to gather statistics only on your dynamic SQL.

Optimized ISPF navigation and line commands
  Db2 Query Monitor now uses a new ISPF panel presentation style that dynamically builds navigational bread crumbs and presents line commands in a popup window.

Improved custom views functionality
  Expanded custom views functionality enables you to share custom views and chose identifier columns for tables.

Enhanced pie charts
  Improvements to pie charts enables you to better leverage chart information. You can now select a particular pie slice for further analysis of the data represented by that slice.

Improved usability of sorting feature in Activity Browser
  Db2 Query Monitor now draws your attention to the fact that a sort of data displayed in the Activity Browser was executed with local data, and that for a full representation of the data you must perform some action that results in re-doing the current query with the current sorting in effect.

History of load requests
  If you experience a problem in the CAE Browser Client, you can view a history of steps you executed before the problem arose.

Tuning configuration
  The tuning configuration dialog enables you to specify the ports that are used for tuning clients, and the preferred protocol for the connection. All settings are saved automatically in the your user preferences.

Staging tables workload viewer
  This feature, in conjunction with the Host Var selectivity feature, allows you to identify the values that are most commonly used for SQL statements of interest. This allows you to understand your workload, not just from the text of the statements, but also from how those statements are actually used in the running of their application.

Integration with IBM Data Server Manager
  Db2 Query Monitor provides integration between the CAE Browser Client and IBM Data Server Manager to enable users to tune SQL queries.

CAE Server release compatibility
  This feature enables you to apply maintenance gradually across your data centers, particularly when there are many Query Monitor Subsystems on different LPARs.

Include SQLCODE list
  You can now include specific SQLCODEs that you want to see, instead of excluding numerous unwanted codes.

CORRID and CORRNAME added to SQLCODE summary
  The CORRID and CORRNAME grouping commands, line commands, and columns provide you with additional information about your negative SQLCODE activity.

CAE Server now supports 64-bit Windows and IBM Java 8
  The CAE Server now runs on Windows 64-bit, which can accommodate more alerts. The CAE Server on USS now runs on IBM Java 8.

CAE Server no longer requires APF authorization
  The requirement for the CAE to be APF authorized has been removed.

Performance history database schema now supports IBM Db2 Analytics Accelerator for z/OS
  The performance history database schema now uses the IBM Db2 Analytics Accelerator for z/OS and supports the loading of Db2 Query Monitor activity to an accelerator. An ISPF edit macro enables users to modify the sample DDL so that it is compatible with Db2 Query Monitor.
Commands

This topic describes the commands that are available in Db2 Query Monitor.

Monitoring profile commands

F cqmtaskname,ACTIVATE(ssss,profname)
Activate a monitoring agent for DB2 subsystem ssss with monitoring profile profname. An activate command, when issued for a monitoring profile that has not yet been installed, also installs it. If you issue the ACTIVATE command against a DB2 subsystem that is already actively monitored using a monitoring profile, then the ACTIVATE command also changes the monitoring profile if it differs from the active monitoring profile.

F cqmtaskname,CHANGE_PROF(ssss,profname)
Change the monitoring profile for DB2 subsystem ssss to the monitoring profile named profname.

F cqmtaskname,DEACTIVATE(ssss)
Deactivate a monitoring agent for DB2 subsystem ssss.

F cqmtaskname,REFRESH_PROF(ssss)
Refresh the current monitoring profile for DB2 subsystem ssss.

Dynamic configuration change commands

F cqmtaskname,DISABLE_INFLIGHT
Disables inflight processing for the specified started task.

F cqmtaskname,DISABLE_OBJECTS
Disables collection of statistics for objects for the specified started task.

F cqmtaskname,DISABLE_PARALLEL
Disables collection of statistics for parallel activity for the specified started task.

F cqmtaskname,ENABLE_INFLIGHT
Enables inflight processing for the specified started task.

Note: This command enables inflight processing even if INFLIGHT(N) is specified in CQMPARMS.

F cqmtaskname,ENABLE_OBJECTS
Enables collection of statistics for objects for the specified started task.

Note: This command is ignored if OBJECTS(N) is specified in CQMPARMS.

F cqmtaskname,ENABLE_PARALLEL
Enables collection of statistics for parallel activity for the specified started task.

Note: This command is ignored if PARALLEL(N) is specified in CQMPARMS.

Operator commands

Operator commands must be entered using an z/OS operator console, or by using a facility that issues z/OS commands (such as SDSF). Only authorized users can use these commands.

The following operator commands are supported by Db2 Query Monitor:

F cqmtaskname,ISMERROR_DETAIL(Y | N)
This command can be used to turn detailed ISM constraint message detail on or off. This setting controls whether messages CQM1203I and CQM1204I will be issued for ISM storage constraint situations.

F cqmtaskname,DISPLAY DATASPACE
Returns the amount of available control blocks or nodes for a Query Monitor Subsystem. The variable cqmtaskname is the Db2 Query Monitor started task.

F cqmtaskname,INTERVAL
Forces the specified Db2 Query Monitor task, cqmtaskname, to snap an interval.
**S cqmtaskname**
Starts the Db2 Query Monitor started task, *cqmtaskname*.

**P cqmtaskname**
Stops the Db2 Query Monitor started task, *cqmtaskname*.

**F cqmtaskname,DEBUG(ON|OFF)**
Turns on or off debug mode for the Db2 Query Monitor started task, *cqmtaskname*.

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**Event type descriptions and available time zones**

This topic describes event types and available time zones.

**Event type descriptions**
The consolidation and analysis engine supports the following event types.

**ActionFailure**
An action failed to execute.

**Active Availability Monitoring Change**
Site configuration changed.

**AlertDiscarded**
Indicates that at least one alert was discarded by the collector, because the number of alerts collected over the CAE agent alert polling interval (default 5 seconds) exceeded the Query Monitor subsystem’s “Alert Limit” startup parameter (default 300).

**AlertRateTooHigh**
Indicates that the Query Monitor subsystem is frequently discarding alerts because alerts are being collected at a rate faster than the CAE agent can retrieve them (see AlertDiscarded).

**AlertThresholdProblem**
Indicates that a SQL statement exceeded an alert threshold set in a monitoring profile (applies to SQL)

**ApplicationCodingError**
Any SQL code that indicates that the SQL statement was incorrectly written (for example, -007 illegal character, -104 illegal symbol, etc.) (applies to SQL)

**ApplicationRuntimeError**
The database application program made an error at runtime that prevented the SQL statement from executing (for example, -822 the sqlda contains an invalid data address) (applies to SQL)

**ArchiveLogQuiesceDelayProblem**
Indicates that a large portion of the total delay was taken up with the processing of ARCHIVE LOG MODE (QUIESCE) commands. (applies to SQL)

**ArchiveLogReadDelayProblem**
Indicates that a large portion of the total delay was taken up with time spent waiting for archive reads (TAPE). (applies to SQL)

**Authentication Configuration Problem**
Authentication configuration information was lacking or incorrect for the named DomainElement.

**AuthorizationError**
The error occurred due to authorization restrictions (for example, -551: does not have the privilege to perform operation on object) (applies to SQL)

**Availability Event**
Any type of event regarding the availability of the subject. Typically IP availability from the perspective of the management station.

**Availability Failure**
Any type of event where the subject of the event is completely unavailable. Note, this is distinct from AvailabilityProblem wherein the subject of the event may be somewhat available e.g. flapping.
Availability Problem
Any type of problem affecting the availability of the subject. Typically IP availability from the perspective of the management station.

Bean Name Warning
The bean file name differs from the bean name. In many cases, the bean file name and bean name must be the same. A difference between these two values may denote an error in the bean definition.

BindError
An error occurred during binding (for example, -720: attempted to create a version that already exists) (applies to SQL)

CAEAgentAbendProblem
An abnormal end occurred in the CAE Agent address space during alert collection. (applies to CAE agent)

CAE Agent Resource Problem
The bean file name differs from the bean name. In many cases, the bean file name and bean name must be the same. A difference between these two values may denote an error in the bean definition.

CAEServerResourceProblem
If the CAE Server is unable to process alerts due to insufficient memory in the CAE Server, this alert will be posted to the Alert Browser. Typically, this is due to too many alerts being captured and kept. The following user actions are available:

1. Raise alert thresholds in the profiles, and ensure all appropriate SQL codes are excluded in all profile lines.
2. Clear as many possible alerts from the Alert Browser.
3. If you feel that the alert thresholds are already tuned appropriately (i.e. only those alerts that require immediate attention are being posted), the following steps can help reduce the chance the CAE Server will run out of memory due to alert volume:
   - Set the MIT (Monitored Information Type) parameter “persist” to “no”.
   
   **Note:**
   a. Changing this parameter only affects alerts posted after this change.
   b. Because the alerts are not being persisted in the CAE Server, they will not be restored if the CAE Server is restarted. If you have ensured that all alerts are also collected as exceptions, you can view the alert details using the “Exceptions” perspective in the Activity Browser.
   • Lower the value of the MIT parameter “autoClear” (we recommend no higher than 7 days).
   
   **Note:** Changing this parameter will only affect alerts posted after this change.
   • Lower the value of the MIT parameter “maxEventCount” (say to 100).
   
   **Note:** This will cause the oldest events of each alert type to be discarded as new ones come in.
   • Lower the ALERT_LIMIT startup parameter in the CQM collector task (say to 50).
   
   **Note:** This will cause the newest events to be discarded when there are more than ALERT_LIMIT alerts collected in the polling cycle of the CAE Agent (default 5 seconds).

Cannot Monitor Scope Warning
A particular scope cannot be monitored.

CircularCorrelationWarning
Two or more correlations define a circular relationship between events.

ClaimReleaseDelayProblem
Indicates that a large portion of the lock delay time was taken up with wait time for a drain waiting for claims to be released (applies to SQL)

Client Connection Event
Client is connected to, or disconnected from the server.

Client Connections Limit Warning
One more client intended to connect to the server but was denied due to license limitation.
**Configuration Change Event**
Any configuration change event.

**ConfigurationProblem**
Query Monitor configuration problem. Setting up a Query Monitor application may involve configuring a number of objects such as actions, responses, scopes, correlations etc. Most invalid configurations are detected at configuration time and prevented from being created. However, some can only be detected at run-time and in such cases Query Monitor will report such events to the message board as with network events.

**Conflicting Param Override Warning**
Two or more parameter overrides conflict.

**Correlation Execution Warning**
An error condition has been encountered while executing a correlation rule.

**Db2 Object Usage Problem**
Any event relating to the db2 object usage.

**Db2 Sql Event**
Any event relating to the execution of SQL statements.

**DB Element Information**
Any event concerning DB Element.

**DdlError**
The error happened during a data definition statement such as a create or alter (for example, -623: a clustering index already exists on table) (applies to SQL)

**DbmsError**
A problem happened within the DBMS system itself (for example, -901: A system error occurred that prevented successful execution of the current SQL statement) (applies to SQL)

**Dbms Event**
Any event relating to the database management system as a whole, as opposed to particular SQL statements, or to a part (e.g., a bufferpool or a table) of that system.

**DBMS Information**
Any information relating to the database management system as a whole, as opposed to particular SQL statements, or to a part (e.g., a bufferpool or a table) of that system.

**DeadlockOrTimeoutError**
The statement failed due to a deadlock or lock timeout (for example, -913: Unsuccessful execution caused by deadlock or timeout) (applies to SQL)

**DelayProblem**
Any event relating to delays in SQL statement execution (such as IO delays and lock delays) (applies to SQL)

**Deprecated Event**
Any type of deprecated event. An event no longer supported. Usually this is because the event has been supplanted by another new event type.

**Deprecated Statistic**
Any type of deprecated statistic. An statistic no longer supported. Usually this is because the statistic has been supplanted by another new statistic type.

**Device Event**
An event pertaining to a logical device.

**Device Information**
Any information relating to a logical device.

**Device Statistic**
A statistic pertaining to a logical device.

**Discovery Abort Event**
Domain discovery aborted.
Discovery Complete Event
   Domain discovery is complete.

Discovery Domain Change Event
   Discovery domain change changed.

Discovery Log Cleanup Failed
   Discovery log cleanup failed.

Discovery Logs Removed
   This event is generated when old discovery log files are automatically removed to manage disk space utilization. This event is generated by the log maintenance action.

Discovery Start Event
   Domain discovery started.

Discovery State Change Event
   Domain discovery state changed.

DistributedQueryError
   The error was specifically related to a problem with the distributed aspect of the query (for example, -30020: execution failed due to a distribution protocol error that caused de-allocation of the conversation) (applies to SQL)

Domain Element Property Change Event
   A property of this domain element has been changed.

DrainLockDelayProblem
   Indicates that a large portion of the lock delay was accounted for by the accumulated wait time for a drain lock. (applies to SQL)

Duplicate Bean Warning
   Multiple beans with the same name were found. This may denote errors in the bean definitions.

Duplicate Discovery Event
   Duplicate domain discovery is cancelled.

Duplicate Domain Name
   Server attempted to load a domain with a name that already exists.

DuplicateKeyInIndexError
   This fault is specifically reserved for -803 (applies to SQL)

Entry Point Analysis Complete Event
   IP Availability Entry Point Analysis was completed for a domain.

Entry Point Analysis Start Event
   IP Availability Entry Point Analysis was started for a domain.

EnvironmentError
   Any SQL code that indicates that the required environment was not established (for example, -927 the language interface was called when the connecting environment was not established) (applies to SQL)

Event
   Any type of event including faults, traps, warnings, notifications, alarms etc.

Event Backlog Warning
   A high rate of events has led to a queue backlog that needs to be cleared.

Excessive Event Volume Warning
   An excessive volume of different events of the same type is occurring. This is an indication that your monitoring configurations and thresholds are such that an unmanageable flood of events will result. Old events of this type will be automatically cleared when this occurs.

Excessive Load Problem
   An indication that a large number of SQL statements are exceeding their elapsed time limits with very most of the elapsed time unaccounted for by DB2. This usually indicates that DB2 or MVS is under heavy load.
**GeneralSqlError**
Indicates that a SQL statement received a negative SQL code that is not categorized by any other SqlError event type (applies to SQL).

**GetPageCountExceededProblem**
Indicates that a SQL statement exceeded a getpage alert threshold set in a monitoring profile (applies to SQL).

**License Expiration Warning**
Your product license will expire soon.

**LockLatchDelayProblem**
Indicates that lock and/or latch delay made a significant contribution to the elapsed time of the SQL statement execution (applies to SQL).

**LockProblem**
Any event concerning the effect of locks and/or latches on the execution of SQL statements (applies to SQL).

**LockRequestCountRateExceededProblem**
Indicates that a SQL statement made too many lock requests per second (applies to SQL).

**Log File Failure**
An error occurred writing to a log file.

**Logging Facility Information**
Any information relating to a logging facility.

**Member Server Connect**
A Member server has connected to its Aggregation server.

**Member Server Disconnect**
Member server has disconnected from its Aggregation server.

**Member Server Status Event**
An event pertaining to a KBM server that is part of an aggregated deployment (aka "Member Server").

**MIT Definition Problem**
A problem has been found with the definition of a MIT.

**Monitored Information**
Any kind of monitored information. Monitored information types may be browsed by the form of monitoring (data, statistics, and events), or by the subject of the monitoring (hardware, software etc.).

**Monitored Information by Form**
Any kind of monitored information. The sub-types of this monitored information types are organized from the perspective of the form of monitoring (model update, statistic, and event).

**Monitored Information by Management Standard**
Any kind of monitored information that is specific to a management standard (such as SNMP). The sub-types of this monitored information type are organized from the perspective of the management standard used to acquire the information.

**Monitored Information by SNMP**
Any kind of monitored information that is specific to the SNMP management standard. The sub-types of this monitored information type are organized from the perspective of the SNMP MIB in which the information is defined.

**Monitored Information by Subject**
Any kind of monitored information. The sub-types of this monitored information type are organized from the perspective of the subject of the monitoring (Device, Software, etc.).

**Monitored Information by Syslog**
Any kind of monitored information that is specific to the syslog management standard.

**Monitored Information Deprecated**
Any deprecated MIT. Deprecated MITs can be the result of renaming or replacing of MITs between versions. All site references to deprecated MITs should be updated to use new or replacement MITs. Future versions of the product may entirely remove deprecated MITs.
**MonitoringAgentConnectEvent**
A CAE agent has connected to the management station (server host).

**MonitoringAgentFailure**
A CAE agent is no longer accessible from the management station (server host).

**MonitoringAgentOverload**
A CAE agent has tasks that cannot be completed in required time.

**Monitoring Change Event**
Monitoring was started or stopped for a domain.

**Monitoring History Write Failure**
An attempt to store monitoring history to disk failed due to an unexpected IO exception.

**Monitoring System Event**
The monitoring system has an event.

**Monitoring System Problem**
Some part of the monitoring system has a problem.

**MvsError**
The error was with the system on which the DB2 subsystem is running (for example, -187: MVS TOD clock is bad or the MVS PARMTZ is out of range) (applies to SQL)

**New Device Discovered Event**
A new device is discovered during discovery.

**Object Buffer Pool Hit Ratio Problem**
For this object, too many of the pages retrieved required IO.

**Object Synchronous IO Delay Problem**
Any db2objectUsage event.

**OtherReadDelayProblem**
Indicates that a large portion of the IO delay time was taken up with read delays (applies to SQL)

**OtherWriteDelayProblem**
Indicates that a large portion of the IO delay time was taken up with write delays (applies to SQL)

**Over Utilization Problem**
Any type of over utilization problem.

**Over Utilization Symptom**
Description: Any type of over utilization symptom.

**PageLatchDelayProblem**
Indicates that a large portion of the total lock delay was accounted for by the page latch delay (applies to SQL)

**Patched Ad Hoc Information**
Any kind of ad hoc information retrieved from ad hoc elements which are generated from SNMP table rows.

**Performance Problem**
Any type of performance problem. Performance problems entail reduction in performance typically through over-use but do not entail faulty behavior as is the case with reliability problems.

**Polling Period Too Short Warning**
A monitoring configuration has been given a polling period that is too short.

**QmSubsystemTerminated**
A Query Monitor Subsystem that was previously active is no longer active (applies to QmSubsystem)

**Reliability Problem**
Any type of reliability problem.

**ResourceLimitError**
A negative SQL code was received indicating that a resource limit was exceeded (for example, -905: unsuccessful execution due to resource limit being exceeded) (applies to SQL).
ResourceUnavailableError
A negative SQL code was received indicating that a resource was unavailable (applies to SQL).

RuntimePlanError
A problem occurred using a plan (for example, -805: dbrm or package name not found in plan) (applies to SQL).

Scope Member Added Event
A domain element was added to a scope.

Scope Member Removed Event
A domain element was removed from a scope.

Scope Membership Change Event
A generic event indicating a change in the domain model.

Security Event
Any security event.

Self Configuration Change Event
The site configuration of this management product has been changed.

SelfEvent
Any event relating to the Query Monitor application itself. These events are not a reflection of the state of your network.

Self Information
Any information relating to this application. This information is NOT a reflection of the state of the system or domain being observed and/or managed by this application.

Server Memory Warning
Server memory usage is high.

Server Started Event
Event indicating that the server has started.

ServerTaskSwitchDelayProblem
Indicates that a large portion of the total delay time was taken up with task switching (applies to SQL)

SingletonSelectError
This is specifically reserved for -811 (applies to SQL)

SNMP Trap Port Unavailable
The monitoring agent can not use default UDP port 162.

Software Availability Failure
Indicates that a piece of software is not available.

Software Event
Any event relating to a piece of software. This includes applications such as databases, and services such as HTTP.

Software Information
Any kind of information relating to software.

Software Performance Problem
Any performance problem relating to a piece of software.

Software Statistic
Any type of software statistic.

SQL Information
Information relating to the execution of SQL statements.

SqlBufferpoolHitRatioProblem
Indicates that too many of the pages retrieved for this SQL statement required IO (applies to SQL)

SqlBufferpoolProblem
Any event associated with overall bufferpool performance or usage for a given SQL statement (applies to SQL)
**Synchronous I/O Delay Problem**
Indicates that a large portion of the total I/O delay time was taken up with synchronous I/O (applies to SQL)

**SqlCallCountExceededProblem**
Indicates that a SQL statement exceeded a call count alert threshold set in a monitoring profile (applies to SQL)

**SqlCpuProblem**
Indicates that a SQL statement exceeded a CPU alert threshold set in a monitoring profile (applies to SQL)

**SqlElapsedTimeProblem**
Indicates that a SQL statement exceeded an elapsed time alert threshold set in a monitoring profile (applies to SQL)

**SqlError**
Indicates that a SQL statement received a negative SQL code (applies to SQL)

**SqlEvent**
Any event relating to the execution of SQL statements (applies to SQL)

**SqlProblem**
Problems relating to the execution of SQL statements (applies to SQL)

**Statistic**
Any type of statistic e.g. top N values in a set, or distribution analysis of a set.

**Synchronous I/O Delay Problem**
Indicates that a large portion of the total I/O delay time was taken up with synchronous I/O.

**Time Period Out of Bounds Warning**
A monitoring configuration has been given a time period which is out of bounds.

**Top N Report**
Any report listing the top N members of scope sorted by some criterion.

**TotalDelayProblem**
Indicates that a large portion of the total elapsed time was taken up with delays (applies to SQL)

**TotalIODelayProblem**
Indicates that a large portion of the total delay was taken up with IO delays (applies to SQL)

**TotalLockDelayProblem**
Indicates that a large portion of the total delay was taken up with lock delays (applies to SQL)

**UnaccountedTimeProblem**
Indicates that very little of the elapsed time was accounted for by DB2 (applies to SQL)

**Uptime Problem**
An element has not been "up" enough of the time

**WAN Memory Leak**
Extra WANs are being held in memory. This may indicate a memory leak if the count of excess WANs keeps increasing.

**Available time zones**
Etc/GMT+12
Etc/GMT+11
Pacific/Apia
Pacific/Midway
Pacific/Niue
Pacific/Pago_Pago
Pacific/Samoa
America/Inuvik
America/Mazatlan
America/Phoenix
America/Shiprock
America/Yellowknife
Canada/Mountain
Etc/GMT+7
Mexico/BajaSur
Navajo
US/Arizona
US/Mountain
America/Belize
America/Cancun
America/Chicago
America/Costa_Rica
America/El_Salvador
America/Guatemala
America/Indiana/Knox
America/Indiana/Petersburg
America/Indiana/Vincennes
America/Knox_IN
America/Managua
America/Menominee
America/Merida
America/Mexico_City
America/Monterrey
America/North_Dakota/Center
America/North_Dakota/New_Salem
America/Rainy_River
America/Regina
America/Swift_Current
America/Tegucigalpa
America/Winnipeg
Canada/Central
Canada/East-Saskatchewan
Canada/Saskatchewan
Chile/EasterIsland
Etc/GMT+6
Atlantic/Bermuda
Atlantic/Stanley
Brazil/West
Canada/Atlantic
Chile/Continental
Etc/GMT+4
America/St_Johns
Canada/Newfoundland
America/Araguaina
America/Argentina/Buenos_Aires
America/Argentina/Catamarca
America/Argentina/ComodRivadavia
America/Argentina/Cordoba
America/Argentina/Jujuy
America/Argentina/La_Rioja
America/Argentina/Mendoza
America/Argentina/Rio_Gallegos
America/Argentina/San_Juan
America/Argentina/Tucuman
America/Argentina/Ushuaia
America/Bahia
America/Belem
America/Buenos_Aires
America/Catamarca
America/Cayenne
America/Cordoba
America/Fortaleza
America/Godthab
America/Jujuy
America/Maceio
America/Mendoza
America/Miquelon
America/Montevideo
America/Paramaribo
America/Recife
America/Rosario
America/Sao_Paulo
Antarctica/Rothera
Brazil/East
Asia/Kuwait
Asia/Qatar
Asia/Riyadh
Etc/GMT-3
Europe/Moscow
Indian/Antananarivo
Indian/Comoro
Indian/Mayotte
W-SU
Asia/Riyadh87
Asia/Riyadh88
Asia/Riyadh89
Mideast/Riyadh87
Mideast/Riyadh88
Mideast/Riyadh89
Asia/Tehran
Iran
Asia/Baku
Asia/Dubai
Asia/Muscat
Asia/Tbilisi
Asia/Yerevan
Etc/GMT-4
Europe/Samara
Indian/Mahe
Indian/Mauritius
Indian/Reunion
Asia/Kabul
Asia/Aqtau
Asia/Aqtobe
Asia/Ashgabat
Asia/Ashkhabad
Asia/Dushanbe
Asia/Karachi
Asia/Oral
Asia/Samarkand
Asia/Tashkent
Asia/Yekaterinburg
Etc/GMT-5
Indian/Kerguelen
Indian/Maldives
Asia/Calcutta
Asia/Colombo
Asia/Katmandu
Antarctica/Mawson
Antarctica/Vostok
Asia/Almaty
Asia/Bishkek
Asia/Dacca
Asia/Dhaka
Asia/Novosibirsk
Asia/Omsk
Asia/Qyzylorda
Asia/Thimbu
Asia/Thimphu
Etc/GMT-6
Indian/Chagos
Asia/Rangoon
Indian/Cocos
Antarctica/Davis
Asia/Bangkok
Asia/Hovd
Asia/Jakarta
Asia/Krasnoyarsk
Asia/Phnom_Penh
Asia/Pontianak
Asia/Saigon
Asia/Vientiane
Etc/GMT-7
Indian/Christmas
Antarctica/Casey
Asia/Brunei
Asia/Chongqing
Asia/Chungking
Asia/Harbin
Asia/Hong_Kong
Asia/Irkutsk
Asia/Kashgar
Asia/Kuala_Lumpur
Asia/Kuching
Asia/Macao
Asia/Macau
Asia/Makassar
Asia/Manila
Asia/Shanghai
Asia/Singapore
Asia/Taipei
Asia/Ujung_Pandang
Asia/Ulaanbaatar
Asia/Ulan_Bator
Asia/Urumqi
Australia/Perth
Australia/West
Etc/GMT-8
Hongkong
Singapore
Asia/Choibalsan
Asia/Dili
Asia/Jayapura
Asia/Pyongyang
Asia/Seoul
Asia/Tokyo
Asia/Yakutsk
Etc/GMT-9
Japan
Pacific/Palau
Australia/Adelaide
Australia/Broken_Hill
Australia/Darwin
Australia/North
Australia/South
Australia/Yancowinna
Antarctica/DumontDUrville
Asia/Sakhalin
Asia/Vladivostok
Australia/ACT
Australia/Brisbane
Batch reports

Db2 Query Monitor’s batch reports are derived from queries and forms developed in QMF.

These batch reports are delivered in a manner that allows you to use them as a base for your own customized batch reports. The following are delivered for each batch report:

- QMF Form – Delivered in SCQMFORM dataset
- QMF Query – Delivered in SCQMQRY dataset
- COBOL Source Program generated by QMF/HPO – Delivered in SCQMSAMP
- DBRMLIB member – Delivered in SCQMDBRM

You must run SCQMSAMP library member CQM@NRPB (the bind JCL for the batch reports).

The JCL to run the batch reports is in the SCQMSAMP library member CQM@NRPT. There is an EXEC statement for each of the following reports:

- CQMDSC - Dynamic SQL CPU
- CQMDSE - Dynamic SQL Elapsed
- CQMDSG - Dynamic SQL Getpages
- CQMSSC - Static SQL CPU
- CQMSSE - Static SQL Elapsed
- CQMSSG - Static SQL Getpages
- CQMSSO - Summary of Objects

To run the batch reports, un-comment the appropriate EXEC statement corresponding to the desired report.

You can import the QMF form and QMF query members to run the reports in QMF. You can modify the report’s query and form layout as desired. If you have QMF/HPO, you can generate a new COBOL program from the modified QMF form and query. Additionally, the COBOL program for each report that was delivered with Query Monitor can be modified if desired.

Note:

- If you want to generate a static SQL batch report, you must first run SCQMSAMP member CQM@LSTM during offload processing.
- When using the batch report jobs, there are only two parameters: START_TIMESTAMP and END_TIMESTAMP.
- Batch reports do not support accelerated tables.
Updating the base batch reports

Follow these steps to update the base batch report program or to use the base programs directly.

About this task

Note: When using the batch report jobs, there are only two parameters: START_TIMESTAMP and END_TIMESTAMP.

Procedure

1. To update the base batch report program:
   a) Compile the program. You must provide your own compile JCL.
   b) Bind the batch report. The bind job is generated by TCz.
   c) Run the following batch report jobs (these jobs are generated by TCz):
      • CQMDSC - Dynamic SQL CPU
      • CQMDSE - Dynamic SQL Elapsed
      • CQMDSG - Dynamic SQL Getpages
      • CQMSSC - Static SQL CPU
      • CQMSSE - Static SQL Elapsed
      • CQMSSG - Static SQL Getpages
      • CQMSSO - Summary of Objects

2. To use the base programs directly:
   a) Run the bind jobs (the bind jobs are generated by TCz and use IBMTAPE.SCQMDBRM in the bind job).
   b) Run the following batch report jobs (these jobs are generated by TCz and using IBMTAPE.SCQMLOAD in batch report job):
      • CQMDSC - Dynamic SQL CPU
      • CQMDSE - Dynamic SQL Elapsed
      • CQMDSG - Dynamic SQL Getpages
      • CQMSSC - Static SQL CPU
      • CQMSSE - Static SQL Elapsed
      • CQMSSG - Static SQL Getpages
      • CQMSSO - Summary of Objects

Batch report parameters

The sample batch report job CQM@NRPT uses the following parameters:

DB2_SSID

Required: Yes
Description: The name of the DB2 subsystem on which the Db2 Query Monitor tables reside.
Syntax:

\[
\text{DB2\_SSID(ssid)}
\]

Where ssid is the DB2 subsystem on which the Db2 Query Monitor tables reside.

REPORT

Required: Yes
**Description:** Specifies the report or reports to be generated. The REPORT keyword may be repeated. The reports will be printed to dynamically allocated JES SYSOUT files. At least one report name must be specified.

**Syntax:**

```
REPORT(report_name, report_name, ...)
```

Where the valid `report_name` are as follows:

- STATIC_CPU
- STATIC_ELAPSED
- STATIC_GETPAGE
- DYNAMIC_CPU
- DYNAMIC_ELAPSED
- DYNAMIC_GETPAGE

**START_TIMESTAMP**

**Required:** Yes

**Description:** Data from intervals that START between the START_TIMESTAMP and END_TIMESTAMP values will be included in the reports.

**Syntax:**

```
START_TIMESTAMP(timestamp)
```

Where `timestamp` is a valid DB2 timestamp value (yyyy-mm-dd-hh.mm.ss.nnnnnn). Please refer to DB2 documentation for the allowable forms for a DB2 timestamp.

**END_TIMESTAMP**

**Required:** Yes

**Description:** Data from intervals that START between the START_TIMESTAMP and END_TIMESTAMP values will be included in the reports.

**Syntax:**

```
END_TIMESTAMP(timestamp)
```

Where `timestamp` is a valid DB2 timestamp value (yyyy-mm-dd-hh.mm.ss.nnnnnn). Please refer to DB2 documentation for the allowable forms for a DB2 timestamp.

---

**Space requirement calculation**

These procedures show how to compute reasonable space quantities for VSAM backstore data sets to be entered into the Query Monitor startup parameters.

There are different space calculation methods for each data set since the type and method of data storage differs for each of Query Monitor’s seven VSAM backstore data sets.

**Notes:**

1. All calculations in this section assume 3390 device geometry.
2. Since this section is geared towards allocations for the average amount of data stored in each backstore, we recommend that the primary and secondary quantities be specified with the same values. However these are just initial recommendations, each installation is unique and tuning space allocations is an iterative process.
Calculating space required for METRDATA
The METRDATA data set contains metrics about individual SQL calls at a summary level.

About this task
The level of reduction depends on the values specified in the CQMPARMS OPTKEYS parameters. Without the specification of OPTKEYS the reduction is done on the following input keys:

- Plan
- Program
- Cursor/section
- Statement#
- Statement type

For example consider a program that contains a dynamic SQL sequence of calls:

```
100 PREPARE
105 OPEN
110 FETCH
120 CLOSE
130 COMMIT
```

If all the calls in the program are executed 200 times by 200 users, Query Monitor will only create 5 records in the METRDATA data set at interval expiration. However, if Query Monitor is started with OPTKEYS(AUTHIDS), and the same query is executed once by the same 200 users QM will create 1000 records at interval expiration. If the same query is executed twice by each user, Query Monitor will still create 1000 records.

The goal in determining a reasonable amount of space to specify for the primary allocation for the METRDATA data set is to first determine the average number of unique SQL calls that Query Monitor will record in the METRDATA data set at interval expiration.

The other optional keys that maybe specified are CORRID, WSUSER, WSNAM, WSRTM, and TEXT, which correspond to the correlation id, workstation user, workstation name, workstation transaction and SQL text token respectively. The subparameters of the OPTKEYS startup parameter describe basic DB2 identifiers, but the TEXT sub-parameter describes a unique dynamic SQL statement.

To continue the example, if OPTKEYS(TEXT) is specified and the dynamic SQL program is executed one time, Query Monitor will record 5 records in the METRDATA data set. If the program is executed and prepares and executes 100 distinct SQL statements with the 5 call sequence, then the METRDATA data set will contain 500 records at interval expiration.

To determine the number of tracks needed:

Procedure
1. Determine how many records will fit into a control interval within the METRDATA data set.
   a) Since the records in the METRDATA data set are fixed in length, subtract 10 bytes from the control interval size for the VSAM control information (2 RDFs of 3 bytes + 1 CIDF of 4 bytes).
   b) Divide the result obtained from step 1a by the METRDATA record length (1008). Drop any remainder from the calculation.
2. Determine the number of control intervals that will fit on a track.
   a) Determine the physical block size and the blocks per track used by VSAM for the control interval size using the control interval size, physical block size, and blocks per track values as listed below:

```
<table>
<thead>
<tr>
<th>Control interval size</th>
<th>Physical block size</th>
<th>Blocks per track</th>
</tr>
</thead>
<tbody>
<tr>
<td>512</td>
<td>512</td>
<td>49</td>
</tr>
</tbody>
</table>
```
Table 50. Physical block size and blocks per track used by VSAM (continued)

<table>
<thead>
<tr>
<th>Control interval size</th>
<th>Physical block size</th>
<th>Blocks per track</th>
</tr>
</thead>
<tbody>
<tr>
<td>1024</td>
<td>1024</td>
<td>33</td>
</tr>
<tr>
<td>1536</td>
<td>1536</td>
<td>26</td>
</tr>
<tr>
<td>2048</td>
<td>2048</td>
<td>21</td>
</tr>
<tr>
<td>2560</td>
<td>2560</td>
<td>17</td>
</tr>
<tr>
<td>3072</td>
<td>3072</td>
<td>15</td>
</tr>
<tr>
<td>3584</td>
<td>3584</td>
<td>13</td>
</tr>
<tr>
<td>4096</td>
<td>4096</td>
<td>12</td>
</tr>
<tr>
<td>4608</td>
<td>4608</td>
<td>10</td>
</tr>
<tr>
<td>5120</td>
<td>5120</td>
<td>9</td>
</tr>
<tr>
<td>5632</td>
<td>5632</td>
<td>9</td>
</tr>
<tr>
<td>6144</td>
<td>6144</td>
<td>8</td>
</tr>
<tr>
<td>6656</td>
<td>6656</td>
<td>7</td>
</tr>
<tr>
<td>7168</td>
<td>7168</td>
<td>7</td>
</tr>
<tr>
<td>7680</td>
<td>7680</td>
<td>6</td>
</tr>
<tr>
<td>8192</td>
<td>8192</td>
<td>6</td>
</tr>
<tr>
<td>10240</td>
<td>10240</td>
<td>5</td>
</tr>
<tr>
<td>12288</td>
<td>12288</td>
<td>4</td>
</tr>
<tr>
<td>14336</td>
<td>7168</td>
<td>7</td>
</tr>
<tr>
<td>16384</td>
<td>16384</td>
<td>3</td>
</tr>
<tr>
<td>18432</td>
<td>18432</td>
<td>3</td>
</tr>
<tr>
<td>20480</td>
<td>10240</td>
<td>5</td>
</tr>
<tr>
<td>22528</td>
<td>5632</td>
<td>9</td>
</tr>
<tr>
<td>24576</td>
<td>24576</td>
<td>2</td>
</tr>
<tr>
<td>26624</td>
<td>26624</td>
<td>2</td>
</tr>
<tr>
<td>28672</td>
<td>7168</td>
<td>7</td>
</tr>
<tr>
<td>30720</td>
<td>10240</td>
<td>5</td>
</tr>
<tr>
<td>32768</td>
<td>16384</td>
<td>3</td>
</tr>
</tbody>
</table>

b) Multiply the physical block size and the records per track.

c) Divide the result of step 2b by the METRDATA control interval size.

3. Determine how many control intervals are needed. To do so, divide the number of unique SQL calls per interval by the number of records per control interval (calculated in step 1b).

4. Determine how many tracks are needed. To do so, divide the number of control intervals required (calculated in step 3) by the number of control intervals per track (calculated in step 2c).
Calculating space required for OBJSDATA
The OBJSDATA backstore data set holds data about object access on a summary level. The OBJSDATA contains a record for each unique object access by a unique SQL call (see METRDATA section).

About this task
Referring to the example SQL call sequence in section “Calculating space required for METRDATA” on page 784, if the PREPARE at statement number 100 accesses 7 objects and OPTKEYS is not in effect there will be 7 OBJSDATA records written. If OPTKEYS(AUTHIDS) is in effect and the object activity is the same for the call, but repeated for 200 users there will be 1400 OBJSDATA records written.

To determine the number of tracks required for the OBJSDATA backstore data set, following the same procedures as the METRDATA backstore except change the record size to the OBJSDATA record length of 696.

Calculating space required for DB2CDATA
The DB2CDATA backstore data set contains information about the execution of DB2 commands.

About this task
Each record in the DB2CDATA backstore is fixed and length and is 540 bytes long. So follow the steps in the METRDATA calculation, but use the DB2CDATA record length and replace the number of unique SQL calls with the total number of DB2 commands to be recorded within one interval.

Calculating space required for EXCPINDEX
The EXCPINDEX backstore data set contains statement/cursor level exception information.

About this task
Each record in the EXCPINDEX backstore is fixed and length and is 1472 bytes long. Follow the steps in the METRDATA calculation, but use the EXCPINDEX record length and replace the number of unique SQL calls with the total number of exceptions to be captured within one interval.

Calculating space required for EXCPDATA
The EXCPDATA backstore data set contains low-level information describing exceptions.

About this task
This information contains SQL call metrics, SQL text, and input host variables relating to a statement that caused an exception. Follow the METRDATA calculations with the following exceptions:

Procedure
1. Determine the average number of calls, host variables, and objects accessed for each exception statement.
2. Determine the average length of dynamic SQL text per exception.
   DB2 QM does not store SQL text in the EXCPDATA data set for static SQL statements.
3. Assume every record has a RDF and each CI has 1 CIDF.
4. Call record length is 1472 bytes.
5. Host variable record length is 100 bytes.
6. Object exception record length is 652 bytes.
7. Calculate the overhead for the SQL text records by taking the average exception SQL text size and dividing by 32000 and round up. Multiply the result by 20 and add the length of the SQL text.
8. Replace step 3 in the METRDATA calculation with the amount of control intervals determined from “Calculating space required for METRDATA” on page 784. Multiply this number by the average number of exceptions recorded for each interval.
Calculating space required for SQLCDATA

The SQLCDATA backstore data set contains information describing SQL calls encountering negative or positive SQLCODEs. There are three records types within the SQLCDATA data set SQLCODE summary, SQLCODE detail record, and SQLCODE SQLTEXT records.

About this task

One record is written at interval expiration for each summary record. The amount of records of the summary type is controlled by the MAX_SQLCODES startup parameter. For each summary record written, a detail record is written during the course of an interval. The amount of detail records written will not exceed the value specified for the MAX_SQLCODE_DETAIL startup parameter. For dynamic SQL calls e.g. PREPARE, SQL text record types will be written along with the detail records during the course of an interval.

To determine space requirements for the SQLCDATA data set follow the METRDATA calculation with the following exceptions:

1. Determine the average number of summary, and detail records per interval. MAX_SQLCODES and MAX_SQLCODE_DETAIL are maximum limits.
2. Record lengths for summary and detail records are 24 and 716 respectively.
3. For SQLTEXT records take the average SQL text length and divide by 32000 and round up. Multiply the result by 28 and add the average SQL text length.
4. Assume 1 CIDF and 1 RDF for each record that will fit into the control interval.

To determine the number of control intervals required for data within the EXCPDATA data set:

Procedure

1. Take the CISIZE and subtract 4 bytes for a CIDF.
2. Add 3 bytes to each record length for a RDF, for example, an exception object record would be 655 bytes (652 + 3).
3. Keep subtracting record lengths with RDFs tacked on until the control interval is exhausted. If any more records remain, repeat step 1 with the remaining records.

Example

Examples:

Average exception contains 4 calls (PREPARE, OPEN, FETCH, CLOSE), two hostvars, and 6 objects. The average SQL text length is 200 bytes.

Assuming a CI size of 8192, subtract 4 bytes for the CIDF. 8192 - 4 = 8188 bytes remain.

Subtract 5900 (1475 * 4) bytes for the exception call records. 8188 - 5900 = 2288 bytes remain.

Subtract 206 (103 * 2) bytes for the host variable records 2288 - 206 = 2082 bytes remain.

Subtract 3930 (655 * 6) for the exception object records. There is a problem, since only 3 of the 6 records can fit in the CI. 2082 - (3 * 655) = 117 bytes unused in first CI.

Obtain another control interval and subtract 4 bytes for the CIDF. 8192 - 4 = 8188 byte remain.

Subtract 1965 (655 * 3) for the remaining 3 exception object records from the CI. 8188 - 1965 = 6223 bytes remaining.

Subtract 223 bytes (20 + 200 + 3) from the CI. 6223 - 203 = 6020 bytes remain.

This data sequence will require 2 control intervals.
Calculating space required for TEXTDATA

The TEXTDATA backstore data set contains dynamic SQL text on a summary level if OPTKEYS(TEXT) is specified. If OPTKEYS(TEXT) is not in effect, we recommend TEXTDATA_PRIMARY(1) and TEXTDATA_SECONDARY(0) specified in CQMPARMS.

About this task

To determine the average quantity of space required for the TEXTDATA data set:

Procedure

1. Determine the average length of dynamic SQL text within an interval.
2. Take the average length of dynamic SQL text and divide by 32000, round up, and multiply by 28.
3. Determine the number of CIs required and use the METRDATA calculation. Replace the METRDATA record length with the value computed in step 2. Replace the number of unique SQL calls with the number of unique dynamic SQL statements per interval.

Performance History Database tables and column descriptions

The following sections describe the Db2 Query Monitor Performance History Database tables and the columns they contain.

CQM_INTERVALS

The CQM_INTERVALS table defines the start and end times of each interval. This table is uniquely identified by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and CQM_VERSION.

SMFID

The z/OS SMFID.

CQM_SUBSYSTEM

The Query Monitor Subsystem ID that created the interval.

INTERVAL_NUMBER

The interval number.

INTERVAL_START

The date and time that an individual SQL statement started executing its first SQL call.

DB2_SUBSYSTEM

The Db2 subsystem.

DB2_VERSION

A 3-digit value indicating the version of Db2. For example, the DB2_VERSION for Db2 V10 is 100 and the DB2_VERSION for Db2 V11 is 110.

CQM_VERSION

The version of Db2 Query Monitor.

INTERVAL_START_UTC

The UTC timestamp for the interval start.

INTERVAL_END

The date and time that an individual SQL statement finished executing its last SQL call.

INTERVAL_END_UTC

The UTC timestamp for the interval end.

OPTKEYS_AUTHIDS

Override the OPTKEYS(AUTHID) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_TEXT

Override the OPTKEYS(TEXT) parameter in CQMPARMS when OPTKEYS is set to Y.
OPTKEYS_CORRID
Override the OPTKEYS(CORRID) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_WSUSER
Override the OPTKEYS(WSUSER) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_WSNAME
Override the OPTKEYS(WSNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_WSTRAN
Override the OPTKEYS(WSTRAN) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_CALLS
Override the OPTKEYS(CALLS) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_CORRNAME
Override the OPTKEYS(CORRNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_CORRNUM
Override the OPTKEYS(CORRNUM) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_PTEXT
Override the OPTKEYS(PTEXT) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_SCHEMA
Override the OPTKEYS(SCHEMA) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_CONNTYPE
Override the OPTKEYS(CONNTYPE) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_CONNNAME
Override the OPTKEYS(CONNNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_SP
Override the OPTKEYS(SP) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_JOBNAME
Override the OPTKEYS(JOBNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_PARALLEL
Override the OPTKEYS(JOBNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

DB2_VERSION_LONG
A 4-digit value indicating the version of Db2. For example, the DB2_VERSION_LONG for Db2 V10 is 1010 and the DB2_VERSION_LONG for Db2 V11 is 1110.

TOTAL_DB2_ELAPSED
The total accumulated elapsed time while executing within Db2.

TOTAL_DB2_CPU
The total of all TCB and SRB CPU time spent while executing in Db2.

TOTAL_GETPAGES
The number of GETPAGE requests. This count includes conditional, unconditional, successful, and unsuccessful requests.

TOTAL_DELAY_TIME
The total time spent waiting due to specific delay events.

TOTAL_SQL_CALLS
The total number of individual SQL calls executed by Db2.

CQM_SUMM_METRICS
The CQM_SUMM_METRICS table contains metrics data collected by Db2 Query Monitor. This table is uniquely identified by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, OBJECT_TOKEN, and DB2_VERSION.
A query for objects with the same SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, OBJECT_TOKEN, and METRICS_TOKEN will yield all objects associated with the metric row.

A query for text with the same SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and TEXT_TOKEN will yield all SQL text associated with the metric row.

SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The Query Monitor Subsystem ID that created the interval.

INTERVAL_NUMBER
The interval number.

INTERVAL_START
The timestamp for the interval start.

DB2_SUBSYSTEM
The Db2 subsystem on which the activity occurred.

DB2_VERSION
A 3-digit value indicating the version of Db2. For example, the DB2_VERSION for Db2 V10 is 100 and the DB2_VERSION for Db2 V11 is 110.

INTERVAL_START_UTC
The UTC timestamp for the interval start.

METRICS_TOKEN
The metrics token. When METRICS_TOKEN is combined with SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and OBJECT_TOKEN, the combined key can be used to find metric row associated with this object.

METRICS_TIMESTAMP
The metrics timestamp.

METRICS_TIMESTAMP_UTC
The metrics timestamp.

OBJECT_TOKEN
The object token.

TEXT_TOKEN
The text token.

CONSISTENCY_TOKEN
The hexadecimal value of the consistency token.

PLAN
The Db2 plan name.

COLLECTION
The collection ID.

PROGRAM
The Db2 package or DBRM name.

PROGRAM_VERSION
The package version associated with the SQL statement.

SECTION
The section number.

STMT
The statement number assigned by PRECOMPIILER.

TYPE
The type of object. Valid values are TABLE and INDEX.
CORRID
The correlation ID.

AUTHID
The primary authorization ID.

WORKSTATION_USER
The workstation user.

WORKSTATION_TRAN
The workstation transaction.

WORKSTATION_NAME
The workstation name.

IMPLICIT_QUALIFIER
The implicit qualifier.

DECLARE_STMT_NUM
The number assigned by the PRECOMPILER to declare statements.

DB2_CPU
The total amount of CPU time SQL calls spent in Db2.

DB2_ELAPSED
The accumulated elapsed time while executing within Db2.

SQL_CALLS
The total number of individual SQL calls executed by Db2.

TRG_DB2_ELAPSED
The total elapsed time consumed by the SQL activity while executing under the control of triggers. A trigger might invoke a stored procedure or a user-defined function. The time spent there is not included in this counter.

TRG_DB2_CPU
The accumulated CPU time consumed in Db2 by the SQL activity while executing under the control of triggers.

UDF_APP_ELAPSED
The total elapsed time spent by the SQL activity in user-defined functions. A user-defined function might invoke a stored procedure or initiate a trigger. The time spent there is not included in this counter.

UDF_APP_CPU
The accumulated CPU time used to satisfy user-defined function requests processed in WLM address space.

UDF_DB2_ELAPSED
The elapsed time consumed in Db2 by the user-defined function.

UDF_DB2_CPU
The CPU time consumed in Db2 by the user-defined function.

SP_APP_ELAPSED
The total elapsed time spent by the SQL activity in stored procedures. A stored procedure might initiate a trigger or invoke a user-defined function. The time spent there is not included in this counter.

SP_APP_CPU
The total CPU time spent by the SQL activity in stored procedures.

SP_DB2_ELAPSED
The TCB time accumulated in Db2 for processing SQL statements issued by stored procedures.

SP_DB2_CPU
The CPU time accumulated in Db2 for processing SQL statements issued by stored procedures.

LOCK_LATCH_DLY
The accumulated lock and latch elapsed wait time for lock and latch suspensions.
<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYNC_IO_DLY</td>
<td>The accumulated elapsed wait time for I/O. Synchronous I/O delays are further broken-down into Database I/O Delays and Log Write I/O Delays.</td>
</tr>
<tr>
<td>OTHER_READ_DLY</td>
<td>The accumulated wait time for read I/O.</td>
</tr>
<tr>
<td>OTHER_WRITE_DLY</td>
<td>The accumulated wait time for write I/O.</td>
</tr>
<tr>
<td>SERVTASK_SW_DLY</td>
<td>The accumulated wait time due to synchronous execution unit switch to Db2 services.</td>
</tr>
<tr>
<td>ARCHLOG_QS_DLY</td>
<td>The accumulated wait time for archive log quiesces.</td>
</tr>
<tr>
<td>ARCHLOG_RD_DLY</td>
<td>The accumulated wait time for archive log reads.</td>
</tr>
<tr>
<td>DRAIN_LOCK_DLY</td>
<td>The accumulated wait time for drain locks.</td>
</tr>
<tr>
<td>CLAIM_REL_DLY</td>
<td>The accumulated wait time for claim releases.</td>
</tr>
<tr>
<td>PAGE_LATCH_DLY</td>
<td>The accumulated wait time due to page latch contention.</td>
</tr>
<tr>
<td>SP_DLY</td>
<td>The accumulated wait time due to stored procedure contention.</td>
</tr>
<tr>
<td>NOTIFY_MSGS_DLY</td>
<td>The accumulated wait time due to notify messages.</td>
</tr>
<tr>
<td>GLOBAL_CONT_DLY</td>
<td>The accumulated elapsed wait time due to global contention for parent L-LOCKS.</td>
</tr>
<tr>
<td>LOG_WRITE_DLY</td>
<td>The accumulated elapsed wait time due to log writes.</td>
</tr>
<tr>
<td>OPEN_CLOSE_DLY</td>
<td>The Db2 service waits for OPEN/CLOSE DATASET.</td>
</tr>
<tr>
<td>SYSLOG_REC_DLY</td>
<td>The Db2 service waits for SYSLGRNG UPDATE.</td>
</tr>
<tr>
<td>EXDEL_DEF_DLY</td>
<td>The Db2 service waits for EXTEND DATASET, DELETE DATASET, and DEFINE DATASET.</td>
</tr>
<tr>
<td>OTHER_SERVE_DLY</td>
<td>The Db2 service waits for HSM RECALL DATASET and DATASPACE MANAGER SERVICES.</td>
</tr>
<tr>
<td>ASYNCH_CFSREQ_DLY</td>
<td>The accumulated wait time for IXLCACHE and IXLFCOMP asynchronous requests.</td>
</tr>
<tr>
<td>COMM_PHWRT_DLY</td>
<td>The accumulated wait time for commit phase 1 I/O.</td>
</tr>
<tr>
<td>LLOCKS_CHILD_DLY</td>
<td>The accumulated wait time due to child object locks (pages, rows).</td>
</tr>
<tr>
<td>LLOCKS_OTHER_DLY</td>
<td>The accumulated wait time not due to child or parent object locks.</td>
</tr>
<tr>
<td>PLOCKS_PAGESET_DLY</td>
<td>The accumulated wait time due to physical locks for pagesets or partitions.</td>
</tr>
<tr>
<td>PLOCKS_PAGE_DLY</td>
<td>The accumulated wait time due to page contention.</td>
</tr>
<tr>
<td>PLOCKS_OTHER_DLY</td>
<td>The accumulated wait time for other physical contention.</td>
</tr>
</tbody>
</table>
**UDF_SCHED_DLY**
The accumulated wait time for scheduling user defined functions.

**LOCK_LATCH_EVT**
The accumulated lock and latch elapsed wait time (in seconds) for lock and latch suspensions.

**SYNC_IO_EVT**
The number of synchronous I/O events.

**OTHER_READ_EVT**
The number of I/O read events.

**OTHER_WRITE_EVT**
The number of I/O write events.

**SERVTASK_SW_EVT**
The number of synchronous switch to Db2 services to Db2 services which include OPEN/CLOSE data set, SYSLGRNG update, HSM recall data set, dataspace manager, define data set, extend data sets and delete data sets.

**ARCHLOG_QS_EVT**
The number of archive log quiese commands.

**ARCHLOG_RD_EVT**
The number of archive log reads.

**DRAIN_LOCK_EVT**
The number of drain lock events.

**CLAIM_REL_EVT**
The number of waits for claims to be released prior to a drain.

**PAGE_LATCH_EVT**
The number of page latch contentions.

**SP_EVT**
The number of stored procedures.

**NOTIFY_MSGS_EVT**
The number of IRLM notify messages sent.

**GLOBAL_CONT_EVT**
The number of global contentions.

**LOG_WRITE_EVT**
The number of log write IO events detected.

**OPEN_CLOSE_EVT**
The number of OPEN/CLOSE data sets.

**SYSLOG_REC_EVT**
The number of SYSLGRNG updates.

**EXTDEL_DEF_EVT**
The number of extend, delete, or define data sets.

**OTHER_SERVE_EVT**
The number of other services which include HSM recall and dataspace manager.

**ASYNCH_CFREQ_EVT**
The number of IXLCACHE and IXLFCOMP asynchronous requests.

**COMM_PH1WRT_EVT**
The number of commit phase 1 I/O requests.

**LOCKS_CHILD_EVT**
The number of child lock requests.

**LOCKS_OTHER_EVT**
The number of other physical contentions.

**PLOCKS_PAGESET_EVT**
The number of physical locks requests for pagesets or partitions.
PLOCKS_PAGE_EVT
The number of page lock requests.

PLOCKS_OTHER_EVT
The number of other physical contention events.

UDF_SCHED_EVT
The number of user-defined functions scheduling requests.

LOCK_DEADLOCKS
The number of lock deadlocks.

LOCK_SUSPENSIONS
The number of suspensions due to locking conflicts.

LOCK_TIMEOUTS
The number of lock timeouts.

LATCH_SUSPENSIONS
The number of suspensions due to latch conflicts.

OTHER_SUSPENSIONS
The number of suspensions (aside from lock and latch suspensions).

LOCK_REQUESTS
The number of lock requests.

UNLOCK_REQUESTS
The number of unlock requests.

QUERY_REQUESTS
The number of query requests.

CHANGE_REQUESTS
The number of change requests.

OTHER_REQUESTS
The number of all other requests.

CLAIM_REQUESTS
The number of claim requests.

CLAIM_FAILED
The number of unsuccessful claim requests.

DRAIN_REQUESTS
The number of drain requests.

DRAIN_FAILED
The number of unsuccessful drain requests.

XES_LOCK_REQUESTS
The number of XES lock requests.

XES_CHG_REQUESTS
The number of XES change requests.

XES_UNLK_REQUESTS
The number of XES unlock requests.

IRLM_GLOBAL_CONT
The accumulated wait time due to global contention for parent L-locks.

XES_GLOBAL_CONT
The accumulated wait time due to XES global contention for parent L-locks.

FALSE_RES_CONT
The accumulated wait time due to false resource consumption.

INCOMPAT_RET_LOCK
The accumulated wait time due to incompatible retain locks.

SHARED_LOCK_ESC
The number of lock escalations to shared mode.
**EXCL_LOCK_ESC**
  The number of lock escalations to exclusive mode.

**LOCK_REQ_PLOCKS**
  The accumulated wait time due to parent object locks (database, table space, table, partition).

**CHANGE_REQ_PLOCKS**
  The number of change requests for parent locks.

**UNLOCK_REQ_PLOCKS**
  The number of unlock requests for parent locks.

**NOTIFY_MSGS_SENT**
  The number of notify messages sent.

**RID_USED**
  The number of times RID list (also called RID pool) processing is used.

**RID_FAIL_NO_STOR**
  The number of times Db2 detected that no storage was available to hold a list of RIDs during a given RID list process involving one index (single index access with list prefetch) or multiple indexes (multiple index access).

**RID_LIMIT_EXC**
  The number of times Db2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

**RID_MAX_DEGREE**
  UNUSED

**RID_GROUPS_EXEC**
  The number of parallel groups executed.

**RID_SEQ_CURSOR**
  The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.

**RID_SEQ_NO_SORT**
  The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort storage.

**RID_SEQ_NO_BUFF**
  The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

**RID_RAN_REduced**
  The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool.

**RID_RAN_PLANNED**
  The total number of parallel groups that executed in the planned parallel degree. This field is raised by an increment of one for each parallel group that executed in the planned degree of parallelism (as determined by Db2).

**RID_PROC_ABENDS**
  The number of times a stored procedure terminated abnormally.

**RID_CALL_TIMEOUT**
  The number of times a SQL call timed out waiting to be scheduled.

**RID_CALL_REJECT**
  The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.

**RID_SEQ_ENCERVE**
  The total number of parallel groups that executed in sequential mode due to the unavailability of MVS ESA enclave services.
RID_ONE_DB2_CONO
The total number of parallel groups executed on a single Db2 subsystem due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a Db2 subsystem with COORDINATOR=YES, but is run on a Db2 subsystem with COORDINATOR=NO.

RID_ONE_DB2_ISO
The total number of parallel groups executed on a single Db2 subsystem due to repeatable-read or read-stability isolation.

RID_REOPTIMIZED
The number of times the access path for static and dynamic SQL Queries were re-optimized at run time.

RID_PREP_MATCHED
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

RID_PREP_NOMATCH
The number of times that Db2 searched the prepared statement cache but could not find a suitable prepared statement.

RID_IMP_PREPS
The number of implicit prepares (prepares that occur when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES).

RID_PREP_CACHE
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

RID_CACHE_LIM_EXC
The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

RID_PREP_PURGED
The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

RID_MAX_STOR_LOB
UNUSED

RID_ROWID_DIRECT
The number of times that direct access was successful.

RID_ROWID_INDEX
The number of times that direct row access failed and an index was used to find a record.

RID_TS_SCANNED
The number of times that an attempt to use direct row access reverted to using a table space scan because Db2 was unable to use a matching index scan.

RID_STMT_TRIGGER
The number of times a statement trigger was activated.

RID_ROW_TRIGGER
The number of times a row trigger was activated.

RID_ERROR_TRIGGER
The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

MAX_CASCADE_LEVEL
The maximum cascade level.
TOTAL_GETPAGES
The accumulated getpage requests.

GETPAGES
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGEs of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

BUFFER_UPDATES
The number of buffer pages updated.

SYNC_READS
The number of synchronous read I/O for the object.

SEQ_PREFETCH
The number of SEQ PREFETCH requested for the object.

SYNC_WRITES
The number of synchronous write I/O for the object.

LIST_PREFETCH
The number of LIST PREFETCH requests for the object.

DYNAMIC_PREFETCH
The number of DYNAMIC PREFETCH requested for the object.

HPOOL_READS
The number of successful hiperpool reads.

HPOOL_READS_FAIL
The number of hiperpool reads that failed.

HPOOL_WRITES
The number of successful hiperpool writes.

HPOOL_WRITES_FAIL
The number of hiperpool writes that failed.

GETPAGES_FAILED
The number of times a parallel query failed to find a page in the buffer pool.

ASYNCH_PAGES_READ
The number of asynchronous pages read by prefetch.

ASYNCH_HPOOL_PAGES
The number of pages found and moved from a hiperpool to a virtual buffer by prefetch.

INTERVAL_END
The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
The timestamp identifying the UTC end time of the interval.

ZIIP_CPU_TIME
The amount of CPU time accumulated while executing in Db2 on a zIIP processor.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

STATEMENT_COUNT
The number of SQL calls that occurred for the displayed activity.

EXECUTION_COUNT
The number of times a the SQL statement has executed. Db2 Query Monitor does not update the execution count for SQL that does not have a CLOSE call (for example, if the SQL ends with a negative SQLCODE or the SQL is canceled). In this case, the execution count of the SQL is shown as zero.

CURRENT_SCHEMA
The current schema that executed the SQL.
ACCELERATOR
The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the accelerator.

DB2_VERSION_LONG
A 4-digit value indicating the version of Db2. For example, the DB2_VERSION_LONG for Db2 V10 is 1010 and the DB2_VERSION_LONG for Db2 V11 is 1110.

ACCEL_ELIGIBLE_ELAPSED
The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

ACCEL_ELIGIBLE_CPU
The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

ACCEL_ELIGIBLE_ZIIP
The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

CORRNAME
The correlation ID adjusted by the conventions used by IMS and CICS.

ORIGINAL_TEXT_TOKEN
The text token of the unstripped SQL text.

DATABASE_IO_DLY
Accumulated elapsed wait time due to database IO.

UPDATE_COMMIT_DLY
Accumulated elapsed wait time due to update commits.

LLOCK_PARENT_DLY
Accumulated elapsed wait time due to locks requested by parent processes.

DATABASE_IO_EVT
Number of database IO events.

UPDATE_COMMIT_EVT
Number of update commit events.

LLOCK_PARENT_EVT
Number of parent lock requests.

CORRNUM
The correlation number which is set based on the default OMEGAMON parsing of the CORRID value.

STMT_ID
The SQL statement number assigned by the Db2 pre-compiler to an individual SQL call.

CONNECTION_NAME
The connection name.

CONNECTION_TYPE
The Db2 connection type. Valid connection types include:

1 - TSO
TSO Foreground and Background

2 - DB2CALL
Db2 Call Attach

3 - IMSDLI
DL/I Batch

4 - CICS
CICS Attach
JOBNAME
   The name of the job.

PARALLEL
   Indicates whether or not the SQL activity was formulated using Db2 query parallelism.

SP_CREATOR
   The creator of the stored procedure.

SP_NAME
   The name of the stored procedure.

LOG_BYTES_WRITTEN
   The number of log bytes written.

LOG_RECORDS_WRITTEN
   The total number of log records written.

DB2_ELAPSED_COUNT
   The number of statements that were counted in the interval that were incorporated into the mean and sum of delta squares calculations for DB2 Elapsed Time.

DB2_ELAPSED_MEAN
   The mean of the DB2 Elapsed Time for the interval.

DB2_ELAPSED_DELTA_SQR
   The sum of delta squares for DB2 Elapsed time for the interval.

DB2_CPU_COUNT
   The number of statements that were counted in the interval that were incorporated into the mean and sum of delta squares calculations for DB2 CPU Time.

DB2_CPU_MEAN
   The mean of the DB2 CPU Time for the interval.

DB2_CPU_DELTA_SQR
   The sum of delta squares for DB2 CPU time for the interval.

GETPAGES_D_COUNT
   The number of statements that were counted in the interval that were incorporated into the mean and sum of delta squares calculations for Getpages.

GETPAGES_D_MEAN
   The mean of the Getpages for the interval.

GETPAGES_D_DELTA_SQR
   The sum of delta squares for Getpages for the interval.
FIRST_ELAPSED_MEAN  
The first rolling average value for DB2 Elapsed time for the interval

FIRST_ELAPSED_VARIANCE  
The first rolling variance value for DB2 Elapsed time for the interval

FIRST_CPU_MEAN  
The first rolling average value for DB2 CPU time for the interval

FIRST_CPU_VARIANCE  
The first rolling variance value for DB2 CPU time for the interval

FIRST_GETPAGES_MEAN  
The first rolling average value for Getpages for the interval

FIRST_GETPAGES_VARIANCE  
The first rolling variance value for Getpages for the interval

FIRST_INSTANCE_TIMESTAMP  
The timestamp of the first SQL statement to update the rolling mean and variance for the interval

LAST_ELAPSED_MEAN  
The last rolling average value for DB2 Elapsed time for the interval

LAST_ELAPSED_VARIANCE  
The last rolling variance value for DB2 Elapsed time for the interval

LAST_CPU_MEAN  
The last rolling average value for DB2 CPU time for the interval

LAST_CPU_VARIANCE  
The last rolling variance value for DB2 CPU time for the interval

LAST_GETPAGES_MEAN  
The last rolling average value for Getpages for the interval

LAST_GETPAGES_VARIANCE  
The last rolling variance value for Getpages for the interval

LAST_INSTANCE_TIMESTAMP  
The timestamp of the last SQL statement to update the rolling mean and variance for the interval

CQM_SUMM_OBJECTS  
The CQM_SUMM_OBJECTS table contains information about objects. This table is associated with a metric row by the columns: INTERVAL_NUMBER, METRICS_TOKEN, DBID, OBID, PSID, and OBJECT_TOKEN.

SMFID  
The z/OS SMFID.

CQM_SUBSYSTEM  
The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER  
The interval number.

INTERVAL_START  
The timestamp for the interval start.

INTERVAL_START_UTC  
The UTC timestamp for the interval start.

METRICS_TOKEN  
The metrics token. When combined with SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and OBJECT_TOKEN, the METRICS_TOKEN can be used to find metric row associated with this object.

METRICS_TIMESTAMP  
The metrics timestamp.
METRICS_TIMESTAMP.Utc
The metrics timestamp.

OBJECT_TOKEN
The object token.

DBID
The database ID.

OBID
The object ID.

PSID
The pageset ID.

BUFFERPOOL_NORM
The normalized bufferpool number (BP0, BP16K0).

BUFFERPOOL_NUM
The bufferpool number.

OBJECT_TYPE
The object type. Valid values are I (index) and T (table).

DATABASE_NAME
The database name.

PAGESSET_NAME
The pageset name.

OBJECT_CREATOR
The object creator.

OBJECT_NAME
The object name.

TBCREATOR
The table creator. For indexes, it is the table creator for the table associated with the index.

TBNAME
The name of the table. For indexes, it is the table name of the table associated with the index.

GETPAGE_ELAPSED
The accumulated elapsed time for getpage requests.

GETPAGES
The number of getpages issued which includes conditional, non-conditional, successful and unsuccessful requests.

BUFFER_UPDATES
The number of buffer updates.

SYNC_READS
The number of synchronous read I/O requests.

SEQ_PREFETCH
The number of sequential prefetches.

SYNC_WRITES
The number of synchronous write requests.

LIST_PREFETCH
The number of list prefetch requests.

DYNAMIC_PREFETCH
The number of dynamic prefetch requests.

HPOOL_READS
The number of successful hiperpool reads.

HPOOL_READS_FAIL
The number of hiperpool reads that failed.
HPOOL_WRITES
The number of successful hiperpool writes.

HPOOL_WRITES_FAIL
The number of hiperpool writes that failed.

GETPAGES_FAILED
The number of getpages that failed.

ASYNCH_PAGES_READ
The number of asynchronous pages read by prefetch.

ASYNCH_HPOOL_PAGES
The number of pages found and moved from a hiperpool to a virtual buffer by prefetch.

INTERVAL_END
The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
The timestamp identifying the UTC end time of the interval.

DB2_SUBSYSTEM
The DB2 subsystem on which the activity occurred.

DB2_VERSION
A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

LOCK_EVENTS
The number of lock events detected for the object.

LOCK_DELAYS
The total amount of lock delay time for the object spent in DB2.

LATCH_EVENTS
The number of latch events detected for the object.

LATCH_DELAYS
The total amount of latch delay time for the object spent in DB2.

SYNC_IO_EVENTS
The number of synchronous IO events detected for the object.

SYNC_IO_DELAYS
The total amount of Sync IO delay time for the object spent in DB2.

LOG_WRITE_EVENTS
The number of log write IO events detected.

LOG_WRITE_DELAYS
The total amount of log write IO delay time for the object spent in DB2.

PAGE_LATCH_EVENTS
The number of page latch events detected for the object.

PAGE_LATCH_DELAYS
The total amount of page latch delay time for the object spent in DB2.

DB2_VERSION_LONG
A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

CQM_SUMM_TEXT
The CQM_SUMM_TEXT table contains summary information about SQL text. This table is associated with metrics by SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START and TEXT_TOKEN. When combined with SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, and INTERVAL_START, the combined key can be used to find the metric row associated with this SQL text.
SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER
The interval number.

INTERVAL_START
The timestamp for the interval start.

INTERVAL_END
The timestamp identifying the end time of the interval.

TEXT_TOKEN
The text token.

TEXT_TIMESTAMP
The timestamp for the SQL text.

CCSID
The encoding CCSID for the SQL text.

ROW_ID
The system generated row ID.

SQLTEXT
The abbreviated view of the SQL text.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

STRIPPED_TEXT
Indicates whether or not the text is stripped text.

CQM_EXCEPTIONS
The CQM_EXCEPTIONS table holds exceptions generated based on the profile. This table is uniquely identified by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM and DB2_VERSION.

A query for exception calls, host variables, or exception objects with the SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and EXCEPTION_TOKEN will yield associated data in other tables.

A query for text with the same SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and TEXT_TOKEN will yield all SQL text associated with the exception.

SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The Query Monitor Subsystem that created the interval.

INTERVAL_NUMBER
The interval number.

INTERVAL_START
The timestamp for the interval start.

DB2_SUBSYSTEM
The Db2 subsystem on which the activity occurred.

DB2_VERSION
A 3-digit value indicating the version of Db2. For example, the DB2_VERSION for Db2 V10 is 100 and the DB2_VERSION for Db2 V11 is 110.

INTERVAL_START_UTC
The UTC timestamp for the interval start.
EXCEPTION_TOKEN  
The exception token.

EXCEPTION_TIMESTAMP  
The exception timestamp.

EXCEPTION_TIMESTAMP.UTC  
The exception timestamp in UTC.

START_TIME  
The date and time that an individual SQL statement started executing its first SQL call.

START_TIME.UTC  
The UTC date and time that an individual SQL statement started executing its first SQL call.

END_TIME  
The date and time that an individual SQL statement finished executing its last SQL call.

END_TIME.UTC  
The UTC date and time that an individual SQL statement started executing its first SQL call.

TEXT_TOKEN  
The text token.

THREAD_TOKEN  
The thread token. A thread token uniquely identifies an individual connection to a Db2 subsystem.

CONSISTENCY_TOKEN  
The hexadecimal consistency token.

ACCOUNTING_TOKEN  
The accounting token.

ORIGINATING_TOKEN  
The thread token assigned to the thread that generated the parallel task(s) on the parallelism coordinator Db2 subsystem.

PLAN  
The plan name.

COLLECTION  
The collection ID.

PROGRAM  
The Db2 package or DBRM name.

PROGRAM_VERSION  
The package version associated with the SQL statement.

SECTION  
The section number.

CORRID  
The correlation ID.

AUTHID  
The primary authorization ID.

WORKSTATION_USER  
The workstation user.

WORKSTATION_TRAN  
The workstation transaction.

WORKSTATION_NAME  
The workstation name.

IMPLICIT_QUALIFIER  
The implicit qualifier.

WORKLOAD_NAME  
The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current
activity, exceptions, and alerts. It is recommended that you name your workload to facilitate the identification of the monitoring profile line and the workload with which captured activity is associated.

**JOBNAME**
The name of the job.

**CONNECTION**
The connection name.

**CONNECTION_TYPE**
The Db2 connection type. Valid connection types include: 1 - TSO (TSO Foreground and Background), 2 - DB2CALL (Db2 Call Attach), 3 - IMSDLI (DL/I Batch), 4 - CICS (CICS Attach), 5 - IMSBMP (IMS Attach BMP), 6 - IMSMPP (IMS Attach MPP), 7 - DB2PRIV (Db2 Private Protocol), 8 - DRDA (DRDA Protocol), 9 - IMSCTL (IMS Control Region), A - IMSTRAN (IMS Transaction BMP), B - UTILITY (Db2 Utilities), and C - RRSAF (RRSAF Attach).

**NETID**
The network identifier.

**LUNAME**
The logical unit name.

**UNIQUESS_VALUE**
The uniqueness value.

**COMMIT_COUNT**
The number of commits that were issued.

**ACE_ADDRESS**
The ACE address.

**ORIGINATING_SSID**
The originating Db2 subsystem ID.

**ORIGINATING_MEMBER**
The Db2 subsystem from which the parallel activity originated.

**REQ_SITE_NAME**
The requesting site name.

**CURSOR_NAME**
The cursor name.

**SQLCAID**
The SQLCA eyecatcher.

**SQLCABC**
The length of the SQLCA.

**CURSOR_NAME**
The cursor name.

**SQLCAID**
The SQLCA eyecatcher.

**SQLCABC**
The length of the SQLCA.

**SQLCODE**
The SQL return code issued by Db2.

**SQLERRM**
The SQL error message.

**SQLERRP**
The SQL diagnostic information.

**SQLERRD1**
Indicates either an internal error code or the number of rows in the result set after the cursor position is at the end (SQLCODE=+100).
SQLERRD2
An internal error code.

SQLERRD3
Indicates the reason code for timeout or deadlock for SQLCODES -911 or -913 or it contains the number of rows affected by an INSERT, UPDATE, or DELETE but not for a cascading delete.

SQLERRD4
A floating point number indicative of the amount of resources used.

SQLERRD5
The position or column number for a syntax error during a PREPARE or EXECUTE IMMEDIATE statement.

SQLERRD6
An internal error code.

SQLWARN1
An SQL warning. Valid values are W (a value was truncated when assigned to a HOSTVAR), N (non-scrollable cursor), and S (scrollable cursor).

SQLWARN2
An SQL warning. Valid values are W (null values were excluded but it is not necessarily set for a MIN function since the result is not dependent on null values).

SQLWARN2
An SQL warning. Valid values are W (null values were excluded but it is not necessarily set for a MIN function since the result is not dependent on null values).

SQLWARN3
An SQL warning. Valid values are W (the number of result columns is larger than the number of HOSTVARS) and Z (fewer locators were provided in the associated locators statement than the stored procedure returned).

SQLWARN4
An SQL warning. Valid values are W (a prepared UPDATE or DELETE statement does not include a WHERE clause), I (a scrollable insensitive cursor), S (a scrollable sensitive cursor), and blank (the cursor is not scrollable).

SQLWARN5
An SQL warning. Valid values are W (the SQL statement was invalid for the Db2 subsystem), 1 (the cursor is read only), 2 (the cursor is read and delete), 4 (the cursor is read, delete, and update).

SQLWARN6
An SQL warning. Valid values are W (the addition of a date or timestamp yields an invalid date). The code indicates the date was reset to a valid date.

SQLWARN7
An SQL warning. Valid values are W (one or more nonzero digits were eliminated from fractional parts of a number as a result of a decimal multiply or divide).

SQLWARN8
An SQL warning. Valid values are W (a character could not be converted and was replaced with a substitute character).

SQLWARN9
An SQL warning. Valid values are W (arithmetic exceptions were ignored during count or count big processing) or Z (the stored procedure returned multiple result sets).

SQLWARNA
An SQL warning. Valid values are W (at least one character field of the SQLCA or SQLDA names or labels is invalid due to a character conversion error).

SQLSTATE
The return code for the outcome of the most recent execution of an SQL statement.

LAST_SQLCODE
The last SQL return code.
EXCEPTION_SQLCODE
The SQL code that raised an exception condition. Exception criteria are defined within a monitoring profile.

EXCEPTION_CPU_TIME
The Db2 CPU time that, when exceeded, produces an exception for that unit of SQL activity.

EXCEPTION_ELAPSED_TIME
The Db2 elapsed time that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

EXCEPTION_GETPAGES
The number of getpages that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

EXCEPTION_SQLCALLS
The number of SQL calls that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

EXCEPTION_NEGATIVE_SQLCODE
The exception SQLCODE.

ALERT_SQLCODE
The SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

ALERT_CPU_TIME
The CPU time that when exceeded produces an alert for the workload.

ALERT_ELAPSED_TIME
The elapsed time that when exceeded produces an alert for the workload.

ALERT_GETPAGES
The number of getpages that when exceeded produces an alert for the workload.

ALERT_SQLCALLS
The number of SQL calls that when exceeded produces an alert for the workload.

ALERT_NEGATIVE_SQLCODE
The alert SQLCODE.

DB2_CPU
The accumulated total of all TCB and SRB CPU time spent executing in Db2.

DB2_ELAPSED
The accumulated elapsed time while executing within Db2.

SQL_CALLS
The total number of individual SQL calls executed by Db2.

TRG_DB2_ELAPSED
The total elapsed time consumed by the SQL activity while executing under the control of triggers. A trigger might invoke a stored procedure or a user-defined function. The time spent there is not included in this counter.

TRG_DB2_CPU
The accumulated CPU time consumed in Db2 by the SQL activity while executing under the control of triggers.

UDF_APP_ELAPSED
The total elapsed time spent by the SQL activity in user-defined functions. A user-defined function might invoke a stored procedure or initiate a trigger. The time spent there is not included in this counter.

UDF_APP_CPU
The accumulated CPU time used to satisfy user-defined function requests processed in WLM address space.
**UDF_DB2_ELAPSED**
The elapsed time consumed in Db2 by the user-defined function.

**UDF_DB2_CPU**
The CPU time consumed in Db2 by the user-defined function.

**SP_APP_ELAPSED**
The total elapsed time spent by the SQL activity in stored procedures. A stored procedure might initiate a trigger or invoke a user-defined function. The time spent there is not included in this counter.

**SP_APP_CPU**
The total CPU time spent by the SQL activity in stored procedures.

**SP_DB2_ELAPSED**
The TCB time accumulated in Db2 for processing SQL statements issued by stored procedures.

**SP_DB2_CPU**
The CPU time accumulated in Db2 for processing SQL statements issued by stored procedures.

**LOCK_LATCH_DLY**
The accumulated lock and latch elapsed wait time for lock and latch suspensions.

**SYNC_IO_DLY**
The accumulated elapsed wait time for I/O. Synchronous I/O delays are further broken-down into Database I/O Delays and Log Write I/O Delays.

**OTHER_READ_DLY**
The accumulated wait time for read I/O.

**OTHER_WRITE_DLY**
The accumulated wait time for write I/O.

**SERVTASK_SW_DLY**
The accumulated wait time due to synchronous execution unit switch to Db2 services.

**ARCHLOG_QS_DLY**
The accumulated wait time for archive log quiesces.

**ARCHLOG_RD_DLY**
The accumulated wait time for archive log reads.

**DRAIN_LOCK_DLY**
The accumulated wait time for drain locks.

**CLAIM_REL_DLY**
The accumulated wait time for claim releases.

**PAGE_LATCH_DLY**
The accumulated wait time due to page latch contention.

**SP_DLY**
The accumulated wait time due to stored procedure contention.

**NOTIFY_MSGS_DLY**
The accumulated wait time due to notify messages.

**GLOBAL_CONT_DLY**
The accumulated elapsed wait time due to global contention for parent L-LOCKS.

**LOG_WRITE_DLY**
The accumulated elapsed wait time due to log writes.

**OPEN_CLOSE_DLY**
The Db2 service waits for OPEN/CLOSE DATASET.

**SYSLOG_REC_DLY**
The Db2 service waits for SYSLGRNG UPDATE.

**EXTDEL_DEF_DLY**
The Db2 service waits for EXTEND DATASET, DELETE DATASET, and DEFINE DATASET.

**OTHER_SERVE_DLY**
The Db2 service waits for HSM RECALL DATASET and DATASPACE MANAGER SERVICES.
ASYNCH_CFREQ_DLY
Accumulated wait time for IXLCACHE and IXLFCOMP asynchronous requests.

COMM_PH1WRT_DLY
Accumulated wait time for commit phase 1 I/O.

LLOCKS_CHILD_DLY
The accumulated wait time due to child object locks (pages, rows).

LLOCKS_OTHER_DLY
The accumulated wait time not due to child or parent object locks.

PLOCKS_PAGESET_DLY
The accumulated wait time due to physical locks for pagesets or partitions.

PLOCKS_PAGE_DLY
The accumulated wait time due to page contention.

PLOCKS_OTHER_DLY
The accumulated wait time for other physical contention.

UDF_SCHED_DLY
The accumulated wait time for scheduling user defined functions.

LOCK_LATCH_EVT
The accumulated lock and latch elapsed wait time (in seconds) for lock and latch suspensions.

SYNC_IO_EVT
The number of synchronous I/O events.

OTHER_READ_EVT
The number of I/O read events.

OTHER_WRITE_EVT
The number of I/O write events.

SERVTASK_SW_EVT
The number of synchronous switch to Db2 services to Db2 services which include OPEN/CLOSE data set, SYSLGRNG update, HSM recall data set, dataspace manager, define data set, extend data sets and delete data sets.

ARCHLOG_QS_EVT
The number of archive log quiesce commands.

ARCHLOG_RD_EVT
The number of archive log reads.

DRAIN_LOCK_EVT
The number of drain lock events.

CLAIM_REL_EVT
The number of waits for claims to be released prior to a drain.

PAGE_LATCH_EVT
The number of page latch contentions.

SP_EVT
The number of stored procedures.

NOTIFY_MSGS_EVT
The number of IRLM notify messages sent.

GLOBAL_CONT_EVT
The number of global contentions.

LOG_WRITE_EVT
The number of log write IO events detected.

OPEN_CLOSE_EVT
The number of OPEN/CLOSE data sets.

SYSLOG_REC_EVT
The number of SYSLGRNG updates.
**EXTDEL_DEF_EVT**
The number of extend, delete, or define data sets.

**OTHER_SERVE_EVT**
The number of other services which include HSM recall and dataspace manager.

**ASYNCH_CFREQ_EVT**
The number of IXLCACHE and IXLFCOMP asynchronous requests.

**COMM_PH1WRT_EVT**
The number of commit phase 1 I/O requests.

**LLOCKS_CHILD_EVT**
The number of child lock requests.

**LLOCKS_OTHER_EVT**
The number of other physical contentions.

**PLOCKS_PAGESET_EVT**
The number of physical locks requests for pagesets or partitions.

**PLOCKS_PAGE_EVT**
The number of page lock requests.

**PLOCKS_OTHER_EVT**
The number of other physical contention events.

**UDF_SCHED_EVT**
The number of user-defined functions scheduling requests.

**LOCK_DEADLOCKS**
The number of lock deadlocks.

**LOCK_SUSPENSIONS**
The number of suspensions due to locking conflicts.

**LOCK_TIMEOUTS**
The number of lock timeouts.

**LATCH_SUSPENSIONS**
The number of suspensions due to latch conflicts.

**OTHER_SUSPENSIONS**
The number of suspensions (aside from lock and latch suspensions).

**LOCK_REQUESTS**
The number of lock requests.

**UNLOCK_REQUESTS**
The number of unlock requests.

**QUERY_REQUESTS**
The number of query requests.

**CHANGE_REQUESTS**
The number of change requests.

**OTHER_REQUESTS**
The number of all other requests.

**CLAIM_REQUESTS**
The number of claim requests.

**CLAIM_FAILED**
The number of unsuccessful claim requests.

**DRAIN_REQUESTS**
The number of drain requests.

**DRAIN_FAILED**
The number of unsuccessful drain requests.

**XES_LOCK_REQUESTS**
The number of XES lock requests.
**XES_CHG_REQUESTS**
The number of XES change requests.

**XES_UNLK_REQUESTS**
The number of XES unlock requests.

**IRLM_GLOBAL_CONT**
The accumulated wait time due to global contention for parent L-locks.

**XES_GLOBAL_CONT**
The accumulated wait time due to XES global contention for parent L-locks.

**FALSE_RES_CONT**
The accumulated wait time due to false resource consumption.

**INCOMPAT_RET_LOCK**
The accumulated wait time due to incompatible retain locks.

**SHARED_LOCK_ESC**
The number of lock escalations to shared mode.

**EXCL_LOCK_ESC**
The number of lock escalations to exclusive mode.

**LOCK_REQ_PLOCKS**
The accumulated wait time due to parent object locks (database, table space, table, partition).

**CHANGE_REQ_PLOCKS**
The number of change requests for parent locks.

**UNLOCK_REQ_PLOCKS**
The number of unlock requests for parent locks.

**NOTIFY_MSGS_SENT**
The number of notify messages sent.

**RID_USED**
The number of times RID list (also called RID pool) processing is used.

**RID_FAIL_NO_STOR**
The number of times Db2 detected that no storage was available to hold a list of RIDs during a given RID list process involving one index (single index access with list prefetch) or multiple indexes (multiple index access).

**RID_LIMIT_EXC**
The number of times Db2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

**RID_MAX_DEGREE**
UNUSED

**RID_GROUPS_EXEC**
The number of parallel groups executed.

**RID_SEQ_CURSOR**
The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.

**RID_SEQ_NO_SORT**
The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort storage.

**RID_SEQ_NO_BUFF**
The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

**RID_RAN_REDUCED**
The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool.
**RID_RAN_PLANNED**
The total number of parallel groups that executed in the planned parallel degree. This field is raised by an increment of one for each parallel group that executed in the planned degree of parallelism (as determined by Db2).

**RID_PROC_ABENDS**
The number of times a stored procedure terminated abnormally.

**RID_CALL_TIMEOUT**
The number of times a SQL call timed out waiting to be scheduled.

**RID_CALL_REJECT**
The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.

**RID_SEQ_ENC_SERVE**
The total number of parallel groups that executed in sequential mode due to the unavailability of MVS ESA enclave services.

**RID_ONE_DB2_CONO**
The total number of parallel groups executed on a single Db2 subsystem due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a Db2 subsystem with COORDINATOR=YES, but is run on a Db2 subsystem with COORDINATOR=NO.

**RID_ONE_DB2_ISO**
The total number of parallel groups executed on a single Db2 subsystem due to repeatable-read or read-stability isolation.

**RID_REOPTIMIZED**
The number of times the access path for static and dynamic SQL queries were re-optimized at run time.

**RID_PREP_MATCHED**
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

**RID_PREP_NOMATCH**
The number of times that Db2 searched the prepared statement cache but could not find a suitable prepared statement.

**RID_IMP_PREPS**
The number of implicit prepares (prepares that occur when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEP_DYNAMIC YES).

**RID_PREP_CACHE**
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

**RID_CACHE_LIM_EXC**
The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

**RID_PREP_PURGED**
The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

**RID_MAX_STOR_LOB**
UNUSED

**RID_ROWID_DIRECT**
The number of times that direct access was successful.

**RID_ROWID_INDEX**
The number of times that direct row access failed and an index was used to find a record.
RID_TS_SCANNED
The number of times that an attempt to use direct row access reverted to using a table space scan because Db2 was unable to use a matching index scan.

RID_STMT_TRIGGER
The number of times a statement trigger was activated.

RID_ROW_TRIGGER
The number of times a row trigger was activated.

RID_ERROR_TRIGGER
The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

MAX_CASCADE_LEVEL
The maximum cascade level.

GETPAGES
The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGES of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

BUFFER_UPDATES
The number of buffer pages updated.

SYNC_READS
The number of synchronous read I/O for the object.

SEQ_PREFETCH
The number of SEQ PREFETCH requested for the object.

SYNC_WRITES
The number of synchronous write I/O for the object.

LIST_PREFETCH
The number of LIST PREFETCH requests for the object.

DYNAMIC_PREFETCH
The number of DYNAMIC PREFETCH requested for the object.

HPOOL_READS
The number of successful hiperpool reads.

HPOOL_READS_FAIL
The number of hiperpool reads that failed.

HPOOL_WRITES
The number of successful hiperpool writes.

HPOOL_WRITES_FAIL
The number of hiperpool writes that failed.

GETPAGES_FAILED
The number of times a parallel query failed to find a page in the buffer pool.

ASYNCH_PAGES_READ
The number of asynchronous pages read by prefetch.

ASYNCH_HPOOL_PAGES
The number of pages found and moved from a hiperpool to a virtual buffer by prefetch.

CLIENT_ENDUSER
The client enduser.

CORRNAME
The correlation ID adjusted by the conventions used by IMS and CICS.

CORRNUM
The correlation number which is set based on the default OMEGAMON parsing of the CORRID value.
INTERVAL_END
The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
The timestamp identifying the UTC end time of the interval.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

ZIIP_CPU_TIME
The amount of CPU time accumulated while executing in Db2 on a zIIP processor.

STRIPPED_TEXT_TOKEN
The stripped text token.

DB2_VERSION_LONG
A 4-digit value indicating the version of Db2. For example, the DB2_VERSION_LONG for Db2 V10 is 1010 and the DB2_VERSION_LONG for Db2 V11 is 1110.

CURRENT_SCHEMA
The current schema that executed the SQL.

DATABASE_IO_DLY
Accumulated elapsed wait time due to database IO.

UPDATE_COMMIT_DLY
Accumulated elapsed wait time due to update commits.

LLOCK_PARENT_DLY
Accumulated elapsed wait time due to locks requested by parent processes.

DATABASE_IO_EVT
Number of database IO events.

UPDATE_COMMIT_EVT
Number of update commit events.

LLOCK_PARENT_EVT
Number of parent lock requests.

STMT_ID
The SQL statement number assigned by the Db2 pre-compiler to an individual SQL call.

ACCELERATOR
The name of the IBM Db2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the IBM Db2 Analytics Accelerator for z/OS.

ACCEL_ELIGIBLE_ELAPSED
The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

ACCEL_ELIGIBLE_CPU
The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

ACCEL_ELIGIBLE_ZIIP
The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

PARALLEL
Indicates whether or not the SQL activity was formulated using Db2 query parallelism.

SP_CREATOR
The creator of the stored procedure.

SP_NAME
The name of the stored procedure.
<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSTV_COUNT</td>
<td>The host variable count.</td>
</tr>
<tr>
<td>LOG_BYTES_WRITTEN</td>
<td>The number of log bytes written.</td>
</tr>
<tr>
<td>LOG_RECORDS_WRITTEN</td>
<td>The total number of log records written.</td>
</tr>
<tr>
<td>CPU_ROLL_AVG</td>
<td>The value of the CPU rolling average at the time the exception was generated.</td>
</tr>
<tr>
<td>CPU_ROLL_STDV</td>
<td>The value of the CPU rolling standard deviation at the time the exception was generated.</td>
</tr>
<tr>
<td>CPU_FACTOR</td>
<td>The amount of standard deviations from the mean the CPU was at the time the exception was generated.</td>
</tr>
<tr>
<td>ECPU_ROLLLM</td>
<td>The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for CPU.</td>
</tr>
<tr>
<td>ACPU_ROLLLM</td>
<td>The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly alert for CPU.</td>
</tr>
<tr>
<td>CPU_DSC</td>
<td>Indicates whether or not the value of the CPU for a given SQL statement was factored into the rolling mean and standard deviation.</td>
</tr>
<tr>
<td>CPU_DSCT</td>
<td>The discard level that would have to be crossed in order for a SQL statement's CPU time not to update the rolling mean and standard deviation.</td>
</tr>
<tr>
<td>ELAP_ROLL_AVG</td>
<td>The value of the elapsed time rolling average at the time the exception was generated.</td>
</tr>
<tr>
<td>ELAP_ROLL_STDV</td>
<td>The value of the elapsed time rolling standard deviation at the time the exception was generated.</td>
</tr>
<tr>
<td>ELAP_FACTOR</td>
<td>The amount of standard deviations from the mean the elapsed time was at the time the exception was generated.</td>
</tr>
<tr>
<td>EELAP_ROLLLM</td>
<td>The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for elapsed time.</td>
</tr>
<tr>
<td>AELAP_ROLLLM</td>
<td>The tolerance level that would have to be crossed in order for an SQL statement to generate an anomaly alert for elapsed time.</td>
</tr>
<tr>
<td>ELAP_DSC</td>
<td>Indicates whether or not the value of the elapsed time for a given SQL statement was factored into the rolling mean and standard deviation.</td>
</tr>
<tr>
<td>ELAP_DSCT</td>
<td>The discard level that would have to be crossed in order for a SQL statement's elapsed time not to update the rolling mean and standard deviation.</td>
</tr>
<tr>
<td>GETPGS_ROLL_AVG</td>
<td>The value of the getpage rolling average at the time the exception was generated.</td>
</tr>
<tr>
<td>GETPGS_ROLL_STDV</td>
<td>The value of the getpages rolling standard deviation at the time the exception was generated.</td>
</tr>
<tr>
<td>GETPGS_FACTOR</td>
<td>The amount of standard deviations from the mean the getpages were at the time the exception was generated.</td>
</tr>
</tbody>
</table>
The tolerance level that would have to be crossed in order for an SQL statement to generate an anomaly exception for getpages.

The tolerance level that would have to be crossed in order for an SQL statement to generate an anomaly alert for getpages.

Indicates whether or not the value of the getpages for a given SQL statement was factored into the rolling mean and standard deviation.

The discard level that would have to be crossed in order for a SQL statement's getpages not to update the rolling mean and standard deviation.

DB2 Elapsed Time exception anomaly detected

DB2 CPU Time exception anomaly detected

GETPAGE exception anomaly detected

DB2 Elapsed Time alert anomaly detected

DB2 CPU Time alert anomaly detected

GETPAGE alert anomaly detected

Indicates whether anomalies were detected for the statement based on the exception anomaly settings in the profile.

Indicates whether anomalies were detected for the statement based on the alert anomaly settings in the profile.

Indicates whether either exception or alert anomalies were detected.

Indicates the CPU toleration, when exceeded, produces an anomaly exception for CPU time for a SQL statement.

Indicates the elapsed time toleration, when exceeded produces an elapsed time anomaly exception for a SQL statement.

Indicates the getpage toleration, when exceeded, produces an anomaly getpage exception for a SQL statement.

Indicates the CPU time toleration, when exceeded produces an anomaly CPU alert for a SQL statement.

Indicates the elapsed time toleration when exceeded, produces an elapsed time anomaly alert for a SQL statement.

Indicates the getpage toleration, when exceeded, produces a getpage anomaly alert for a SQL statement.
CQM_EXCP_CALLS
The CQM_EXCP_CALLS table contains information about the exceptions statement detail for exceptions. This table is associated by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, and EXCEPTION_TOKEN.

SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The Query Monitor Subsystem ID that created the interval.

INTERVAL_NUMBER
The interval number.

INTERVAL_START
The timestamp for the interval start.

INTERVAL_START_UTC
The UTC timestamp for the interval start.

EXCEPTION_TOKEN
The exception token.

EXCEPTION_TIMESTAMP
The exception timestamp.

EXCEPTION_TIMESTAMP_UTC
The exception timestamp in UTC.

STMT
The statement number assigned by PRECOMPLIER.

TYPE
The type of SQL call executed by a package or DBRM within Db2 (for example, PREPARE, OPEN, FETCH, etc).

SQLCAID
The SQLCA eyecatcher.

SQLCABC
The length of the SQLCA.

SQLCODE
The SQL return code issued by Db2.

SQLERRM
The SQL error message.

SQLERRP
The SQL diagnostic information.

SQLERRD1
Indicates either an internal error code or the number of rows in the result set after the cursor position is at the end (SQLCODE=+100).

SQLERRD2
An internal error code.

SQLERRD3
Indicates the reason code for timeout or deadlock for SQLCODES -911 or -913 or it contains the number of rows affected by an INSERT, UPDATE, or DELETE but not for a cascading delete.

SQLERRD4
A floating point number indicative of the amount of resources used.

SQLERRD5
The position or column number for a syntax error during a PREPARE or EXECUTE IMMEDIATE statement.

SQLERRD6
An internal error code.
SQLWARN0
   An SQL warning. Valid values are blank (no other SQLWARNx indicator is set) or W.

SQLWARN1
   An SQL warning. Valid values are W (a value was truncated when assigned to a HOSTVAR), N (non-scrollable cursor), and S (scrollable cursor).

SQLWARN2
   An SQL warning. Valid values are W (null values were excluded but it is not necessarily set for a MIN function since the result is not dependent on null values).

SQLWARN3
   An SQL warning. Valid values are W (the number of result columns is larger than the number of HOSTVARS) and Z (fewer locators were provided in the associated locators statement than the stored procedure returned).

SQLWARN4
   An SQL warning. Valid values are W (a prepared UPDATE or DELETE statement does not include a WHERE clause), I (a scrollable insensitive cursor), S (a scrollable sensitive cursor), and blank (the cursor is not scrollable).

SQLWARN5
   An SQL warning. Valid values are W (the SQL statement was invalid for the Db2 subsystem), 1 (the cursor is read only), 2 (the cursor is read and delete), 4 (the cursor is read, delete, and update).

SQLWARN6
   An SQL warning. Valid values are W (the addition of a date or timestamp yields an invalid date). The code indicates the date was reset to a valid date.

SQLWARN7
   An SQL warning. Valid values are W (one or more nonzero digits were eliminated from fractional parts of a number as a result of a decimal multiply or divide).

SQLWARN8
   An SQL warning. Valid values are W (a character could not be converted and was replaced with a substitute character).

SQLWARN9
   An SQL warning. Valid values are W (arithmetic exceptions were ignored during count or count big processing) or Z (the stored procedure returned multiple result sets).

SQLWARNA
   An SQL warning. Valid values are W (at least one character field of the SQLCA or SQLDA names or labels is invalid due to a character conversion error).

SQLSTATE
   The return code for the outcome of the most recent execution of an SQL statement.

DB2_CPU
   The accumulated total of all TCB and SRB CPU time spent executing in Db2.

DB2_ELAPSED
   The accumulated elapsed time while executing within Db2.

SQL_CALLS
   The total number of individual SQL calls executed by Db2.

TRG_DB2_ELAPSED
   The total elapsed time consumed by the SQL activity while executing under the control of triggers. A trigger might invoke a stored procedure or a user-defined function. The time spent there is not included in this counter.

TRG_DB2_CPU
   The accumulated CPU time consumed in Db2 by the SQL activity while executing under the control of triggers.
**UDF_APP_Elapsed**
The total elapsed time spent by the SQL activity in user-defined functions. A user-defined function might invoke a stored procedure or initiate a trigger. The time spent there is not included in this counter.

**UDF_APP_CPU**
The accumulated CPU time used to satisfy user-defined function requests processed in WLM address space.

**UDF_DB2_Elapsed**
The elapsed time consumed in Db2 by the user-defined function.

**UDF_DB2_CPU**
The CPU time consumed in Db2 by the user-defined function.

**SP_APP_Elapsed**
The total elapsed time spent by the SQL activity in stored procedures. A stored procedure might initiate a trigger or invoke a user-defined function. The time spent there is not included in this counter.

**SP_APP_CPU**
The total CPU time spent by the SQL activity in stored procedures.

**SP_DB2_Elapsed**
The TCB time accumulated in Db2 for processing SQL statements issued by stored procedures.

**SP_DB2_CPU**
The CPU time accumulated in Db2 for processing SQL statements issued by stored procedures.

**LOCK_LATCH_DLY**
The accumulated lock and latch elapsed wait time for lock and latch suspensions.

**SYNC_IO_DLY**
The accumulated elapsed wait time for I/O. Synchronous I/O delays are further broken-down into Database I/O Delays and Log Write I/O Delays.

**OTHER_READ_DLY**
The accumulated wait time for read I/O.

**OTHER_WRITE_DLY**
The accumulated wait time for write I/O.

**SERVTASK_SW_DLY**
The accumulated wait time due to synchronous execution unit switch to Db2 services.

**ARCHLOG_QS_DLY**
The accumulated wait time for archive log quiesces.

**ARCHLOG_RD_DLY**
The accumulated wait time for archive log reads.

**DRAIN_LOCK_DLY**
The accumulated wait time for drain locks.

**CLAIM_REL_DLY**
The accumulated wait time for claim releases.

**PAGE_LATCH_DLY**
The accumulated wait time due to page latch contention.

**SP_DLY**
The accumulated wait time due to stored procedure contention.

**NOTIFY_MSGS_DLY**
The accumulated wait time due to notify messages.

**GLOBAL_CONT_DLY**
The accumulated elapsed wait time due to global contention for parent L-LOCKS.

**LOG_WRITE_DLY**
The accumulated elapsed wait time due to log writes.
The Db2 service waits for OPEN/CLOSE DATASET.

The Db2 service waits for SYSLGRNG UPDATE.

The Db2 service waits for EXTEND DATASET, DELETE DATASET, and DEFINE DATASET.

The Db2 service waits for HSM RECALL DATASET and DATASPACE MANAGER SERVICES.

Accumulated wait time for IXLCACHE and IXLFCOMP asynchronous requests.

Accumulated wait time for commit phase 1 I/O.

The accumulated wait time due to child object locks (pages, rows).

The accumulated wait time not due to child or parent object locks.

The accumulated wait time due to physical locks for pagesets or partitions.

The accumulated wait time due to page contention.

The accumulated wait time for other physical contention.

The accumulated wait time for scheduling user defined functions.

The accumulated lock and latch elapsed wait time (in seconds) for lock and latch suspensions.

The number of synchronous I/O events.

The number of I/O read events.

The number of I/O write events.

The number of synchronous switch to Db2 services to Db2 services which include OPEN/CLOSE dataset, SYSLGRNG update, HSM recall data set, dataspace manager, define data set, extend data sets and delete data sets.

The number of archive log quiese commands.

The number of archive log reads.

The number of drain lock events.

The number of waits for claims to be released prior to a drain.

The number of page latch contentions.

The number of stored procedures.

The number of IRLM notify messages sent.
GLOBAL_CONT_EVT
The number of global contentions.

LOG_WRITE_EVT
The number of log write IO events detected.

OPEN_CLOSE_EVT
The number of OPEN/CLOSE data sets.

SYSLOG_REC_EVT
The number of SYSLGRNG updates.

EXTDEL_DEF_EVT
The number of extend, delete, or define data sets.

OTHER.Serve.EVT
The number of other services which include HSM recall and dataspace manager.

ASYNCH_CFREQ_EVT
The number of IXLCACHE and IXLFCOMP asynchronous requests.

COMM_PH1WRT_EVT
The number of commit phase 1 I/O requests.

LLOCKS_CHILD_EVT
The number of child lock requests.

LLOCKS_OTHER_EVT
The number of other physical contentions.

PLOCKS_PAGESET_EVT
The number of physical locks requests for pagesets or partitions.

PLOCKS_PAGE_EVT
The number of page lock requests.

PLOCKS_OTHER_EVT
The number of other physical contention events.

UDF_SCHED_EVT
The number of user-defined functions scheduling requests.

LOCK_DEADLOCKS
The number of lock deadlocks.

LOCK_SUSPENSIONS
The number of suspensions due to locking conflicts.

LOCK_TIMEOUTS
The number of lock timeouts.

LATCH_SUSPENSIONS
The number of suspensions due to latch conflicts.

OTHER_SUSPENSIONS
The number of suspensions (aside from lock and latch suspensions).

LOCK_REQUESTS
The number of lock requests.

UNLOCK_REQUESTS
The number of unlock requests.

QUERY_REQUESTS
The number of query requests.

CHANGE_REQUESTS
The number of change requests.

OTHER_REQUESTS
The number of all other requests.

CLAIM_REQUESTS
The number of claim requests.
CLAIM_FAILED
The number of unsuccessful claim requests.

DRAIN_REQUESTS
The number of drain requests.

DRAIN_FAILED
The number of unsuccessful drain requests.

XES_LOCK_REQUESTS
The number of XES lock requests.

XES_CHG_REQUESTS
The number of XES change requests.

XES_UNLK_REQUESTS
The number of XES unlock requests.

IRLM_GLOBAL_CONT
The accumulated wait time due to global contention for parent L-locks.

XES_GLOBAL_CONT
The accumulated wait time due to XES global contention for parent L-locks.

FALSE_RES_CONT
The number of false resource contentions.

INCOMPAT_RET_LOCK
The accumulated wait time due to incompatible retain locks.

SHARED_LOCK_ESC
The number of lock escalations to shared mode.

EXCL_LOCK_ESC
The number of lock escalations to exclusive mode.

LOCK_REQ_PLOCKS
The accumulated wait time due to parent object locks (database, table space, table, partition).

CHANGE_REQ_PLOCKS
The number of change requests for parent locks.

UNLOCK_REQ_PLOCKS
The number of unlock requests for parent locks.

NOTIFY_MSGS_SENT
The number of notify messages sent.

RID_USED
The number of times RID list (also called RID pool) processing is used.

RID_FAIL_NO_STOR
The number of times Db2 detected that no storage was available to hold a list of RIDs during a given RID list process involving one index (single index access with list prefetch) or multiple indexes (multiple index access).

RID_LIMIT_EXC
The number of times Db2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

RID_MAX_DEGREE
UNUSED

RID_GROUPS_EXEC
The number of parallel groups executed.

RID_SEQ_CURSOR
The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.
RID_SEQ_NO_SORT
The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort storage.

RID_SEQ_NO_BUFF
The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

RID_RAN_REDUCED
The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool.

RID_RAN_PLANNED
The total number of parallel groups that executed in the planned parallel degree. This field is raised by an increment of one for each parallel group that executed in the planned degree of parallelism (as determined by Db2).

RID_PROC_ABENDS
The number of times a stored procedure terminated abnormally.

RID_CALL_TIMEOUT
The number of times a SQL call timed out waiting to be scheduled.

RID_CALL_REJECT
The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.

RID_SEQ_ENC_SERVE
The total number of parallel groups that executed in sequential mode due to the unavailability of MVS ESA enclave services.

RID_ONE_DB2_CONO
The total number of parallel groups executed on a single Db2 subsystem due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a Db2 subsystem with COORDINATOR=YES, but is run on a Db2 subsystem with COORDINATOR=NO.

RID_ONE_DB2_ISO
The total number of parallel groups executed on a single Db2 subsystem due to repeatable-read or read-stability isolation.

RID_REOPTIMIZED
The number of times the access path for static and dynamic SQL Queries were re-optimized at run time.

RID_PREP.MATCHED
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

RID_IMP_PREPS
The number of implicit prepares (prepares that occur when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEP_DYNAMIC YES).

RID_PREP_CACHE
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

RID_CACHE_LIM_EXC
The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

RID_PREP_PURGED
The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.
RID_MAX_STORLOB
  UNUSED

RID_ROWID_DIRECT
  The number of times that direct access was successful.

RID_ROWID_INDEX
  The number of times that direct row access failed and an index was used to find a record.

RID_TS_SCANNED
  The number of times that an attempt to use direct row access reverted to using a table space scan because Db2 was unable to use a matching index scan.

RID_STMT_TRIGGER
  The number of times a statement trigger was activated.

RID_ROW_TRIGGER
  The number of times a row trigger was activated.

RID_ERROR_TRIGGER
  The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

MAX_CASCADE_LEVEL
  The maximum cascade level.

GETPAGES
  The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGES of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

BUFFER_UPDATES
  The number of buffer pages updated.

SYNC_READS
  The number of synchronous read I/O for the object.

SEQ_PREFETCH
  The number of SEQ PREFETCH requested for the object.

SYNC_WRITES
  The number of synchronous write I/O for the object.

LIST_PREFETCH
  The number of LIST PREFETCH requests for the object.

DYNAMIC_PREFETCH
  The number of DYNAMIC PREFETCH requested for the object.

HPOOL_READS
  The number of successful hiperpool reads.

HPOOL_READS_FAIL
  The number of hiperpool reads that failed.

HPOOL_WRITES
  The number of successful hiperpool writes.

HPOOL_WRITES_FAIL
  The number of hiperpool writes that failed.

GETPAGES_FAILED
  The number of times a parallel query failed to find a page in the buffer pool.

ASYNCH_PAGES_READ
  The number of asynchronous pages read by prefetch.

ASYNCH_HPOOL_PAGES
  The number of pages found and moved from a hiperpool to a virtual buffer by prefetch.
INTERVAL_END
The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
The timestamp identifying the UTC end time of the interval.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

ZIIP_CPU_TIME
The amount of CPU time accumulated while executing in Db2 on a zIIP processor.

DATABASE_IO_DLY
Accumulated elapsed wait time due to database IO.

UPDATE_COMMIT_DLY
Accumulated elapsed wait time due to update commits.

LLOCK_PARENT_DLY
Accumulated elapsed wait time due to locks requested by parent processes.

DATABASE_IO_EVT
Number of database IO events.

UPDATE_COMMIT_EVT
Number of update commit events.

LLOCK_PARENT_EVT
Number of parent lock requests.

CQM_EXCP_HOSTV
The CQM_EXCP_HOSTV table contains information about the host variables for exceptions. This table is associated by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START and THREAD_TOKEN.

SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The Query Monitor Subsystem ID that created the interval.

INTERVAL_NUMBER
The interval number.

INTERVAL_START
The timestamp for the interval start.

INTERVAL_START_UTC
The UTC timestamp for the interval start.

EXCEPTION_TOKEN
The exception token.

HOSTV_TIMESTAMP
The exception timestamp.

HOSTV_TIMESTAMP_UTC
The exception timestamp in UTC.

THREAD_TOKEN
The thread token. A thread token uniquely identifies an individual connection to a Db2 subsystem.

STMT
The statement number assigned by PRECOMPILER.

TYPE
The type of SQL call executed by a package or DBRM within Db2 (for example, PREPARE, OPEN, FETCH, etc).

HOSTV_CCSID
The encoding CCSID for the host variable.
VARNUM
The PRECOMPLIER assigned variable number.

HOSTV_TYPE
The numeric type of host variable.

SQLLEN
The length of the host variable in the SQLDA.

HOSTV_ACTUAL_LEN
The actual length of the host variable.

INDICATOR
The host variable indicator variable.

HOSTV_TEXT
When the host variable data type is not character, the HOSTV_TEXT is the bytes of the machine format. When the host variable data type is character, the value is the character codes in the code page indicated by the HOSTV_CCSID column.

INTERVAL_END
The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
The timestamp identifying the UTC end time of the interval.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

HOSTV_IEEE_FLOAT
Indicates whether or not the HOSTV_TEXT column contains an IEEE floating point value or other data type. Valid values are Y (the HOSTV_TEXT column contains an IEEE floating point value) and N (the HOSTV_TEXT column contains other data type).

CQM_EXCP_OBJS
The CQM_EXCP_OBJS table contains information about objects for exceptions. This table is associated by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, and EXCEPTION_TOKEN.

SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The Query Monitor Subsystem ID that created the interval.

INTERVAL_NUMBER
The interval number.

INTERVAL_START
The timestamp for the interval start.

INTERVAL_START_UTC
The UTC timestamp for the interval start.

EXCEPTION_TOKEN
The exception token.

EXCEPTION_TIMESTMP
The exception timestamp.

EXCEPTION_TIMESTMP_UTC
The exception timestamp in UTC.

THREAD_TOKEN
The thread token. A thread token uniquely identifies an individual connection to a Db2 subsystem.

DBID
The database ID.
OBID
   The object ID.

PSID
   The pageset ID.

BUFFERPOOL_NORM
   The normalized bufferpool number (BP0, BP16K0).

BUFFERPOOL_NUM
   The bufferpool number.

OBJECT_TYPE
   The object type. Valid values are I (index) and T (table).

DBNAME
   The database name.

PAGESET_NAME
   The pageset name.

OBJECT_CREATOR
   The object creator.

OBJECT_NAME
   The object name.

TBCREATOR
   The table creator. For indexes, it is the table creator for the table associated with the index.

TBNAME
   The name of the table. For indexes, it is the table name of the table associated with the index.

GETPAGE_ELAPSED
   The accumulated elapsed time for getpage requests.

GETPAGES
   The number of getpages issued which includes conditional, non-conditional, successful and unsuccessful requests.

BUFFER_UPDATES
   The number of buffer updates.

SYNC_READS
   The number of synchronous read I/O requests.

SEQ_PREFETCH
   The number of sequential prefetches.

SYNC_WRITES
   The number of synchronous write requests.

LIST_PREFETCH
   The number of list prefetch requests.

DYNAMIC_PREFETCH
   The number of dynamic prefetch requests.

HPOOL_READS
   The number of successful hiperpool reads.

HPOOL_READS_FAIL
   The number of hiperpool reads that failed.

HPOOL_WRITES
   The number of successful hiperpool writes.

HPOOL_WRITES_FAIL
   The number of hiperpool writes that failed.

GETPAGES_FAILED
   The number of getpages that failed.
ASYNCH_PAGES_READ
The number of asynchronous pages read by prefetch.

ASYNCH_HPOOL_PAGES
The number of pages found and moved from a hiperpool to a virtual buffer by prefetch.

INTERVAL_END
The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
The timestamp identifying the UTC end time of the interval.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

CQM_EXCP_TEXT
The CQM_EXCP_TEXT table contains SQL text for exceptions. This table is associated with exceptions by SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START and TEXT_TOKEN.

SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The Query Monitor Subsystem ID that created the interval.

INTERVAL_NUMBER
The interval number.

INTERVAL_START
The timestamp for the interval start.

INTERVAL_END
The timestamp for the interval end.

TEXT_TOKEN
When combined with SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, and INTERVAL_START, the combined key can be used to find the exception row associated with this SQL text.

TEXT_TIMESTAMP
The timestamp for the SQL text.

CCSID
The encoding CCSID for the SQL text.

ROW_ID
A system-generated row id.

SQLTEXT
The SQL text.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

STRIPPED_TEXT
Indicates whether or not the text is stripped text.

CQM_DB2_COMMANDS
The CQM_DB2_COMMANDS table contains information about DB2 commands.

SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER
The interval number.
INTERVAL_START
The timestamp for the interval start.

DB2_SUBSYSTEM
The DB2 subsystem on which the activity occurred.

DB2_VERSION
A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

INTERVAL_START_UTC
The UTC timestamp for the interval start.

COMMAND_TIMESTAMP
The date and time that Query Monitor recorded the execution of a given DB2 command.

COMMAND_TIMESTAMP_UTC
The UTC date and time that Query Monitor recorded the execution of a given DB2 command.

JOBNAME
The name of the job.

AUTHID
The primary authorization ID.

COMMAND_TEXT
The text of the DB2 command.

INTERVAL_END
The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
The timestamp identifying the UTC end time of the interval.

DB2_GROUP_NAME
The Db2 subsystem ID or Db2 data sharing group.

DB2_VERSION_LONG
A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

CQM_SQLCODES
The CQM_SQLCODES table contains information about SQLCODES collected for a monitored Db2. It is uniquely identified by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION and SQLCODE.

SMFID
The z/OS SMFID.

CQM_SUBSYSTEM
The Query Monitor Subsystem ID that created the interval.

INTERVAL_NUMBER
The interval number.

INTERVAL_START
The timestamp for the interval start.

DB2_SUBSYSTEM
The Db2 subsystem on which the activity occurred.

DB2_VERSION
A 3-digit value indicating the version of Db2. For example, the DB2_VERSION for Db2 V10 is 100 and the DB2_VERSION for Db2 V11 is 110.

INTERVAL_START_UTC
The UTC timestamp for the interval start.

SQLCODE
The SQLCODE.
SQLCODE_COUNT
    The number of occurrences of the SQLCODE.

SQLCODE_DETAIL
    The number of details captured for the SQLCODE.

INTERVAL_END
    The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
    The timestamp identifying the UTC end time of the interval.

DB2_GROUP_NAME
    The Db2 subsystem ID or Db2 data sharing group.

DB2_VERSION_LONG
    A 4-digit value indicating the version of Db2. For example, the DB2_VERSION_LONG for Db2 V10 is 1010 and the DB2_VERSION_LONG for Db2 V11 is 1110.

CQM_SQLCODE_DET
    The CQM_SQLCODE_DET table contains detailed information about SQLCODES. This table is associated with summary rows by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION and SQLCODE.

SMFID
    The z/OS SMFID.

CQM_SUBSYSTEM
    The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER
    The interval number.

INTERVAL_START
    The timestamp for the interval start.

DB2_SUBSYSTEM
    The DB2 subsystem on which the activity occurred.

DB2_VERSION
    A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

INTERVAL_START_UTC
    The UTC timestamp for the interval start.

TEXT_TOKEN
    The hexadecimal value of text token, which is used as a part of key to find the duplicate SQL code records.

THREAD_TOKEN
    The thread token. A thread token uniquely identifies an individual connection to a DB2 subsystem.

CONSISTENCY_TOKEN
    The hexadecimal value of consistency token. Its value corresponds to CONTOKEN column from SYSIBM.SYSPACKAGE.

SQLCODE_TOKEN
    This column was retained for compatibility with DB2 Query Monitor V2.1.

SQLCODE_TIMESTAMP
    The timestamp of the SQLCODE.

SQLCODE_TIMESTAMP_UTC
    The UTC timestamp of the SQLCODE.

IMPLICIT_QUALIFIER
    The implicit qualifier.
DETAIL_COUNT
The number of details collected.

PLAN
The DB2 plan name.

COLLECTION
The collection ID.

PROGRAM
The DB2 package or DBRM name.

SECTION
The section number.

STMT
The statement number assigned by PRECOMPILER.

TYPE
The type of SQL call executed by a package or DBRM within DB2 (for example, PREPARE, OPEN, FETCH, etc).

AUTHID
The primary authorization ID.

JOBNAME
The name of the job.

CONNECTION
The connection name.

CURSOR_NAME
The cursor name.

SQLCAID
The SQLCA eyecatcher.

SQLCABC
The length of the SQLCA.

SQLCODE
The SQL return code issued by DB2.

SQLERRM
The SQL error message.

SQLERRP
The SQL diagnostic information.

SQLCODE
The SQL return code issued by DB2.

SQLERRM
The SQL error message.

SQLERRP
The SQL diagnostic information.

SQLCODE
The SQL return code issued by DB2.

SQLERRM
The SQL error message.

SQLERRP
The SQL diagnostic information.

SQLERRD1
Indicates either an internal error code or the number of rows in the result set after the cursor position is at the end (SQLCODE=+100).

SQLERRD2
An internal error code.
SQLERRD3
Indicates the reason code for timeout or deadlock for SQLCODES -911 or -913 or it contains the number of rows affected by an INSERT, UPDATE, or DELETE but not for a cascading delete.

SQLERRD4
A floating point number indicative of the amount of resources used.

SQLERRD5
The position or column number for a syntax error during a PREPARE or EXECUTE IMMEDIATE statement.

SQLERRD6
An internal error code.

SQLWARN0
An SQL warning. Valid values are blank (no other SQLWARNx indicator is set) or W.

SQLWARN1
An SQL warning. Valid values are W (a value was truncated when assigned to a HOSTVAR), N (non-scrollable cursor), and S (scrollable cursor).

SQLWARN2
An SQL warning. Valid values are W (null values were excluded but it is not necessarily set for a MIN function since the result is not dependent on null values).

SQLWARN3
An SQL warning. Valid values are W (the number of result columns is larger than the number of HOSTVARS) and Z (fewer locators were provided in the associated locators statement than the stored procedure returned).

SQLWARN4
An SQL warning. Valid values are W (a prepared UPDATE or DELETE statement does not include a WHERE clause), I (a scrollable insensitive cursor), S (a scrollable sensitive cursor), and blank (the cursor is not scrollable).

SQLWARN5
An SQL warning. Valid values are W (the SQL statement was invalid for the DB2 subsystem), 1 (the cursor is read only), 2 (the cursor is read and delete), 4 (the cursor is read, delete, and update).

SQLWARN6
An SQL warning. Valid values are W (the addition of a date or timestamp yields an invalid date). The code indicates the date was reset to a valid date.

SQLWARN7
An SQL warning. Valid values are W (one or more nonzero digits were eliminated from fractional parts of a number as a result of a decimal multiply or divide).

SQLWARN8
An SQL warning. Valid values are W (a character could not be converted and was replaced with a substitute character).

SQLWARN9
An SQL warning. Valid values are W (arithmetic exceptions were ignored during count or count big processing) or Z (the stored procedure returned multiple result sets).

SQLWARNA
An SQL warning. Valid values are W (at least one character field of the SQLCA or SQLDA names or labels is invalid due to a character conversion error).

SQLSTATE
The return code for the outcome of the most recent execution of an SQL statement.

INTERVAL_END
The timestamp identifying the end time of the interval.

INTERVAL_END_UTC
The timestamp identifying the UTC end time of the interval.

DB2_GROUP_NAME
The Db2 Subsystem ID or Db2 data sharing group.
**DB2_VERSION_LONG**
A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

**CURRENT_SCHEMA**
The current schema that executed the SQL.

**CQM_SQLCODE_TEXT**
The CQM_SQLCODE_TEXT table contains information about the SQL text. This table is uniquely identified by SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, and TEXT_TOKEN.

**SMFID**
The z/OS SMFID.

**CQM_SUBSYSTEM**
The DB2 Query Monitor subsystem ID that created the interval.

**INTERVAL_NUMBER**
The interval number.

**INTERVAL_START**
The timestamp for the interval start.

**INTERVAL_END**
The timestamp for the interval end.

**TEXT_TOKEN**
When combined with SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, and INTERVAL_START, the combined key can be used to find the exception row associated with this SQL text.

**TEXT_TIMESTAMP**
The timestamp for the SQL text.

**CCSID**
The encoding CCSID for the SQL text.

**ROW_ID**
A system-generated row id.

**SQLTEXT**
The SQL text.

**DB2_GROUP_NAME**
The Db2 subsystem ID or Db2 data sharing group.

**STRIPPED_TEXT**
Indicates whether or not the text is stripped text.
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