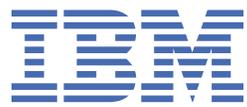


3.3

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



Note:

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

2025-06-16 edition

This edition applies to Version 3 Release 3 of IBM® Db2® Query Monitor for z/OS® (product number 5655-V42) and to any subsequent releases until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

Specific changes are indicated by a vertical bar to the left of a change. A vertical bar to the left of a figure caption indicates that the figure has changed. Editorial changes that have no technical significance are not noted.

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About this information

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

Chapter 1. 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 features and benefits” on page 10](#)
- [“Db2 Query Monitor components” on page 16](#)
- [“Terminology” on page 25](#)
- [“Service updates and support information” on page 23](#)
- [“Product documentation and updates” on page 23](#)
- [“Accessibility features” on page 24](#)
- [“Online help” on page 27](#)

What's new in Db2 Query Monitor

IBM Db2 Query Monitor for z/OS 3.3.0 contains a number of new features. Some of these enhancements were delivered on the General Availability (GA) date. Other enhancements were delivered later in the service stream, as part of new-function APARs.

New and changed functions in Db2 Query Monitor 3.3.0

The following tables summarize new and changed functions in Db2 Query Monitor 3.3.0. They do not include problem fixes or other maintenance APARs.

General documentation updates - September, 2024

Description	Related APARs
Query Monitor now uses the AUTHID parameter to perform an AUTHID_SIGNON when installing its monitoring agent to check if Db2 is ready. The user ID of the started task defined in the RACF STARTED class must be able to read and update all the files that the Query Monitor started task can access. For example, back store, interval file, profile data set, etc.	PH54989

Other recent updates

Description	Related APARs
Introduces a new profile that accumulates the number of GETPAGES by objects, which can be used to generate an alert on the collection side when the number of GETPAGES exceeds the threshold set for the object. The CAE can specify an action like canceling a thread for this alert.	PH51758
Adds information about TLS protocol port 3449. For more information, see “Port usage requirements” on page 33 .	-
Updates compatibility information. For more information, see “Compatible releases and maintenance levels” on page 41 .	-

Description	Related APARs
Information has been added describing features and techniques that you can use to process SQL error alerts captured by Db2 Query Monitor. For more information, see Chapter 8, “Using advanced functions to process SQL error alerts,” on page 447.	-
Db2 Query Monitor follows the established Db2 recommendation to provide NUMRECS to load jobs.	-
Adds information about “APPLIANCE_SERVER_LIST” on page 663.	-
The CAE Browser Client now provides the ability to adjust the timestamps shown in data tables and intervals dialogs (interval selection and manager) to reflect the timestamp of the chosen target Db2 subsystem. If the target is a data sharing group, the time zone of the primary member of the data sharing group is used. All other timestamps remain in local time zone.	-
Updates information about AT-TLS policy statements and port requirements. For more information, see “Port usage requirements” on page 33 and “Configuring AT-TLS policy statements” on page 60.	-
Adds add information about securing access to the CAE agent to “Reviewing and setting proper authorizations” on page 54 and “Passphrase support and restrictions - CAE browser client” on page 35.	-
Updates the “ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY” on page 662 and “ADETECT_ALPHA_SMOOTHING” on page 658 parameter descriptions.	-
Updates the information about CAE maintenance delivery. For more information, see “PTFs that affect installers for Windows” on page 44.	-
Updates the description of the Occurrences column. For more information, see “SQLCODEs - columns (ISPF)” on page 241.	-
Updates the range of the “HOSTVAR_LIMIT” on page 687 parameter.	-
Clarify the need to confirm changes made to a monitoring profile. For more information, see “Updating a monitoring profile in ISPF” on page 308.	-
Updates the Avail column description. For more information, see “Selecting and managing intervals” on page 162.	-
Updates information about securing data in current activity, summaries, exceptions and SQLCODEs. For more information, see “Reviewing and setting proper authorizations” on page 54.	-
Db2 Query Monitor Windows CAE fixes are now available in Fix Central. For more information, see “PTFs that affect installers for Windows” on page 44, “Restoring the CAE server - Windows” on page 44, and “Transferring the necessary set up executable files to a Windows PC” on page 64.	-
Updates the description of the OCCURRENCES column. For more information, see “SQLCODEs - columns (ISPF)” on page 241.	-
Updates the range for “HOSTVAR_LIMIT” on page 687 parameter.	-
Adds information about multi-factor authentication support. For more information, see “Multi-factor authentication support” on page 23.	-
Updates the AGENT_NAME parameter description. For more information, see “AGENT_NAME” on page 714.	-

Description	Related APARs
Adds information about calculation of Anomaly Detection values. For more information, see “Anomaly detection - calculation and number format” on page 279.	-
Corrects the list of target load libraries that require APF authorization. For more information, see “APF-authorizing load libraries” on page 69.	-
Clarifies compatibility of offload jobs restriction to note that you cannot use DSNUTIL to load data offloaded from 3.2.0 interval files into 3.3.0 tables. For more information, see “Additional compatibility restrictions” on page 42.	-
The CAE Browser Client supports MFA login. For more information, see “Logging in to the CAE browser client using multi-factor authentication” on page 127.	-
Adds DIAG_THRESHOLD and DIAG_THRESHOLD_DUMPS parameters. For more information, see “DIAG_THRESHOLD” on page 672 and “DIAG_THRESHOLD_DUMPS” on page 672.	PH02107

Note: For a list of additional previous changes and enhancements, see [“What's new in previous editions”](#) on page 3.

What's new in previous editions

This topic summarizes significant enhancements and changes to previous editions of Db2 Query Monitor documentation.

Note: For a list of the most recent updates, see [“New and changed functions in Db2 Query Monitor 3.3.0”](#) on page 1.

Previous updates - 2021

Description	Related APARs
The CAE server and the CAE agent perform the handshakes using the default SSL protocol, which can include SSL3.0, TLS1, TLS1.1, or TLS1.2. For more information, see “Configuring SSL handshakes to use TLS 1.2” on page 130.	-
Adds the “WPSIZE” on page 713 parameter.	-
Adds the “ADETECT_ALPHA_SMOOTHING” on page 658 and “ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY” on page 662 parameters.	-

Previous updates - 2020

Description	Related APARs
The Db2 tables spaces that Db2 Query Monitor uses for performance history database tables, statement type tables, and staging tables have been converted from segmented Db2 table spaces to partition-by-growth (UTS) table spaces. To support this change, three new migration jobs have been created: CQMUTS1, CQMUTS2, and CQMUTS3. For more information, see “Sample library members” on page 750.	PH13449
Passphrase support has been added to Db2 Query Monitor. For more information, see “Passphrase support and restrictions - CAE browser client” on page 35.	-

Description	Related APARs
Adds the Last Group Analyzed Time field to the Reorganization Recommendation Monitor. For more information, see “Using the Reorganization Recommendation Monitor” on page 393.	-
Adds information about AT-TLS support. For more information, see “Configuring AT-TLS security” on page 58.	-
Adds information about the “MAX_VOLUME_COUNT” on page 692 parameter.	-
Adds information about Db2 12 function level support. For more information, see “Db2 function level support” on page 8.	-
Clarifies the recommended values of “SMEM_SIZE” on page 703 and “MAXIMUM_ALLOCATIONS” on page 692 parameters.	-
Clarifies how to offload data from Db2 Query Monitor. For more information, see “Offloading data to the performance history database” on page 434 and “Offloading data to Analytics Accelerator” on page 440.	-
Clarifies the dispatching priorities. For more information, see “Dispatch priority requirements” on page 38.	-
Clarifies the restrictions for the offload processes. For more information, see “Running the offload to the performance history database” on page 437.	-
Clarifies the “SUMMARY_VARIATION” on page 707 parameter description for use in a data sharing environment.	-
<p>Adds new messages:</p> <ul style="list-style-type: none"> • “CQM185E” on page 475 • “CQM075E” on page 462 • “CQM3284I” on page 532 • “CQMC1036W” on page 555 • “CQMC2550W” on page 558 • “CQMC2551W” on page 558 • “CQM149E” on page 470 • “CQM178E” on page 474 • “CQMC0093E” on page 545 	-
Adds information about the CQM_AGRP and CQM_ADDRESS parameters that are specified in CQMCAEWD for use used in a High-Availability Fault-Tolerance (HAFT) environment. For more information, see “CQM_AGRP” on page 719 and “CQM_ADDRESS” on page 719.	-
Clarifies that Db2 Query Monitor performance history database indexes not unique.	-
Replaces the term Db2 QM Subsystem with QM Subsystem or Query Monitor subsystem to avoid it being confused with a Db2 subsystem.	PI97589
Adds information about the new SCQMSAMP library member CQMIDAM3. For more information, see “SCQMSAMP members for loading data to Analytics Accelerator” on page 760.	PH17340

Description	Related APARs
Adds the following CQMPARMS parameters: <ul style="list-style-type: none"> • “ADETECT_ENABLED” on page 659 • “ADETECT_MEMORY_PERSIST” on page 660 • “ADETECT_MIN_COUNT_FOR_ANOMALY” on page 661 • “SUMMARY_VARIATION” on page 707 • “ADETECT_MEMORY_LIMIT” on page 660 	PH17340

Previous updates - 2019

Description	Related APARs
Adds new messages: <ul style="list-style-type: none"> • “CQM8026E” on page 542 • “CQM0001I” on page 508 • “CQM1047I” on page 514 • “CQM1048E” on page 514 • “CQM1049E” on page 514 • “CQM2627E” on page 527 • “CQM2628E” on page 528 • “CQM002E” on page 459 • “CQM005E” on page 459 • “CQM010E” on page 460 • “CQM012I” on page 460 • “CQM078E” on page 462 • “CQM7008E” on page 538 	PI97589
Adds a new message: <ul style="list-style-type: none"> • “CQM1065I” on page 516 	PH17340
Adds new messages: <ul style="list-style-type: none"> • “CQM1153E” on page 516 • “CQM7014I” on page 539 	PH12338
Adds a new message: <ul style="list-style-type: none"> • “CQM334E” on page 492 	PH01452
Adds a new message: <ul style="list-style-type: none"> • “CQMC0007I” on page 543 	PI98407
Adds a new message: <ul style="list-style-type: none"> • “CQMC0093E” on page 545 	-

Description	Related APARs
<p>Adds new columns to the following panels:</p> <ul style="list-style-type: none"> • “Activity summaries - columns (ISPF)” on page 199 • “Monitoring profiles - columns and fields (ISPF)” on page 289 • “Viewing and creating monitoring profiles - columns and fields (CAE browser client)” on page 381 • “Performance history database tables and column descriptions” on page 794 	PH17340
<p>Updates the following topics:</p> <ul style="list-style-type: none"> • “Use anomaly detection for exception and alert thresholds” on page 14 • “Product integrations” on page 21 	PH17340
<p>Updates summaries and exceptions displays in the ISPF Client and the CAE browser client to include fields that report Db2 AI related statistics for Elapsed Time, CPU, and GETPAGES.</p>	PH17340
<p>Updates performance history database tables to include the fields that report Db2 AI related statistics for Elapsed Time, CPU, and GETPAGES. Db2 Query Monitor uses assembler instructions from zSeries-6 (support for the zEC12 instructions). For more information, see “Mainframe prerequisites” on page 29</p>	PH17340
<p>Db2 Query Monitor uses assembler instructions from zSeries-6 (support for the zEC12 instructions). Mainframe requirements have been updated to reflect this. For more information, see “Mainframe prerequisites” on page 29.</p>	PH17340
<p>Updates the description of the “CORRID_TRANSLATION” on page 666 parameter.</p>	PH12612, PH14891
<p>Updates the description of CQM@WDB2 to reflect new behavior. For more information, see “Configuring the offload to the performance history database” on page 435.</p>	PH09705, PH12338
<p>Updates the descriptions of the “DB2_SQLCODE_DUPLICATES” on page 667, “DB2_SQLCODE_DUPLICATES_TIME” on page 668, “THREAD_SQLCODE_DUPLICATES” on page 711, and “THREAD_SQLCODE_DUPLICATES_TIME” on page 712 parameters to reflect the calculation of SQLCODE occurrences.</p>	PH03715
<p>The definition of absolute threshold has been updated in the description of the CQM_REORG_METRICS and com.rocketsoft.nm.qm.reorg.metrics parameters. For more information, see “CAE server parameters (USS)” on page 718 and “CAE server properties (Windows)” on page 728.</p>	PH13425
<p>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). For more information, see “CAE server parameters (USS)” on page 718 and “CAE server properties (Windows)” on page 728.</p>	PH02399
<p>Adds the following CAE agent parameters, which can be defined in CQMCPRMS:</p> <ul style="list-style-type: none"> • “AGENT_NAME” on page 714 • “ISPF_LISTENER_PORT” on page 716 	PI98407

Description	Related APARs
Adds information about how Db2 Query Monitor creates, clears, and overrides baseline performance windows when performing reorganization recommendations. For more information, see “How Db2 Query Monitor creates a baseline performance window” on page 429 and “How Db2 Query Monitor clears or overrides a baseline performance window” on page 429.	-
Adds a description of the Paused status for the Next Performance Window column in the Reorganization Recommendation Monitor. For more information, see “Using the Reorganization Recommendation Monitor” on page 393.	-
Adds the Consistency Token and Text Token columns to the Db2 QM SQL Code Detail Display panel and updates the description of the Occurrences column. For more information, see “SQLCODEs - columns (ISPF)” on page 241.	PH03715
When creating monitoring profiles, you can now specify both positive and negative SQLCODEs to include or exclude specific workloads for alert or summary processing. For more information, see “Adding a monitoring profile line in ISPF” on page 302.	PH01452
Clarifies the CAE requirements.	-
Updates the descriptions of “CQM_REORG_METRICS” on page 725 and “com.rocketsoft.nm.qm.reorg.metrics” on page 733.	-

New and changed messages in Db2 Query Monitor 3.3.0

If you have code that checks for message text or numbers, use the lists of new and changed messages to determine if you need to make any updates.

New messages

The following Db2 Query Monitor messages are new in version 3.3.0:

New message	APAR
“CQM1025I” on page 511	-
“CQM2194I” on page 523 “CQM2195E” on page 523	-
“CQMC3403E” on page 563	-
“CQM179E” on page 474	-
“CQM4401I” on page 535 “CQM4402I” on page 535	PH02107

Messages with documentation updates

The following messages have significant updates to the documentation:

- [CQMC0107E](#)
- [CQMC2513E](#)

Db2 function level support

When you activate new Db2 function levels in a Db2 subsystem or data sharing group, enhancements might become available that impact IBM Db2 Query Monitor for z/OS.

The levels of function level support are defined as follows:

Tolerated

The product works as it did on a previous release or function level of Db2 for z/OS, but it does not support the new features of this function level.

Supported

The product supports most, but not necessarily all, of the new function-level features that IBM deems the most significant for this product.

General considerations

Db2 Query Monitor uses FMID HCQC110 to install monitoring agents in Db2. Hence, when Db2 is stopped and restarted, Db2 Query Monitor detects whether Db2 startup and its monitoring agents are installed. It is recommended to follow these best practices for Db2 Query Monitor and Db2 maintenance, or when activating a Function Level:

- When applying service levels for Db2, apply the same to Db2 Query Monitor.
- When stopping Db2, stop Db2 Query Monitor as well. This can clean up the Db2 Query Monitor-started task memory that is associated with the previously running Db2.
- For a new function level or version of Db2, it is recommended to stop CQM and CQMMSTR.
- For CQM-only service upgrades, it is recommended to stop both CQM and CQMMSTR. After maintenance, recycle both CQM and CQMMSTR to avoid missing the CQMMSTR restart when it is required.
- When applying service levels to z/OS, the current service levels of Db2 Query Monitor should be installed.

Db2 13 function level	Toleration PTF	Support PTF
FL507	No PTF required	No PTF required
FL506	No PTF required	No PTF required
FL505	No PTF required	No PTF required
FL504	No PTF required	No PTF required
FL503	No PTF required	No PTF required
FL502	No PTF required	No PTF required
FL501	No PTF required	No PTF required
FL500	No PTF required	No PTF required
FL100	Db2 Query Monitor: UI80707 Db2 Data Access Common Collector: • UI79607 • UI80706	No PTF required

Table 2. IBM Db2 Query Monitor for z/OS PTFs in support of Db2 12 function levels

Db2 12 function level	Toleration PTF	Support PTF
<u>FL510</u>	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68764 + UI68765 • UI69691 • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
<u>FL509</u>	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68764 + UI68765 • UI69691 • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
<u>FL508</u>	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68764 + UI68765 • UI69691 • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
<u>FL507</u>	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68764 + UI68765 • UI69691 • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
<u>FL506</u>	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68764 + UI68765 • UI69691 • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
<u>FL505</u>	Db2 Query Monitor: <ul style="list-style-type: none"> • UI69691 • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required

Table 2. IBM Db2 Query Monitor for z/OS PTFs in support of Db2 12 function levels (continued)

Db2 12 function level	Toleration PTF	Support PTF
FL504	Db2 Query Monitor: <ul style="list-style-type: none"> • UI69691 • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
FL503	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
FL502	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
FL501	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required
FL500	Db2 Query Monitor: <ul style="list-style-type: none"> • UI68947 + UI68948 Db2 Data Access Common Collector: No PTF required	No PTF required

Db2 Query Monitor features and benefits

Db2 Query Monitor includes 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 Db2 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.

Collect critical performance metrics

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.

Use SQL workloads to tailor application monitoring

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.

Summarize and monitor your data for exceptions and alerts

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.

Use OPTKEYS to tailor data summary levels

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 recommended that you specify OPTKEYS in monitoring profiles, not in CQMPARMS.

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 use 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.

Fine tune SQLCODE data collection

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 **SQLCODES** 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.

Use anomaly detection for exception and alert thresholds

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.

Ensure High-Availability Fault-Tolerance

In Db2 Query Monitor, 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.

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.

Notes:

- The primary CAE server and the backup CAE server must be installed on separate PCs (for Windows or 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"`

Monitor queries in a data sharing environment

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

Db2 Query Monitor components

Db2 Query Monitor includes both mainframe and GUI components.

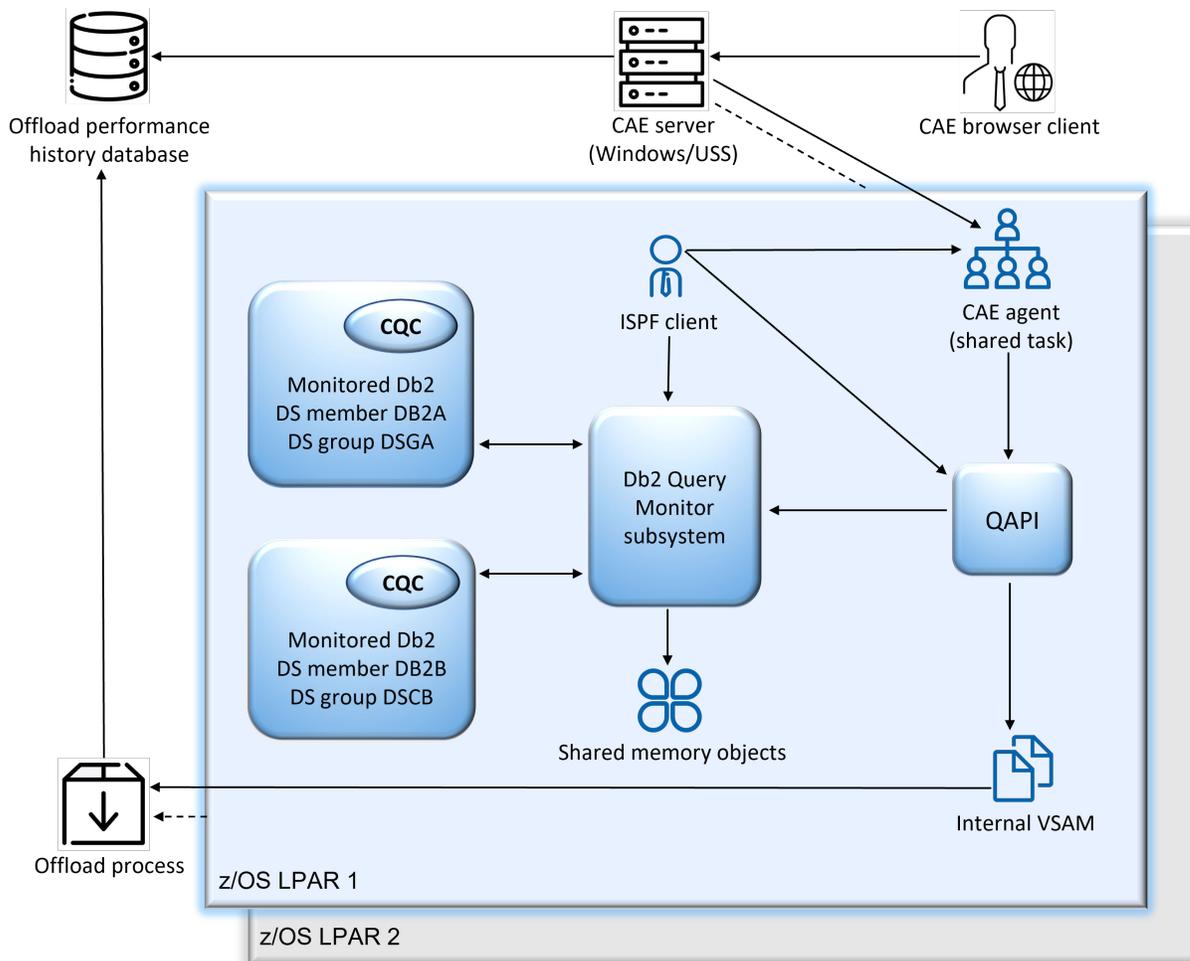


Figure 1. Db2 Query Monitor architecture

Db2 Data Access Common Collector

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

CQC reduces CPU overhead by collecting data for multiple products. It collects data for the following products:

- IBM Db2 Query Monitor for z/OS (CQM) 3.3.0
- IBM Security Guardium S-TAP for Db2 on z/OS 10.1.3 and 11.3.0

CQC collects the following data:

- SQL metrics
- Db2 object access
- SQL text
- Db2 commands
- SQLCODEs

- Host variables

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 master address space.

Master address space

For each z/OS image, a master address space is started automatically by CQM or Guardium S-TAP for Db2. The first of these products that is launched on a z/OS image automatically initiates the master address space.

The master 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 master address space acts as a placeholder for CQC resources and is similar to other master address spaces that are used throughout z/OS (for example, z/OS and Db2 have master address spaces).

The master 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 Guardium S-TAP for Db2. Forcing the master address space to stop causes the abnormal termination of all CQM or Guardium S-TAP for Db2 started tasks on the LPAR.

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

Monitoring Agent

The 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 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 Query Monitor subsystem that monitors that Db2 subsystem is stopped. A monitoring agent cannot be uninstalled without first stopping Query Monitor subsystem. The deactivate command does not uninstall the monitoring agent.

Query Monitor subsystem

The 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 Query Monitor subsystem can run as either a started task or as a batch job under the control of JES. To run the 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 either using Tools Customizer or by customizing SCQMSAMP data set member CQMPROC.

The 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 Query Monitor subsystem ID (QMID) that identifies the Query Monitor subsystem. You can customize CQMPARMS for a specific installation of Db2 Query Monitor either using Tools Customizer or by customizing SCQMSAMP data set member CQMPARMS.

Query Monitor subsystem data collection

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

- Address space initialization
- Control block allocation
- Address space termination and cleanup
- Db2 discovery
- Instrumentation install and uninstall
- First-level data summarization
- Performance history file population and management
- Exception recognition and notification
- SQL alert recognition and notification
- Field diagnostic generation
- Interval processing
- Historical data archival
- Historical data archive history maintenance

Monitoring more than one Db2 subsystem

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

If you use several Db2 Data Access Common Collector products (CQM or Guardium S-TAP for Db2) 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 Query Monitor subsystems

Multiple Query Monitor subsystem can run concurrently on a single z/OS image if each Query Monitor subsystem monitors a different Db2 subsystem.

Two Query Monitor subsystem cannot monitor the same Db2 subsystem.

Each 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 Query Monitor subsystem.

CQMINTER

The Db2 Query Monitor interval data set. You must use a unique CQMINTER data set for each 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 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 Guardium S-TAP for Db2) 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 become 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.

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.

performance history filesMETRDATA

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.

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.

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 375](#)). 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 115](#) or [“Installing a single CAE Server - USS” on page 116](#).

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.

Product integrations

Db2 Query Monitor integrates with other tools to analyze SQL performance and tune SQL queries.

You can set up integrations between Db2 Query Monitor and the following tools:

IBM OMEGAMON for Db2 Performance Expert on z/OS

Product description

IBM OMEGAMON for Db2 Performance Expert on z/OS (OMEGAMON for Db2 PE) provides real-time and historical performance and availability management for individual z/OS systems, networks, and storage subsystems.

Overview of integration

In CAE, you can join data offloaded from Db2 Query Monitor with data in OMEGAMON for Db2 PE tables by using the CLIENT_ENDUSER column in the CQM_EXCEPTIONS performance history database table. For more information, see [“OMEGAMON integration” on page 389](#).

Requirements

IBM OMEGAMON for Db2 Performance Expert on z/OS

IBM Db2 SQL Performance Analyzer for z/OS

Product description

IBM Db2 SQL Performance Analyzer for z/OS (SQL PA) provides a performance analysis of SQL queries before they are run so that you can tune them to minimize the performance cost.

Overview of integration

You can export SQL statements from Db2 Query Monitor to a data set that can be analyzed by SQL PA.

For more information, see [“Exporting SQL text to a data set” on page 193](#).

Requirements

For information about the requirements for this integration, see [“Optional: Customization tasks for integration with SQL PA” on page 95](#).

IBM Db2 Analytics Accelerator for z/OS

Product description

IBM Db2 Analytics Accelerator for z/OS (IDAA) 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 IDAA 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 an accelerator can be loaded to Db2 tables, offering possible integration of data.

Db2 Query Monitor reports whether a query ran in IDAA. 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 an accelerator as a source for an archive connection.

For more information, see [“Displaying IBM Db2 Analytics Accelerator for z/OS information” on page 235](#) and [“Adding an archive connection” on page 336](#).

IBM Db2 Analytics Accelerator Loader for z/OS

Product description

IBM Db2 Analytics Accelerator Loader for z/OS (Analytics Accelerator Loader) provides the ability to load data into Db2 for z/OS and IDAA.

Overview of integration

Analytics Accelerator Loader can be used to offload data from Db2 Query Monitor to IDAA. For details, see [“Offloading data to Analytics Accelerator” on page 440](#).

IBM Db2 Automation Tool for z/OS

Product description

IBM Db2 Automation Tool for z/OS (Db2 Automation Tool) 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 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 [“Using smarter reorganization recommendations”](#) on page 425 and [“Using the Reorganization Recommendation Monitor”](#) on page 393.

Requirements

For information about the requirements for this integration, see [“Prerequisites for the smarter reorganization recommendation feature”](#) on page 425.

Query workload tuning clients

Product description

Query tuning clients such as 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 346.

Requirements

For information about the requirements for this integration, see [“Requirements for query tuning integration”](#) on page 346.

Multi-factor authentication support

The Db2 Query Monitor ISPF user interface has multi-factor authentication (MFA) support through TSO logon processing. All authentication is done before Db2 Query Monitor is invoked and no additional MFA processing is necessary.

The Db2 Query Monitor CAE browser client user interface supports MFA login using your user ID, MFA token, and password. For more information, see [“Logging in to the CAE browser client using multi-factor authentication”](#) on page 127.

Related information

[TSO/E \(IBM Z Multi-Factor Authentication 2.1.0\)](#)

[Multi-Factor Authentication for z/OS \(z/OS 2.4.0\)](#)

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:

[IBM Support](#)

Product documentation and updates

The documentation for Db2 Query Monitor is regularly updated with information about new features and any corrections.

The Db2 Query Monitor documentation is available in the following two formats:

Topics in IBM Documentation (IBM Docs)

Underneath the title of each topic, you can see the date it was last updated.

You can find IBM Db2 Query Monitor for z/OS in IBM Documentation at <https://www.ibm.com/docs/dqmfz>.

PDF file

The PDF file is titled "IBM Db2 Query Monitor for z/OS User's Guide." The date when the PDF file was created is listed at the bottom of page 2, near the copyright information.

The latest copy of the PDF file is always posted at https://www.ibm.com/docs/en/SSAURY_3.3.0/pdf/cqmugc3.pdf.

Both of these formats contain the same information and are updated at the same time.

Revision marks for changed content

Revisions for the following types of content changes are marked like this sentence, with bars in the left margin:

- Technical revisions for changed externals that are introduced by the new release or by maintenance after the general availability of this release.
- Technical clarifications in response to customer and internal feedback.

Editorial and organizational changes that do not affect the technical meaning of the content are generally not marked.

How to send your comments

Your feedback is important in helping us provide the most accurate and highest quality information. If you have any comments about this or any other Db2 Tools information, see [How to provide feedback in IBM Documentation](#).

Other information resources

In addition to the official product documentation, IBM also provides the following information resources:

- [Program Directory for IBM DB2 Query Monitor for z/OS 3.3](#)
- [Db2 Tools for z/OS Product Documentation](#)
- [IBM TechXchange community: Db2 Tools for z/OS](#)
- [IBM Documentation](#)
- [IBM Redbooks](#)

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.

Terminology

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

General 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.

Collection point	Performance history file	Offload table
Db2 commands	DB2CDATA	CQM_DB2_COMMANDS
SQL text	TEXTDATA	CQM_SUMM_TEXT
SQL metrics	METRDATA	CQM_SUMM_METRICS
Db2 objects	OBJSDATA	CQM_SUMM_OBJECTS
Exceptions	EXCPDATA	CQM_EXCEPTIONS
Statement-level exceptions	EXCPINDX	CQM_EXCP_CALLS
SQLCODES	SQLCDATA	CQM_SQLCODES
Exception host variables	EXCPHSTV	CQM_EXCP_HOSTV
Exception SQL text	EXCPTEXT	CQM_EXCP_TEXT

Db2 offload

The process of offloading data from Db2 Query Monitor VSAM performance history files to the Db2 tables in Db2 Query Monitor performance history database.

exception

A type of event that occurs when an exception threshold (defined in monitoring profiles) 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. When a Query Monitor subsystem collects data about a Db2 subsystem, a monitoring agent is at work collecting data about that Db2 subsystem.

monitoring profile

A set of specifications that control how Db2 Query Monitor monitors specific SQL workloads. A monitoring profile 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 lines

A set of specifications that define the inclusion or exclusion of SQL workloads from summary reporting, exception processing, and alert processing. A monitoring profile consists 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 Db2 database consisting of a set of Db2 tables to which you can offload data from performance history files in Db2 Query Monitor.

performance history files

VSAM data sets that hold metrics, exceptions, and notifications by collection points in Db2 Query Monitor. One performance history file is created for each collection point, for each interval. Db2 Query Monitor dynamically allocates the performance history files. You can control the allocation of performance history files using 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.

Reorganization recommendation terminology

These terms apply to the smarter reorganization recommendation feature. For more information about this feature, see [“Using smarter reorganization recommendations”](#) on page 425.

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.

Online help

Db2 Query Monitor ISPF Client provides help tutorials and context-sensitive column help. Db2 Query Monitor 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 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. Installation and maintenance

Find information about Db2 Query Monitor prerequisites, installation steps, and maintenance tasks.

Topics:

- [“Prerequisites” on page 29](#)
- [“Compatibility, maintenance, and upgrading” on page 40](#)
- [“Preparing to customize Db2 Query Monitor” on page 50](#)
- [“Starting and preparing Tools Customizer for use” on page 91](#)
- [“Customizing Db2 Query Monitor” on page 95](#)
- [“Installing CAE components” on page 113](#)

Prerequisites

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

Topics:

- [“Operating system and environment” on page 29](#)
- [“Other prerequisites” on page 32](#)

Operating system and environment

These are the operating system and environment requirements for Db2 Query Monitor 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 prerequisites

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 2.4
- IBM Tools Customizer for z/OS 01.01.00 (PTF UI80211)
- Db2 12 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 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.

Starting Db2 Query Monitor collector address space

Query Monitor is designed to utilize 64-bit storage, so the 24-bit storage is minimal outside the z/OS required control blocks (the majority of which are system-controlled). The 31-bit storage that is used more than 24-bit is still limited to programs and transitory buffers.

When REGION= specifies a value less than 16M, the specified value will represent the amount of memory below the 16 Megabyte "Line" with 32 Megabytes of storage available between the 16 Megabyte "Line" and 2 Gigabyte "Bar".

Since Query Monitor primarily uses 64-bit storage, the amount of 24-bit storage is minimal, and 32M is enough for 31-bit storage. Hence, 6M or less is sufficient for running the CQM collector.

CAE prerequisites

Before you install the CAE server and CAE browser client, ensure that the operating system and environment meet the required prerequisites.

Basic requirements for the CAE server (applies to both Windows and USS)

The CAE server requires the following items, 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 by 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 where the certificate handling takes place. For more information about `cqm_import_certs.bat`, see [“Importing a certificate that you previously created or purchased -Windows” on page 125](#).

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 host must also meet the following requirements when installed on Windows:

- Any hardware configuration that supports any of the following 64-bit Windows operating systems:
 - Windows 7 (SR1)
 - Windows8
 - Windows 8.1
 - Windows10 (SR1 FP10)
 - WindowsServer 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 must also meet the following requirements when installed on USS:

- The user ID under which the CAE agent runs must have an OMVS segment. For more information see [“Setting up an MVS user ID to run the CAE agent”](#) on page 65.
- 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/os/zos/tools/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 SCQMSAMP member CQMCMGRT.
- 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 failover 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.
- For connectivity to be available, TCP/IP is required to be running and operational before you start the CAE server. 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 server 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 has the following requirements:

- Firefox 47, Chrome 51, Internet Explorer 11 or later versions of these browsers
- Javascript must be enabled

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 perform one or more of the following tasks:

- 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 prerequisites

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 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, ACCELMODEL to YES. Refer to the IBM Db2 Analytics Accelerator for z/OS documentation and the IBM Db2 Analytics 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:

<i>Table 4. User-specified ports required by CAE agent components</i>		
Default Port Number(s)	Description	Parameter
None, must be specified by user	CAE Agent Listener Port Range	LISTENER_PORTS

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:

<i>Table 5. Default ports required to run the CAE server on USS or Windows</i>			
Default Port Number	Description	Firewall access required?	Is a listener port?
25	SMTP Port	Yes - from the CAE server to the SMTP server	No
443	HTTPS Port	Yes	Yes
1112	JDBC Port	No	Yes
3444	Java local portal port	No	Yes
3444	Java remote portal port	No	Yes
3445-3455	RMI port range	No	Yes
3448	CAE Server Listener Port (RC4)	Yes	Yes
3449	CAE Server Listener Port (TLS)	Yes	Yes

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 3.3.0\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.

Passphrase support and restrictions - CAE browser client

The Db2 Query Monitor web user interface, which includes the CAE browser client and the CAE server, supports passphrases.

Long or non-standard passwords are automatically interpreted as passphrases.

Important: Avoid using characters that differ based on CCSID. See <https://www.ibm.com/support/pages/conversion-character-differences-between-ccsid-037-and-ccsid-500> for a list of characters that differ between CCSID 037 and CCSID 500 and should therefore not be used in CAE passwords. The default CCSID used by the CAE server is 500 and can be changed using the `-Dcom.rocketsoft.nm.os390.defaultEncoding=CpXXX` parameter.

Also, ensure that you have met the requirements in [“Securing access to the CAE agent ”](#) on page 56.

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 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*:

<http://www.redbooks.ibm.com/redbooks/pdfs/sg247610.pdf>

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 or Security Guardium S-TAP for 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 (CQMPROC) dispatching priority should be equal to or above DBM1. All other Db2 Query Monitor address spaces (such as CQMCAESV, CQMAGT) can have any dispatching priority.

Data sharing requirements

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”](#) on page 658.
- 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 [“Installing CAE components”](#) on page 113 and [“Selecting a CAE server for ISPF view of data sharing group”](#) on page 153.

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 OMEGAMON 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

9 - IMSCTL

IMS Control Region

A - IMSTRAN

IMS Transaction BMP

B - UTILITY

Db2 Utilities

C - RRSAP

RRSAF Attach

The CONNECTION_TYPE is used for parsing the CORRID value.

Data type

INTEGER

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.

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 43](#)
- [“Upgrading” on page 45](#)

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 .
- Do not run IBM Fault Analyzer for z/OS with Db2 Query Monitor. Db2 Query Monitor has its own recovery process. IBM Fault Analyzer for z/OS might get triggered on events that Db2 Query Monitor can handle internally.

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

The following product abbreviations are used:

- IBM Db2 Data Access Common Collector for z/OS 1.1: **CQC 1.1**
- IBM Db2 Query Monitor for z/OS 3.3.0: **CQM 3.3.0**
- Security Guardium S-TAP for Db2 on z/OS 10.1.3: **ADH 10.1.3**
- Security Guardium S-TAP for Db2 on z/OS 11.3: **ADH 11.3**

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

---	CQM 3.3.0	ADH 10.1.3	ADH 11.3
CQM 3.3.0	---	Db2	Db2
ADH 10.1.3	Db2	---	Db2
ADH 11.3	Db2	Db2	---

where:

N

The two product releases are not compatible.

LPAR

The two products 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 products releases can coexist on the same LPAR and can both be active on the same Db2 subsystem.

Compatible minimum maintenance levels

The following are the compatible minimum maintenance levels for the various products. In the list that follows, *compatible with* means that the two products can run together on the same LPAR.

CQM 3.3.0 with PI81326 is compatible with:

- CQC 1.1 with PI81324
- ADH 10.1.3 with PI82369
- ADH 11.3 with PI82369

ADH 10.1.3 with PI82369 is compatible with:

- CQC 1.1 with PI81324
- CQM 3.3.0 with PI81326

ADH V11.3 with PIXXXX is compatible with:

- CQC 1.1 with PIXXXX
- CQM 3.3.0 with PIXXXX

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 CQM 3.3.0.

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 3.3.0 offload process does not include the CQM@ITXT step.
- Additionally, the DDNAME definitions for TEXTCLOB, EXCPLOB, and SQLCCLOB were changed from VBS data set. You must update any existing offload jobs by referring to CQM@LDB2.
- To migrate data from 3.2.0 tables to 3.3.0 tables, refer to SCQMSAMP member CQM@CNVT. The new 3.3.0 tables must be defined before running this migration script.

Important: You cannot use DSNUTIL to load data offloaded from 3.2.0 interval files into 3.3.0 tables.

Compatibility of performance history databases and IBM Db2 Analytics Accelerator

Db2 Query Monitor 3.3.0 supports the use of IBM Db2 Analytics Accelerator with the 3.3.0 performance history database. For information about migrating data from 3.2.0 accelerator objects to 3.3.0 accelerator objects (for use with IBM Db2 Analytics Accelerator) using SCQMSAMP members CQMMIDAA and CQMIDAAL, see [“Offloading data to Analytics Accelerator”](#) on page 440.

Compatibility of old format data prior to PH02106 (Managing Host Variables and SQL Text by application)

When Db2 Query Monitor accesses old format data (data that was collected before the application of PH02106, which allows the management of Host Variables and SQL Text by application), it uses any RACF FACILITY class profiles that were previously in place (prior to PH02106).

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 3.2.0 and 3.3.0 collectors on the same LPAR, you must run a 3.2.0 CAE agent and a 3.3.0 CAE agent on that LPAR, and each CAE agent must point to a separate CAE server.

The CAE components for Db2 Query Monitor 3.2.0 must be installed in a separate ZFS/HFS from the CAE agent for Db2 Query Monitor 3.3.0.

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.

CAE server maintenance

When applying maintenance, always update the CAE server first to ensure it is not older than the Query Monitor subsystem or ISPF Client and avoid compatibility problems that might arise when LPARs are at different maintenance levels.

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.

PTFs that affect installers for Windows

Carefully read the HOLD text to determine if you need to upgrade the CAE server when you apply a PTF that affects the installer for Windows.

About this task

CQMCAEPT.3.3.0.*buildno*.exe is used for providing maintenance to the other Db2 Query Monitor components, after initial installation of Db2 Query Monitor.

When a PTF is applied on the mainframe to SCQMTRAN or the updated Windows server is downloaded and installed from Fix Central, but a corresponding CAE server upgrade is not performed, unpredictable results can occur. For example, there could be data missing from some tables or you could encounter messages such as "No collectors found" or "No data found".

Complete this procedure using the most current CQMCAEPT.3.3.0.*buildno*.exe. Maintenance is cumulative. The latest maintenance can be determined from the *buildno* (build number) which will be the highest build number sequentially.

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 64
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 set up executable files to a Windows PC”](#) on page 64.
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 SMP/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 your CAE server configurations, select **Keep my changes**.
5. Install the CAE server using the CQMCAEAL.3.3.0.*buildno*.exe installation file you downloaded from Fix Central.
6. Install CAE server maintenance using the CQMCAEPT.3.3.0.*buildno*.exe installation file you downloaded from Fix Central.

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 403.

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

You can upgrade Db2 Query Monitor 3.2.0 to version 3.3.0. You can also maintain multiple product versions concurrently.

General considerations

Data collected by Db2 Query Monitor 3.2.0 can be read by Db2 Query Monitor 3.3.0.

When using SMP/E to install 3.3.0 to the same consolidated software inventory (CSI) where 3.2.0 was installed, SMP/E deletes 3.2.0 files and replaces them with 3.3.0 files. For this reason, IBM recommends that you do not change the USS file system paths in your CSI when upgrading from 3.2.0 to 3.3.0. You can rename existing paths, but those paths must contain the 3.2.0 files and data sets.

To maintain multiple product versions concurrently, they must be installed in separate CSI zones. Even if you install 3.2.0 into the same CSI as 3.3.0, you must still create a new CQM_VAR_HOME and use CQMCMGRT to import configurations from the 3.2.0 CQM_VAR_HOME.

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

CAE considerations

When upgrading CAE components to 3.3.0, plan for the following considerations:

- 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 to guarantee that the 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 3.2.0 staging tables, you must execute the upgrade script, in CQMSAMP member CQMCSMGT, to correctly configure staging tables. Staging tables cannot be reverted back to 3.2.0 after you execute the upgrade script.

Upgrading from 3.2.0

Before you upgrade to a new version of Db2 Query Monitor, ensure that your site meets all maintenance requirements. During the upgrade procedure you will need to stop all instances of Db2 Query Monitor and other products that use the Db2 Data Access Common Collector that are running on the z/OS image.

Before you begin

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

Maintenance and compatibility requirements

- Ensure that both Db2 Query Monitor 3.2.0 and 3.3.0 are at the most recent maintenance levels prior to upgrading. Verify that all supporting maintenance and HIPERS are applied. Compatibility problems can arise if a site is not current with all applicable Db2 Query Monitor maintenance for both 3.3.0 and 3.2.0.
- Ensure that you apply APAR PI84055 to both Db2 Query Monitor 3.2.0 and Db2 Query Monitor 3.3.0 when upgrading and before starting CQM 3.3.0.
- If you are running other products that use the Db2 Data Access Common Collector, ensure that they are running on compatible code levels and upgrade as needed. See [“Compatible releases and maintenance levels”](#) on page 41.
- If you want Db2 Query Monitor and other products that use the Db2 Data Access Common Collector to monitor the same Db2 subsystem and share a common master address space, they must use a common MASTER_PROCNAME parameter.
- If you need to see two different Query Monitor subsystems 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 run only one CAE agent on an LPAR with two Query Monitor subsystems 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 you need to see two different versions of Query Monitor subsystems on the same machine, 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 machine 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 3.2.0 installation folder is not accessible from the machine where you install the 3.3.0 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 installation to the new installation.

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 you 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 3.2.0 CAE server to your 3.3.0 CAE server using the CQMMGRT script.
- If you install 3.3.0 into an existing CSI that contains 3.2.0, 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 3.2.0 into the same CSI as 3.3.0, you must still make a new CQM_VAR_HOME and use CQMCMGRT to import configurations from the 3.2.0 CQM_VAR_HOME.

Requirements for upgrading a CAE watchdog

To use fault tolerance functionality after upgrading to 3.3.0 you must uninstall the 3.2.0 watchdog service and install the 3.3.0 watchdog service.

CAE parameter requirements

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.

Procedure

To upgrade from 3.2.0 to 3.3.0:

1. Install Db2 Query Monitor 3.3.0.

If you want to retain your 3.2.0 customizations for use in 3.3.0, you can reuse the following data sets: CQMINTER, DB2PARMS, CQMPARMS, CQMPROFS.

2. Install the 3.3.0 CAE agent and CAE server:

- For information about how to install the CAE agent, see [“Installing the CAE agent” on page 113](#).
- For a CAE server on USS, do a fresh installation into a new directory; see [“Installing the CAE server on USS - Procedure” on page 116](#). Then, run CQMCMGRT in SCQMSAMP to migrate your customizations; see [“Migrating CAE customizations - USS” on page 48](#).
- For a CAE server on Windows, follow the procedure in [“Installing a single CAE server - Windows” on page 115](#). During this process, you can specify that you want to preserve your server customizations; see [“Migrating CAE customizations - Windows” on page 48](#).

3. Shut down the existing Db2 Query Monitor 3.2.0 subsystem.

4. Stop all instances of Db2 Query Monitor and other products that use Db2 Data Access Common Collector that are running on the z/OS image, and then shut down the 3.2.0 CQMMSTR address space; see [“Stopping the master address space” on page 147](#).

5. Start the 3.3.0 Query Monitor subsystem. The data collected in 3.2.0 can now be read by 3.3.0.

Upgrading data in the performance history database

You can upgrade your performance history database from Db2 Query Monitor 3.2.0 to 3.3.0 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 3.3.0 automatically supports all 3.2.0 performance history files, 3.3.0 is capable of offloading 3.2.0 performance history files. Any 3.3.0 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_ is used for Db2 Query Monitor 3.2.0. The ability to rename the table names has been deprecated and might be removed in a future release.

Upgrading your performance history database

To upgrade your performance history database from 3.2.0 to 3.3.0, 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 3.2.0 repository tables to the Db2 Query Monitor 3.3.0 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 3.3.0 objects must be created using CQMDDL (or TCz) prior to running this job.

Upgrading your accelerator data

To upgrade Db2 Query Monitor 3.2.0 accelerator tables to Db2 Query Monitor 3.3.0 accelerator tables, you must first create the 3.3.0 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 3.3.0, 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 115](#).

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:

CQMCMGRT_EXCLUDE_HISTORY=TRUE|FALSE

Specify TRUE to exclude historical data (such as messages on message boards). Specify FALSE to include historical data.

CQMCMGRT_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

```
CQMCMGRT_EXCLUDE_HISTORY=FALSE
CQMCMGRT_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 Db2 Data Access Common Collector 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.

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.

Preparing to customize Db2 Query Monitor

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.

Task	Link to detailed instructions	Status
Tools Customizer basics		
Prior to beginning the customization process, familiarize yourself with Tools Customizer terminology and data sets, and other basic information about Tools Customizer.	“Tools Customizer terminology” on page 763	
Software requirements		
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.	“Verify that your environment meets software requirements” on page 53	
SMP/E installation		
Verify that Db2 Query Monitor has been installed correctly. Db2 Query Monitor is installed by using standard SMP/E processing.	“Verify that Tools Customizer has been installed successfully” on page 53	
Verify that Tools Customizer for z/OS has been installed correctly. Tools Customizer for z/OS is installed by using standard SMP/E processing.	“Verify that Tools Customizer has been installed successfully” on page 53	
Security requirements		
Make sure that you have the required authorizations to use Db2 Query Monitor.	“Verify that your environment meets security requirements” on page 53	
Prepare to customize collector, ISPF, and CAE components		

Task	Link to detailed instructions	Status
Perform these additional tasks to prepare for the customization of collector, ISPF, and CAE components	Perform the additional tasks described in “Preparing to customize collector and ISPF components” on page 54 and “Preparing to customize CAE components” on page 64 to prepare your collector, ISPF components, and CAE components for customization.	
Gather data set names		
During the customization process, you must specify data set names for the following things: <ul style="list-style-type: none"> • Tools Customizer • FEC (common code) • Db2 Query Monitor 	“Worksheets: Gathering required data set names” on page 66	
APF authorization		
The following data sets must be APF authorized: <ul style="list-style-type: none"> • SCQMLOAD • SFECLOAD 	“APF-authorizing load libraries” on page 69	
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 70	
Customize Db2 Query Monitor		
Start Tools Customizer by running a REXX EXEC from the ISPF Command Shell panel.	“Starting Tools Customizer” on page 91	
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 92	
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 96	
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 new version of Db2 Query Monitor from a previous customization” on page 97	

Task	Link to detailed instructions	Status
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 98	

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 [“Offloading data to Analytics Accelerator” on page 440](#).

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 name 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 [“Prerequisites” 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 43](#).

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.SYSINDEXES
- SYSIBM.SYSKEYS
- SYSIBM.SYSKEYTARGETS
- SYSIBM.SYSTABLEPART
- SYSIBM.SYSTABLES
- SYSIBM.SYSTABLESPACE
- SYSIBM.SYSXMLRELS
- SYSIBM.SYSXMLSTRINGS

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 54](#) and [“Preparing to customize CAE components” on page 64](#).

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 43](#).
2. Gather information about the authorizations you will need to set. For more information, see [“Reviewing and setting proper authorizations” on page 54](#).

Reviewing and setting proper authorizations

Before you customize Db2 Query Monitor, ensure that the proper authorizations are set up.

Procedure

To review and set proper authorizations:

1. Ensure that each user has the required authority for the tasks they will perform, as listed in the following table:

<i>Table 7. Required authorizations</i>	
Description	Auth type
The installation of Db2 Query Monitor requires DBADMN authority or higher.	SYSADM
Running Db2 Query Monitor requires users to have EXECUTE authority for the Db2 Query Monitor plan.	Db2
The user IDs for the started tasks (which include the Query Monitor subsystem started task and the CAE agent started task) must have EXECUTE authority on the Db2 Query Monitor plan.	Db2
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.	RACF
Users must have authority to create and use the Db2 control file (DB2PARMS).	RACF

Table 7. Required authorizations (continued)	
Description	Auth type
The user ID for the Query Monitor subsystem started task must have RRSAF access to Db2. The Db2 connection method for the Query Monitor subsystem, performance history database, and CAE components is RRSAF. This setup enables Db2 authorization checking based on the user that is logged in when accessing remote data sharing members through the CAE. The ISPF client uses CAF for accessing Db2 .	RACF

2. Ensure that the Db2 Query Monitor load library is APF-authorized.
3. Configure RACF FACILITY class profiles to restrict or grant authority to perform Db2 Query Monitor functions, as shown in the [RACF profiles and authorities table](#).

Secure Db2 Query Monitor 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, 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, the generic profile will be used. Only authorization IDs with READ access to the profile employed will be cleared by RACF.

Table 8. RACF profiles and authorities		
Function	Description of authority	Profile
Access	Enables users to access to the Query Monitor subsystem.	CQM.ACCESS.qmid
Dynamic activate	Enables users to activate monitoring on a Db2 subsystem.	CQM.ACTIVATE.qmid.ssid
Dynamic deactivate	Enables users to deactivate monitoring on a Db2 subsystem.	CQM.DEACTIVATE.qmid.ssid
Monitoring profile refresh	Enables users to refresh a monitoring profile used by a Db2 subsystem.	CQM.REFRESH.PROFILE.ssid
Monitoring profile change	Enables users to change the monitoring profile used by a Db2 subsystem.	CQM.CHANGE.PROFILE.ssid
Administrative functions [including Setup (Option 7) and CQM#CTLF program]	Enables users to access Setup (Option 7) and 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 Setup (Option 7). For the CQM#CTLF program, if this security check fails, the program returns a return code of 16.	CQM.ADMIN.FUNCTIONS

- Configure RACF FACILITY class profiles and RACF data set profiles to protect data throughout Db2 Query Monitor.

Use the following RACF protection measures 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, configure a RACF data set profile for the appropriate backstore data sets that hold the data you want to protect, as described in the following table:

Function	Description of authority	Profile
View data in an exception or interval data set	Enables users to access data stored in the data set.	Example data set profile: QMPROD.CQM1.EHSTV.**

Securing access to the CAE agent

If you use a generic RACF profile "*" in the APPL class to define UACC(NONE), define a CQMCAE profile in the APPL class to grant READ permissions for each Db2 Query Monitor user you want to give access to the CAE.

Note: The AGENT_NAME parameter serves as the APPLID for the RACROUTE REQUEST=VERIFY in RACF. The default value for AGENT_NAME is CQMCAE. If you specify a custom AGENT_NAME, the APPL class is the custom AGENT_NAME you specify. For example, if you specify AGENT_NAME(QMCAE1), the profile in APPL class is QMCAE1. For more information, see "AGENT_NAME" on page 714.

Securing the functions users can access in the CAE

To control which functions a user can access in the CAE, use the CQM.CAE* FACILITY classes CQM.CAE.ADMINISTRATOR and CQM.CAE.OPERATOR. A user is assigned the first role for which they have UPDATE authority. (Roles are checked in the order that they are listed.) 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.

Function	Description of authority	Profile
CAE administrator role	If the user has UPDATE access to CQM.CAE.ADMINISTRATOR, the user receives the access privileges associated with the administrator role.	CQM.CAE.ADMINISTRATOR
CAE operator and viewer roles	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.	CQM.CAE.OPERATOR
CAE authenticated role	The user is not added to CQM.CAE.ADMINISTRATOR or CQM.CAE.OPERATOR.	

The following actions are 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 Alerts Browser actions (such as acknowledge, delete, and create new message board)
- Cannot update or delete shared configurations
- Cannot access or use IBM Data Server Manager (DSM) integration features

Viewer

A user that has a viewer role:

- Cannot access or use configuration or tools
- Cannot perform Alerts Browser actions (such as acknowledge, delete, and create new message board). Can only view alerts.
- Cannot update or delete shared configurations
- Cannot access or use IBM 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 Alerts Browser
- Can use the Activity Browser (Access to panels depends on the RACF privileges of the user.)
- Cannot update or delete shared configurations
- Cannot access or use IBM Data Server Manager (DSM) integration features

Securing data in current activity, summaries, exceptions, or SQLCODES

If you want to secure data in current activity, summaries, exceptions, 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.

Function	Description of authority	Profile
Host variable collection in the CAE	Enables users to collect host variables using the CAE.	CQM.EO.HOSTV. <i>qmid</i>
Host variable viewing	Enables users to view host variable information in current activity, exceptions, and summaries.	CQM.HOSTV. <i>qmid</i>
SQLTEXT viewing	Enables users to view SQLTEXT information in current activity, exceptions, and summaries.	CQM.SQLTEXT. <i>qmid</i>

If a user requests access to data that they are not authorized to view, the following message is displayed:

```
CQM132E Authorization failed. The security system has determined that additional authorization is required to perform the selected operation.
```

If this message is received unexpectedly, 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 encounters a new workload, when the time to start sampling begins, 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.

A user who can schedule host variable collection can direct Db2 Query Monitor to save host variable information in Db2 tables whose security is controlled by that user. For this reason, Db2 Query Monitor administrators should be careful when granting users READ access to CQM.EO.HOSTV.qmid and CQM.HOSTV.qmid and should consider the security of the tables that store host variable information. To view host variables in the Activity Browser, the user must have READ access to CQM.HOSTV.qmid.

5. To control access to the dynamic LPA facility, you must ensure that Db2 Query Monitor has UPDATE access to the following RACF FACILITY class profile: CSVDYLPA.ADD.CQC*

For more information, see [Controlling adding a module to LPA after IPL \(z/OS 3.1 documentation\)](#).

Configuring AT-TLS security

You can use Application Transparent Transport Layer Security (AT-TLS) to secure communications between the CAE server, CAE agent, and the ISPF Client.

About this task

If you choose not to use AT-TLS, then the CAE server and the CAE agent will use RC4 encryption.

The CAE server supports CAE agents with AT-TLS and CAE agents with RC4 simultaneously. AT-TLS is enabled together with RC4 and the CAE server tries to open a TLS socket on port 3449. It is highly recommended that you use AT-TLS and disable RC4 support after you have migrated all CAE agents to AT-TLS.

Procedure

1. Create the CAE server keystore and import the certificates.

The CAE server requires two private certificates:

Description and purpose	Alias (to use when importing)
Private certificate for the web server	WEBSERVER
Private certificate for the TLS socket that listens for CAE agent connections	CAE_AGENT_PORTAL Note: You can customize the TLS socket certificate alias that the CAE server uses when opening a new TLS socket.

If the CAE server cannot find a private certificate with the alias WEBSERVER, the CAE server uses the first private certificate in the KeyStore.

If the CAE server cannot find the private certificate with the alias CAE_AGENT_PORTAL, the CAE server does not start the TLS socket for the CAE agent and AT-TLS encryption is not possible.

a) Create the new keystore:

- If the CAE server is installed on Windows, run the `cqm_cert_install.bat` script.
- If the CAE server is installed on USS, run SCQMSAMP member CQMCCERT.

b) Import the certificates into the keystore:

- If the CAE server is installed on Windows, run the `cqm_import_certs.bat` script. See [“Importing a certificate that you previously created or purchased -Windows” on page 125](#).
- If the CAE server is installed on USS, run SCQMSAMP member CQMICERT.

2. To configure AT-TLS policy statements, refer to [“Configuring AT-TLS policy statements”](#) on page 60.
 3. Export the public certificate from keyring that you created in Step [“2”](#) on page 59 and import it into the default CAE server truststore.
 - a) If the CAE server is installed on Windows:
 - Run `cqm_export_cert.bat` (located in the `<cae_install_dir>\bin` folder) to export the public certificate.
 - Specify the following additional arguments as appropriate:
 - keystore path_to_keystore**
The path to the CAE server keystore. The default value is `cae_install_dir\defaultKeystore.jks`.
 - storepass keystore_password**
The password for the CAE server keystore. The default value is "password".
 - alias alias_name**
(Required) The name of the alias of the certificate to be exported.
 - For example: `cqm_export_cert -alias CAE_AGENT_PORTAL`
 - The successful execution of the `cqm_export_cert.bat` script, creates the file `cae_install_dir\exportedcerts\alias_name`.
 - Place the certificate you exported into the `<cae_install_dir>\certs` directory.
 - Run `cqm_import_certs.bat -importincacerts` to import the certificate to `<cae_install_dir>\bin\jre\lib\security\cacerts`
 - b) If the CAE server is installed on USS:
 - Run SCQMSAMP member CQMECERT to export the public certificate.
 - Run SCQMSAMP member CQMICERT to import the certificate into the default CAE server truststore.
4. Edit the CQMCPRMS DD of CAE agent job.
 - a) Set `ATTLS_ENABLED` to Y.
 - b) Set `SERVER_PORT` to 3449. The CAE server opens a TLS socket for CAE agents on this port by default. You can also customize this port using the `com.rocketsoft.nm.qm.caeAgent.tlsListenerPort` parameter (specified in `cqm.server.properties`).
5. Restart the CAE server and the CAE agent.

Related information

Requirements for certificate aliases to open AT-TLS socket

The CAE server requires two private certificates, one private certificate for the webserver and another private certificate for the TLS socket which listens for CAE agent connections.

You should import certificate for the webserver with the alias `WEBSERVER` and certificate for the CAE agent TLS socket with the alias `CAE_AGENT_PORTAL`.

Updating the existing CAE Server keystore

Update the existing keystore to follow AT-TLS policy. If the Java keystore (`defaultKeystore.jks`) is used, then you can use the script `cqm_cert_install.bat` (for the CAE server on Windows) or the job `CQMCERT` (for the CAE server on USS) to generate the correct certificate aliases. Use the script `cqm_import_certs.bat` (for the CAE server on Windows) or the job `CQMICERT` (for the CAE server on USS) to import the new certificates to the existing keystore. The existing CAE server keystore must contain two certificate aliases, `WEBSERVER` and `CAE_AGENT_PORTAL`.

For more information about `cqm_import_certs.bat`, see [“Importing a certificate that you previously created or purchased -Windows”](#) on page 125.

Important: If your site uses its own private certificate (for example, a certificate purchased from an organization) you can use it as the certificate alias in the CAE server keystore instead of using the WEBSERVER and CAE_AGENT_PORTAL parameters. You should import your certificate into the CAE server keystore and into the mainframe keyring for outbound connections. It then behaves the same as the CAE_AGENT_PORTAL.

Importing CAE_AGENT_PORTAL certificate alias into outbound keyring on LPAR

After AT-TLS rules for inbound and outbound connections have been configured, you need to import the public certificate for the private certificate CAE_AGENT_PORTAL from the CAE server keystore into the CAE agent keyring AGENT_KEYRING_OUTBOUND. To retrieve this public certificate, use the script `cqm_export_cert.bat` (for the CAE server on Windows) or the job CQMECERT from SAMPLIB (for the CAE server on USS). When the public certificate is retrieved, it should be imported in keyring AGENT_KEYRING_OUTBOUND using SCQMSAMP library member CQMICERT.

Importing public certificate alias from inbound keyring on LPAR into the CAE Server truststore

Export the public certificate from the inbound keyring created during AT-TLS rules configuration using SCQMSAMP library member CQMECERT. Import this certificate into the default CAE server truststore using the script `cqm_import_certs.bat` (for the CAE server running on Windows) or job CQMICERT (for the CAE server running on USS).

Note:

- For the CAE server on Windows, place the certificate you want to import into the `<cae_install_dir>\certs` directory, then run the script in the format `"cqm_import_certs.bat -importincacerts"` to add the certificate to `<cae_install_dir>\bin\jre\lib\security\cacerts`.
- The CAE server on USS does not have its own truststore repository. The public certificate alias should be imported into CAE server keystore.

Configuring AT-TLS policy statements

Follow these steps to configure AT-TLS rules for inbound and outbound connections to handle a proper communication between the CAE agent and CAE server.

Before you begin

Ensure that the following prerequisites are met:

- You must define AT-TLS policy rules on each z/OS system where the CAE agent is supposed to be running. The exact location of the AT-TLS policy file depends on the policy agent configuration. For more information, see [AT-TLS policy configuration \(z/OS 3.1 documentation\)](#).
- You must generate the keyring manually to define keyringCaeAgentInboundRule.

The following notation is used in the examples in this procedure:

- `$AGENT_KEYRING_INBOUND` is the inbound keyring name in format `{keyring_owner}/ {inbound_keyring_name}`
- `$AGENT_KEYRING_OUTBOUND` is the outbound keyring name in format `{keyring_owner}/ {outbound_keyring_name}`
- `$CAE_SERVER_ADDRESS` is the IP-address of the CAE server
- `$CAE_AGENT_LISTENER_PORTS` is the LISTENER_PORTS parameter values specified in the CAE agent CQMCPRMS
- `$CAE_AGENT_JOB_NAME` is the name of the CAE Agent started task

Procedure

To configure AT-TLS policy statements:

1. To verify that the inbound keyring exists on a z/OS system and contains the proper certificate alias, issue the following TSO command , where *keyring_owner_ID* is the keyring owner:

```
TSO RACDCERT LISTRING(*) ID(keyring_owner_ID)
```

2. Define an inbound AT-TLS rule to handle incoming connections between the CAE agent and CAE server.

For example:

```
# -----INBOUND RULES-----
TTLSRule CaeAgentInboundRule
{
  LocalAddr ALL
  RemoteAddr $CAE_SERVER_ADDRESS
  LocalPortRange $CAE_AGENT_LISTENER_PORTS
  Jobname $CAE_AGENT_JOB_NAME
  Direction Inbound
  TTLSGroupActionRef groupCaeAgentInboundRule
  TTLSEnvironmentActionRef envCaeAgentInboundRule
  TTLSConnectionActionRef connectionCaeAgentInboundRule
}
TTLSGroupAction groupCaeAgentInboundRule
{
  TTLSEnabled On
}
TTLSEnvironmentAction envCaeAgentInboundRule
{
  HandshakeRole Server
  TTLSEnvironmentAdvancedParmsRef envAdvancedCaeAgentInboundRule
  TTLSKeyringParmsRef keyringCaeAgentInboundRule
}
TTLSKeyringParms keyringCaeAgentInboundRule
{
  Keyring $AGENT_KEYRING_INBOUND
}
TTLSEnvironmentAdvancedParms envAdvancedCaeAgentInboundRule
{
  ApplicationControlled Off

  TLSv1.2 On
  TLSv1.3 On
}
TTLSConnectionAction connectionCaeAgentInboundRule
{
  HandshakeRole Server
  TTLSCipherParmsRef cipherCaeAgentInboundRule
  TTLSConnectionAdvancedParmsRef connAdvancedCaeAgentInboundRule
  CtraceClearText Off
}
TTLSConnectionAdvancedParms connAdvancedCaeAgentInboundRule
{
  ApplicationControlled Off
  SecondaryMap Off
}
TTLSCipherParms cipherCaeAgentInboundRule
{
  V3CipherSuites TLS_AES_128_GCM_SHA256
  V3CipherSuites TLS_AES_256_GCM_SHA384
  V3CipherSuites TLS_CHACHA20_POLY1305_SHA256
  V3CipherSuites TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
  V3CipherSuites TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
  V3CipherSuites TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
  V3CipherSuites TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
  V3CipherSuites TLS_DHE_RSA_WITH_AES_128_GCM_SHA256
  V3CipherSuites TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
}
```

The keyring for the inbound rule should contain at least a server type certificate.

3. Define an outbound AT-TLS rule to handle outgoing connections between the CAE agent and CAE server.

For example:

```
# -----OUTBOUND RULES-----
TTLRule CaeAgentOutboundRule
{
  LocalAddr ALL
  RemoteAddr $CAE_SERVER_ADDRESS
  Jobname $CAE_AGENT_JOB_NAME
  Direction Outbound
  TLSGroupActionRef groupCaeAgentOutboundRule
  TTLEnvironmentActionRef envCaeAgentOutboundRule
  TLSConnectionActionRef connectionCaeAgentOutboundRule
}
TLSGroupAction groupCaeAgentOutboundRule
{
  TTLEnabled On
}
TTLEnvironmentAction envCaeAgentOutboundRule
{
  HandshakeRole Client
  TTLEnvironmentAdvancedParmsRef envAdvancedCaeAgentOutboundRule
  TLSKeyringParmsRef keyringCaeAgentOutboundRule
}
TLSKeyringParms keyringCaeAgentOutboundRule
{
  Keyring $AGENT_KEYRING_OUTBOUND
}
TTLEnvironmentAdvancedParms envAdvancedCaeAgentOutboundRule
{
  ClientAuthType Required
  ApplicationControlled Off

  TLSv1.2 On
  TLSv1.3 On
}
TLSConnectionAction connectionCaeAgentOutboundRule
{
  HandshakeRole Client
  TTLSCipherParmsRef cipherCaeAgentOutboundRule
  TLSConnectionAdvancedParmsRef connAdvancedCaeAgentOutboundRule
  CtraceClearText Off
}
TLSConnectionAdvancedParms connAdvancedCaeAgentOutboundRule
{
  ApplicationControlled Off
  SecondaryMap Off
  HandshakeTimeout 120
}
TTLSCipherParms cipherCaeAgentOutboundRule
{
  V3CipherSuites TLS_AES_128_GCM_SHA256
  V3CipherSuites TLS_AES_256_GCM_SHA384
  V3CipherSuites TLS_CHACHA20_POLY1305_SHA256
  V3CipherSuites TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
  V3CipherSuites TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
  V3CipherSuites TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
  V3CipherSuites TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
  V3CipherSuites TLS_DHE_RSA_WITH_AES_128_GCM_SHA256
  V3CipherSuites TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
}
```

The keyring for the outbound rule should contain CA-certificates to trust certificates of servers where it is connecting.

4. After modifying the AT-TLS policy, a refresh must be performed for the policy agent to apply the policy changes. To perform a refresh, execute the following z/OS system command:

```
F PAGENT,REFRESH
```

Check PAGENT messages and logs to make sure that the policy is applied.

Preventing the CAE server from opening RC4 sockets

By default, when communicating with CAE agents, the CAE server attempts listens for connections from CAE agents using both RC4 and TLS sockets. To enhance security if you have configured the use of AT-TLS for all of your CAE agents, you can prevent the CAE server from opening RC4 sockets.

Procedure

Edit your CAE server properties file:

- a) If the CAE server is installed on Windows, edit `cqm.server.properties` to specify the parameter `com.rocketsoft.nm.qm.caeAgent.rc4ProtocolEnabled=false`. If a `cqm.server.properties` file does not exist, create one.
- b) If the CAE server is installed on USS, edit the CAE server started task CQMCAESV DD to specify the parameter `RC4_PROTOCOL_ENABLED=false`.

Configuring the TLS socket port

The CAE server opens new TLS sockets on port 3449. However, you can choose to use a custom port.

Procedure

To configure the TLS socket port, edit your CAE server properties file:

- If the CAE server is installed on Windows, edit `cqm.server.properties` to specify a custom port number: `com.rocketsoft.nm.qm.caeAgent.tlsListenerPort=nnnn`. If a `cqm.server.properties` file does not exist, create one.
- If the CAE server is installed on USS, edit the CAE server started task CQMCAESV to specify a custom port number in the STDENV in-stream data set:

```
//STDENV DD *  
CQM_TLS_CAE_AGNT_LSTNR_PORT=nnnn
```

Related reference

[“CQM_TLS_CAE_AGNT_LSTNR_PORT” on page 727](#)

Use the `CQM_TLS_CAE_AGNT_LSTNR_PORT` parameter in CQMCAESV to control the ports used by the CAE server.

Configuring the keystore alias

By default, the CAE server uses a certificate with the alias `CAE_AGENT_PORTAL`. However, you can choose to use a custom alias.

Procedure

To configure the keystore alias, edit your CAE server properties file:

- If the CAE server is installed on Windows, edit `cqm.server.properties` to specify a custom alias: `com.rocketsoft.nm.qm.caeAgent.AtTlsKey=your_keystore_alias`. If a `cqm.server.properties` file does not exist, create one.
- If the CAE server is installed on USS, edit the CAE server started task CQMCAESV to specify a custom alias in the STDENV in-stream data set:

```
//STDENV DD *  
CQM_TLS_KEY_ALIAS=your_keystore_alias
```

Related reference

[“CQM_TLS_KEY_ALIAS” on page 727](#)

Use the CQM_TLS_KEY_ALIAS parameter in CQMCAESV to control the security behavior of the CAE server.

Configuring the WEBSERVER alias

By default, the CAE server uses a certificate with the alias WEBSERVER. However, you can choose to use a custom alias.

Procedure

To configure the WEBSERVER alias, edit your CAE server properties file:4

- If the CAE server is installed on Windows, edit `cqm.server.properties` to specify a custom alias: `com.rocketsoft.nm.qm.webclient.sslKeyAlias=your_keystore_alias`. If a `cqm.server.properties` file does not exist, create one.
- If the CAE server is installed on USS, edit the CAE server started task CQMCAESV to specify a custom alias in the STDENV in-stream data set:

```
//STDENV DD *  
CQM_WEB_KEY_ALIAS=your_alias
```

Related reference

[“CQM_WEB_KEY_ALIAS” on page 727](#)

Use the CQM_WEB_KEY_ALIAS parameter in CQMCP RMS to control the security behavior of Db2 Query Monitor.

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 43](#).
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 38](#).
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 35](#).
5. Review integration point information and CAE component compatibility requirements. For more information, see [“Product integrations” on page 21](#) 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 downloaded from Fix Central.

Procedure

1. Search Fix Central for the CAE browser client download or the IBM Db2 Query Monitor for z/OS CAE browser client download.
2. Follow the instructions at: <https://www.ibm.com/support/pages/node/6476344>

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 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 are 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 54.

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.PR0330.LOADLIB
// DD DISP=SHR,DSN=CQC.PR0330.LOADLIB
// DD DISP=SHR,DSN=RS01.CQM330.IBMTAPE.SFECLD
```

```
//SYSPRINT DD SYSOUT=A
//OUTDSC  OUTPUT DEST=HOLD
//CEEDUMP DD SYSOUT=A
//CEEOPST DD DSN=RKOPTS.CQM0330.PARMLIB(CQMCEE),DISP=SHR
//CQMCPRMS 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 349.

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:

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

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.

Data set name	Description	Special requirements	Your data set name
SCQMDBRM	DBRM library for Db2 Query Monitor		
SCQMLOAD	Executable load module library for Db2 Query Monitor	You must APF authorize this data set.	
SCQMMENU	ISPF messages for Db2 Query Monitor		
SCQMPENU	ISPF panels for Db2 Query Monitor		

Table 14. Data set names for Db2 Query Monitor (continued)

Data set name	Description	Special requirements	Your data set name
SCQMSAMP	Sample members for Db2 Query Monitor		
SCQMDENU	Metadata library for Db2 Query Monitor product parameters		

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 15. Data set names for FEC (common code)

Data set name	Description	Special requirements	Your data set name
SFECDBRM	FEC DBRM library		
SFECLOAD	Executable load module library for Db2 Query Monitor	You must APF authorize this data set.	
SFECMENU	FEC ISPF messages for Db2 Query Monitor		
SFECPENU	FEC ISPF panels for Db2 Query Monitor		
SFECSAMP	Sample FEC members for Db2 Query Monitor		

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 16. Data set names of other libraries

Data set name	Description	Special requirements	Your data set name
Discover output data set	<p>Contains the output that is generated when you run the Db2 Query Monitor Discover EXEC.</p> <p>The Db2 Query Monitor Discover EXEC retrieves the metadata and values for the parameters from a previous customization of Db2 Query Monitor.</p> <p>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.</p>	You must have write access to this data set.	
Data store data set	<p>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.</p> <p>The default name of the data set is DB2TOOL.CCQ110.DASTOR. You can change the default value on the Tools Customizer Settings panel.</p>	You must have write access to this data set.	

Table 16. Data set names of other libraries (continued)

Data set name	Description	Special requirements	Your data set name
Product customization library	<p>Contains the customization jobs that Tools Customizer generates for Db2 Query Monitor.</p> <p>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:</p> <pre data-bbox="487 714 803 766">hlq.\$LPAR-name\$.xyzvrm</pre> <p>where:</p> <ul style="list-style-type: none"> • <i>hlq</i> is the value of the Customization library qualifier field on the Tools Customizer Settings panel (CCQPSET) • <i>LPAR-name</i> is the four-character LPAR name • <i>xyzvrm</i> is the three-letter product identifier with the version, release, and modification level <p>For example, the data set name might be DB2TOOL.PRODUCT.CUST.\$MVS1\$.XYZ410.</p>	You must have write access to this data set.	

APF-authorizing load libraries

Db2 Query Monitor requires that the target load libraries *highlevel.SCQMLOAD*, *highlevel.SFECLOAD*, and *highlevel.SCQCLOAD* be APF-authorized.

SCQMLOAD is the main load library for Db2 Query Monitor (CQM). SFECLOAD is the load library for common code (FEC). And SCQCLOAD is the load library for Db2 Data Access Common Collector (CQC).

Procedure

To APF-authorize these load libraries:

1. Include the *highlevel.SCQMLOAD*, *highlevel.SFECLOAD*, and *highlevel.SCQCLOAD* 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 about IKJTSO00, see [IKJTSOxx \(TSO/E commands and programs\) \(z/OS 3.1 documentation\)](#).

3. Perform an IPL for the PARMLIB updates to take effect.

Changes you make to SYS1.PARMLIB require an IPL command 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 Tools Customizer.

Product customization library

Description

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

Table 17. Product Customization library. I added this section to capture those items that customers might expect to see listed as changes to the User Guide

Parameter	Sample or default value	Your value
Product customization library This value displays the name of the data set in which the generated library customization jobs will be stored.	No	This value is derived from the user-specified customization library qualifier on the Tools Customizer Settings panel (CCQPSET).

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 18. Required parameters section

Parameter	Required?	Discovered?	Default value	Your value
Db2 Query Monitor for z/OS data set high-level qualifier The high-level qualifier for the Db2 Query Monitor data sets.	Yes	No	CQM.HLQ	
Started task proclib The started task proclib.	Yes	No	TASK.PROCLIB	
Started task proclib volume name The started task proclib volume name.	Yes	No	None	
Started task proclib SMS storage class The started task proclib SMS storage class.	Yes	No	None	

Table 18. Required parameters section (continued)

Parameter	Required?	Discovered?	Default value	Your value
FEC data set high-level qualifier The high-level qualifier for the FEC data sets.	Yes	No	FEC.HLQ	
Db2 Data Access Common Collect data set high-level qualifier The high-level qualifier for the CQC data sets.	Yes	No	CQC.HLQ	
Db2 control file The data set name of the Db2 control file.	Yes	No	HLQ.DBQM.CONTR OL.FILE	
Db2 interval file The data set name of the interval file.	Yes	No	HLQ.DBQM.INTERV AL.FILE	
Db2 profile file The data set name of the Db2 profile file.	Yes	No	HLQ.DBQM.PROFIL E.FILE	
Parameter file data set name The data set name of the Db2 Query Monitor parameter file.	Yes	Yes	None	
Db2 Query Monitor Subsystem name The Query Monitor subsystem name.	Yes	Yes	DBQM	

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 19. Customization values for the Discover EXEC

Parameter	Sample or default value	Your value
Discover EXEC library The fully qualified data set name that contains the product Discover EXEC.	The name of the Discover EXEC Library that you entered on the settings panel.	
Discover EXEC name The name of the Discover EXEC.	CQMDISC	
Discover output data set The name of the data set for the output from the product Discover EXEC.	The name of the discover output library that you entered on the settings panel.	

Table 19. Customization values for the Discover EXEC (continued)

Parameter	Sample or default value	Your value
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 20. Customized Db2 Query Monitor jobs

Step or parameter	Required?	Discovered?	Default value	Your value
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, A7XDLSAA, A8COMMAA, A9INDEAA, B0@WDBAA, B1@LSTAA, B2QRY0AA, B3GRTBAA.

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

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.

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

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.

Step or parameter	Required?	Discovered?	Default value	Your value
Create the started task for Db2 Query Monitor for z/OS Creates the started task for Db2 Query Monitor.	Yes	No	-	
Create a shutdown script for the master address space Creates a shutdown script for the master address space.	Yes	No	-	

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 24. Create the CAE agent and CAE server on Windows for Db2 Query Monitor for z/OS				
Step or parameter	Required?	Discovered?	Default value	Your value
Create the CAE agent for Db2 Query Monitor for z/OS This subtask creates the CAE agent.	-	-	-	
CAE server address (Required) The CAE server address.	Yes	Yes	None	
ISPF Listener port (Required) The port used by the CAE agent to listen for incoming connections from the ISPF client.	Yes	Yes	None	
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.	Yes	Yes	3448	
Backup CAE server address The backup CAE server address.	No	Yes	0.0.0.0	
Backup Server/Listener port The backup CAE server listener port.	No	Yes	3448	
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.	Yes	Yes	53000	
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.	Yes	Yes	53005	
Agent name The CAE agent name.	No	Yes	CQMCAE	

Table 25. Create the USS CAE server for Db2 Query Monitor for z/OS

Step or parameter	Required?	Discovered?	Default value	Your value
Create the USS CAE server for Db2 Query Monitor for z/OS This subtask creates the CAE server on USS.	-	-	-	
USS VAR_HOME path (Required) The USS VAR_HOME path.	Yes	No	userhome/ cqm3r3/var	
USS JAVA path (Required) The USS Java path.	Yes	No	/usr/lpp/java/IBM/ J8.0_64	
USS LOG path (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).	Yes	No	/var/cqm/logs	
HTTPS port number Specifies the HTTPS port on the CAE server that the CAE browser client connects to. Note: This parameter applies only for deployment of the CAE server on USS.	No	No	443	
USS binary file path (Required) The USS binary file path.	Yes	No	None	
USS VAR_HOME path (Required) Specifies the USS VAR_HOME file path, USS binary file path, and USS VAR_HOME path values.	Yes	No	None	
UNPAX CAE PTF This subtask unpaxes the CAE PTF using the specified USS binary file path and USS VAR_HOME path values.	Yes	No	The default USS Binary File Path is /proj/cqm3r3/bin. The default USS VAR_HOME Path is /proj/cqmdata.	

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 26. Specify collector parameters subtask

Step or parameter	Required?	Discovered?	Default value	Your value
Collector AUTHID The Db2 AUTHID that is used to establish a connection to Db2 during interval processing.	No	Yes	Defaults to the user ID under which the started task will run.	
Master procname The master address space PROCNAME.	Yes	Yes	CQMMST34	
Db2 Query Monitor for z/OS group Specifies the name (8-byte, character) of group to which this Query Monitor subsystem belongs.	No	Yes	None	
Db2 Query Monitor for z/OS alert limit The maximum number of alerts that are to be queued for the CAE agent alert processor.	No	Yes	10	
Collect Db2 catalog objects Indicates whether or not object statistics are collected for catalog objects.	No	Yes	Y	
Data set full Instructs Db2 Query Monitor what to do when a backstore data set cannot be extended.	No	Yes	IGNORE	
Interval The length of the recording interval in minutes.	No	Yes	720	
Interval midnight Creates intervals for which the starting times are aligned to midnight.	No	Yes	N	
Maximum SQLCODE detail The limit on the number of times detailed information for each occurrence of an SQLCODE is collected.	No	Yes	0	
Maximum SQLCODES The limit on the number of unique SQLCODES for which information is collected.	No	Yes	0	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
Maximum memory allocations The maximum amount of global shared memory that will be allocated by Db2 Query Monitor for internal Integrated Storage Manager spaces.	No	Yes	2048	
Collect object statistics Indicates whether or not to collect object statistics.	No	Yes		
Summarization OPTKEYS The level of granularity for summary buckets.	No	Yes	None	
Interval RETAIN count How many prior intervals are to be retained on DASD after interval processing is complete.	No	Yes	6	
Maximum global shared memory size The maximum amount of global shared memory in gigabytes that are allocated by Db2 Query Monitor for all purposes.	No	Yes	5	
SMS data class The SMS data class for the allocation of the performance history files.	No	Yes	Null	
SMS management class The SMS management class for the allocation of the performance history files.	No	Yes	Null	
SMS storage class The SMS storage class for the allocation of the performance history files.	No	Yes	Null	
Unit name The UNITNAME parameter enables you to specify an esoteric name, generic device type or a device address for the backstore data sets.	No	Yes	Null	
Volume name The VOLUME parameter enables you to specify a volume for the backstore data sets.	No	Yes	Null	
DB2CDATA DSN mask The data set name for the DB2CDATA VSAM backstore data set.	Yes	Yes	None	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
DB2CDATA primary allocation The primary space quantity for the DB2CDATA performance history file.	No	Yes	5	
DB2CDATA secondary allocation The secondary space quantity for the DB2CDATA performance history file.	No	Yes	2	
DB2CDATA allocation space units The space units (CYLS or TRKS) for allocation of the DB2CDATA performance history file.	No	Yes	CYLS	
DB2CDATA SMS data class The SMS data class for the DB2CDATA performance history file.	No	Yes	None	
DB2CDATA SMS management class The SMS management class for the DB2CDATA performance history file.	No	Yes	None	
DB2CDATA SMS storage class The SMS storage class for the DB2CDATA performance history file.	No	Yes	None	
DB2CDATA unit name An esoteric name, generic device type or a device address for the DB2CDATA performance history file.	No	Yes	None	
DB2CDATA volume name The volume for the DB2CDATA performance history file.	No	Yes	None	
EXCPDATA DSN mask The data set name for the EXCPDATA VSAM backstore data set.	Yes	Yes	None	
EXCPDATA primary allocation The primary space quantity for the EXCPDATA performance history file.	No	Yes	5	
EXCPDATA secondary allocation The secondary space quantity for the EXCPDATA performance history file.	No	Yes	2	
EXCPDATA allocation space units The space units (CYLS or TRKS) for allocation of the EXCPDATA performance history file.	No	Yes	CYLS	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
EXCPDATA SMS data class The SMS data class for the EXCPDATA performance history file.	No	Yes	None	
EXCPDATA SMS management class The SMS management class for the EXCPDATA performance history file.	No	Yes	None	
EXCPDATA SMS storage class The SMS storage class for the EXCPDATA performance history file.	No	Yes	None	
EXCPDATA unit name An esoteric name, generic device type or a device address for the EXCPDATA performance history file.	No	Yes	None	
EXCPDATA volume name The volume for the EXCPDATA performance history file.	No	Yes	None	
EXCPHSTV DSN mask The data set name for the EXCPHSTV performance history file.	Yes	Yes	None	
EXCPHSTV primary allocation The primary space quantity for the EXCPHSTV performance history file.	No	Yes	5	
EXCPHSTV secondary allocation The secondary space quantity for the EXCPHSTV performance history file.	No	Yes	2	
EXCPHSTV allocation space units The space units (CYLS or TRKS) for allocation of the EXCPHSTV performance history file.	No	Yes	CYLS	
EXCPHSTV SMS data class The SMS data class for the EXCPHSTV performance history file.	No	Yes	None	
EXCPHSTV SMS management class The SMS management class for the EXCPHSTV performance history file.	No	Yes	None	
EXCPHSTV SMS storage class The SMS storage class for the EXCPHSTV performance history file.	No	Yes	None	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
EXCPHSTV unit name An esoteric name, generic device type or a device address for the EXCPHSTV performance history file.	No	Yes	None	
EXCPHSTV volume name The volume for the EXCPHSTV performance history file.	No	Yes	None	
EXCPINDX DSN mask The data set name for the EXCPINDX performance history file.	Yes	Yes	None	
EXCPINDX primary allocation The primary space quantity for the EXCPINDX performance history file.	No	Yes	5	
EXCPINDX secondary allocation The secondary space quantity for the EXCPINDX performance history file.	No	Yes	2	
EXCPINDX allocation space units The space units (CYLS or TRKS) for allocation of the EXCPINDX performance history file.	No	Yes	CYLS	
EXCPINDX SMS data class The SMS data class for the EXCPTEXT performance history file.	No	Yes	None	
EXCPINDX SMS management class The SMS management class for the EXCPINDX performance history file.	No	Yes	None	
EXCPINDX SMS storage class The SMS storage class for the EXCPINDX performance history file.	No	Yes	None	
EXCPINDX unit name An esoteric name, generic device type or a device address for the EXCPINDX performance history file.	No	Yes	None	
EXCPINDX volume name The volume for the EXCPINDX performance history file.	No	Yes	None	
EXCPTEXT DSN mask The EXCPTEXT performance history file.	Yes	Yes	None	
EXCPTEXT primary allocation The primary space quantity for the EXCPTEXT performance history file.	No	Yes	5	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
EXCPTEXT secondary allocation The secondary space quantity for the EXCPTEXT performance history file.	No	Yes	2	
EXCPTEXT allocation space units The space units (CYLS or TRKS) for allocation of the EXCPTEXT performance history files.	No	Yes	CYLS	
EXCPTEXT SMS data class Specifies an SMS data class for the EXCPTEXT performance history file.	No	Yes	None	
EXCPTEXT SMS management class The SMS management class for the EXCPTEXT performance history file.	No	Yes	None	
EXCPTEXT SMS storage class The SMS data class for the EXCPTEXT performance history file.	No	Yes	None	
EXCPTEXT unit name An esoteric name, generic device type or a device address for the EXCPTEXT performance history file.	No	Yes	None	
EXCPTEXT volume name The volume for the EXCPTEXT performance history file.	No	Yes	None	
METRDATA DSN mask The data set name for the METRDATA performance history file.	Yes	Yes	None	
METRDATA primary allocation The primary space quantity for the METRDATA performance history file.	No	Yes	5	
METRDATA secondary allocation The secondary space quantity for the METRDATA performance history file.	No	Yes	2	
METRDATA allocation space units The space units (CYLS or TRKS) for allocation of the METRDATA performance history file.	No	Yes	CYLS	
METRDATA SMS data class The SMS data class for the METRDATA performance history file.	No	Yes	None	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
METADATA SMS management class The SMS management class for the METADATA performance history file.	No	Yes	None	
METADATA SMS storage class The SMS storage class for the METADATA performance history file.	No	Yes	None	
METADATA unit name An esoteric name, generic device type or a device address for the METADATA performance history file.	No	Yes	None	
METADATA volume name The volume for the METADATA performance history file.	No	Yes	None	
OBJSDATA DSN mask The data set name for the OBJSDATA performance history file.	Yes	Yes	None	
OBJSDATA primary allocation The primary space quantity for the OBJSDATA performance history file.	No	Yes	5	
OBJSDATA secondary allocation The secondary space quantity for the OBJSDATA performance history file.	No	Yes	2	
OBJSDATA allocation space units The space units CYLS, or TRKS for allocation of the OBJSDATA performance history file.	No	Yes	CYLS	
OBJSDATA SMS data class The SMS data class for the OBJSDATA performance history file.	No	Yes	None	
OBJSDATA SMS management class The SMS management class for the OBJSDATA performance history file.	No	Yes	None	
OBJSDATA SMS storage class The SMS storage class for the OBJSDATA performance history file.	No	Yes	None	
OBJSDATA unit name An esoteric name, generic device type or a device address for the OBJSDATA performance history file.	No	Yes	None	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
OBJSDATA volume name The volume for the OBJSDATA performance history file.	No	Yes	None	
SQLCADATA DSN mask The data set name for the SQLCADATA performance history file.	Yes	Yes	None	
SQLCADATA primary allocation The primary space quantity for the SQLCADATA performance history file.	No	Yes	5	
SQLCADATA secondary allocation The secondary space quantity for the SQLCADATA performance history file.	No	Yes	2	
SQLCADATA allocation space units The space units (CYLS or TRKS) for allocation of the SQLCADATA performance history file.	No	Yes	CYLS	
SQLCADATA SMS data class The SMS data class for the SQLCADATA performance history file.	No	Yes	None	
SQLCADATA SMS management class The SMS management class for the SQLCADATA performance history file.	No	Yes	None	
SQLCADATA SMS storage class The SMS storage class for the SQLCADATA performance history file.	No	Yes	None	
SQLCADATA unit name An esoteric name, generic device type or a device address for the SQLCADATA performance history file.	No	Yes	None	
SQLCADATA volume name The volume for the SQLCADATA performance history file.	No	Yes	None	
TEXTDATA DSN mask The data set name for the TEXTDATA performance history file.	Yes	Yes	None	
TEXTDATA primary allocation The primary space quantity for the TEXTDATA performance history file.	No	Yes	5	
TEXTDATA secondary allocation The secondary space quantity for the TEXTDATA performance history file.	No	Yes	2	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
TEXTDATA allocation space units The space units (CYLS or TRKS) for allocation of the TEXTDATA performance history file.	No	Yes	CYLS	
TEXTDATA SMS data class The SMS data class for the TEXTDATA performance history file.	No	Yes	None	
TEXTDATA SMS management class The SMS management class for the TEXTDATA performance history file.	No	Yes	None	
TEXTDATA SMS storage class The SMS storage class for the TEXTDATA performance history file.	No	Yes	None	
TEXTDATA unit name An esoteric name, generic device type or a device address for the TEXTDATA performance history file.	No	Yes	None	
TEXTDATA volume name The volume for the TEXTDATA performance history file.	No	Yes	None	
Maximum host variables per alert The size of the storage allocation for the ALERT HOST VARIABLE SPACE inside the Query Monitor subsystem.	No	Yes	16	
Maximum objects per alert The size of the storage allocation for the ALERT EXCP OBJECTS SPACE inside the Query Monitor subsystem.	No	Yes	8	
Debug mode for IBM Software Support Turns on Db2 Query Monitor debug mode and produces diagnostic messages (in the range CQM9000-CQM-9999) for use by IBM Software Support.	No	Yes	N	
Capturing agent for IBM Software Support Turns on the capturing agent. For use by IBM Software Support. This parameter should not be specified without the advice of IBM Software Support.	No	Yes	N	

Table 26. Specify collector parameters subtask (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
ISM constraint age 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.	No	Yes	300	
Number of ISM error blocks 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.	No	Yes	256	
Number of ISM error message blocks 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.	No	Yes	256	
ISM error detail Controls whether CQM1203I and CQM1204I messages are issued to provide detailed information for ISM Storage Constraint situations.	No	Yes	Y	

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 CCQPPRD.

This task is *required*.

Jobs generated

This task generates the following jobs: C3CLST1, C3CLST1.

Table 27. Configure the start-up CLISTS

Step or parameter	Required?	Discovered?	Default value	Your value
Configure Startup CLISTS This subtask configures the start-up CLISTS.	Yes	No	Selected	
Startup CLIST library The library for the Db2 Query Monitor CLIST.	Yes	No	CQM.CLISTLIB	

Table 27. Configure the start-up CLISTs (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
Startup CLIST volume name The start-up CLIST volume name.	Yes	No	None	
Startup CLIST SMS storage class The start-up CLIST storage class.	Yes	No	None	
SQL Performance Analyzer CLIST library The SQL Performance Analyzer CLIST library.	No	No	None	
Startup CLIST 1 The name of the first startup CLIST. This CLIST allocates the libraries used by Db2 Query Monitor.	Yes	No	CQM	
Startup CLIST 2 The start-up CLIST 2.	Yes	No	CQMCLIST	

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 CCQPPRD.

This task is *optional*.

Jobs generated

This task generates the C5LNCH job.

Table 28. Add Db2 Query Monitor to the Launchpad

Step or parameter	Required?	Discovered?	Default value	Your value
Create REXX to add Db2 Query Monitor to the Launchpad This step creates the REXX to add Db2 Query Monitor to the Launchpad.	Yes	-		
Db2 Admin Tool library high-level qualifier The Db2 Admin Tool library high level qualifier.	Yes	No		
Db2 Admin Tool library The Db2 Admin Tool library.	Yes	No	ADB.SADBEXEC	

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 29. Db2 Parameters section

Parameter	Required?	Discovered?	Default value	Your value
<p>Db2 subsystem ID 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.</p>	Yes	Yes	None	
<p>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. 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.</p>	Yes	No	None	
<p>General Db2 Information</p> <p>Mode The mode in which the Db2 subsystem is running. Valid values are:</p> <p>CM Compatibility mode on all listed Db2 versions.</p> <p>NFM New function mode on all listed Db2 versions.</p> <p>Level number The version, release, and modification level of the Db2 subsystem. Valid values are 121 and 131.</p>	Yes	No	None	
<p>Db2 Libraries - common</p> <p>Load Library The data set name of the Db2 load library.</p> <p>Run Library The data set name of the Db2 run library.</p> <p>Exit Library The data set name of the Db2 exit library.</p> <p>Bootstrap data set The data set name of the Db2 bootstrap data set.</p>	Yes	No	None	

Table 29. Db2 Parameters section (continued)

Parameter	Required?	Discovered?	Default value	Your value
Db2 Utilities - commons SYSAFF for Db2 utilities The SYSAFF for Db2 utilities. Plan name for the DSNTEP2 utility The plan name for the DSNTEP2 utility.	Yes	No	None	
Db2 Query Monitor for z/OS Collector Parameters Monitoring profile The monitoring profile.	Yes	No	None	
Db2 Query Monitor for z/OS Configuration Parameters SQL authorization ID The ID that has authority to create and manage Db2 Query Monitor performance history objects. The value is required. The default value is the UISERID. The value provided in this field is used in a SET CURRENT SQLID statement in the generated DDL.	Yes	No	None	
BIND Owner ID The ID that has authority to bind the plan or package. The value provided in this field is used as owner when binding Db2 Query Monitor packages and batch report packages and plans. Note: The BIND Owner ID and the SQL authorization ID are often the same, but do not have to be.	Yes	No	None	
Db2 Query Monitor for z/OS schema name 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. This value is optional and has no default value. If blank, the value of the SQL authorization ID is used instead. For more information about schemas, see Db2 schemas and schema qualifiers (Db2 for z/OS 13 documentation) .	No	No	None	

Table 29. Db2 Parameters section (continued)

Parameter	Required?	Discovered?	Default value	Your value
Db2 Query Monitor for z/OS PLAN name The plan name.	Yes	No	None	
Db2 ZPARMS member name The Db2 ZPARMS member name.	Yes	No	None	
Db2 Control File Parameters Update Db2 control file? Specifies whether to update the parameters for a Db2 subsystem in the DB2PARMS control file.	Yes	No	None	
Db2 Query Monitor for z/OS Database Objects Create the Db2 Query Monitor for z/OS Database? Indicates whether or not to create the Db2 Query Monitor database. Db2 Query Monitor for z/OS database name The database name. Db2 Query Monitor for z/OS table space bufferpool The table space bufferpool. Db2 Query Monitor for z/OS LOB table space bufferpool The LOB table space bufferpool. Use inline LOBs? Specifies whether INLINE LOBs are to be used for the SQL text entries in the offload tables. Inline LOBs are supported in Db2 V12 and later releases. The page size of the LOB bufferpool determines the amount of data that is inlined. Db2 Query Monitor for z/OS index bufferpool The index bufferpool. STOGROUP The storage group.	Yes	No	None	

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:

```
CCQPSET                Tools Customizer Settings                14:03:51
Command ==>
Enter the settings for customizing a product or press End to save and exit.

Commands: SAVE  OPTIONS

Product Customization Settings

*Customization library qualifier . . DB2TOOL.PRODUCT.CUST
  Volume serial . . . . .
*Use DB2 group attach . . . . . YES (YES/NO)

Tools Customizer Library Settings

*Metadata library . . . . . DB2TOOL.CCQ110.SCCQDENU
*Discover output data set . DB2TOOL.CCQ110.DISCOVER
  Volume serial . . . . .
*Data store data set . . . . . DB2TOOL.CCQ110.DATAST01
  Volume serial . . . . .

User Job Card Settings for Customization Jobs

==> //                JOB
(ACCOUNT), 'NAME',
```

Figure 3. The **Tools Customizer Settings** panel (CCQPSET)

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 standalone 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 30. The effect of the value of the Use DB2 group attach field in a data sharing environment

Db2 subsystem definition	Value of the Use DB2 group attach field	Value that is used in the CONNECT statements
The Db2 subsystem is defined with an SSID.	Yes	Group attach name
	No	SSID ¹
The Db2 subsystem is not defined with an SSID.	Yes or No	Group attach name

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.

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:

```

Associated DB2 Entries and Parameter Status
Line commands: G - Generate jobs E - Edit B - Browse C - Copy R - Remove
Cmd SSID GrpAttach Lvl Mode User ID Date Status Message
DB2C -- 121 NFM SYSADM 2017/11/09 Ready to Customize
DB2A DSG1 121 NFM SYSADM 2017/11/09 Ready to Customize
-- DSGA 121 NFM SYSADM 2017/11/09 Ready to Customize
----- End of DB2 entries -----

```

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.

<i>Table 31. Value that is used in the CONNECT statements in the generated jobs</i>			
SSID	GrpAttch	Value of the Use DB2 group attach field	Value that is used in the CONNECT statements
DB2C	--	Yes	SSID
		No	SSID
DB2A	DSG1	Yes	Group attach name
		No	SSID
--	DSGA	Yes	Group attach name
		No	Group attach name

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** 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.

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 32. Customization roadmaps

Environment description	Roadmap
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 96
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 new version of Db2 Query Monitor from a previous customization” on page 97
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 98

Optional: Customization tasks for integration with SQL PA

If you want to set up the interface between Db2 Query Monitor and Db2 SQL Performance Analyzer (SQL PA), take the following additional actions:

1. Create the required SQL PA ANLCIQM CLIST. For details, see [Optional: Interfacing with Db2 Query Monitor](#).
2. Ensure that the SQL PA ANLCIQM CLIST is copied to a library in the SYSPROC concatenation. If the CLIST is not copied, take the following actions:
 - a. In TCz, update the **SQL Performance Analyzer CLIST library** product parameter for Db2 Query Monitor; specify the SQL PA CLIST library that contains the ANLCIQM CLIST.
 - b. Regenerate the TCz jobs and run the C3CLST1 job. This job creates an updated start-up CLIST 1 for Db2 Query Monitor.

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 new version of Db2 Query Monitor from a previous customization”](#) on page 97.

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 33. Steps for customizing Db2 Query Monitor for the first time

Step	Description	Instructions
1	Specify the product metadata library for the product that you want to customize. The name of this library is <i>hlq.SCQMDENU</i> .	“Specifying the metadata library for the product to customize” on page 99
2	Create new Db2 entries and associate them with Db2 Query Monitor.	“Creating and associating Db2 entries” on page 101
3	Define the required parameters.	“Defining parameters” on page 103
4	Generate the customization jobs for the product or for the Db2 entries on which Db2 Query Monitor is ready to be customized.	“Generating customization jobs” on page 107
5	Submit the generated customization jobs.	“Submitting customization jobs” on page 107

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

Table 34. Administrative tasks

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

Roadmap: Customizing 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 35. Steps for customizing a new version of Db2 Query Monitor from a previous customization

Step	Description	Instructions
1	Specify the product metadata library for the product that you want to customize. The name of this library is <i>hlq.SCQMDENU</i> .	“Specifying the metadata library for the product to customize” on page 99
2	Use the Db2 Query Monitor Discover EXEC to discover information about the version of Db2 Query Monitor that you previously customized manually.	“Discovering Db2 Query Monitor information automatically” on page 100
3	Define the required parameters.	“Defining parameters” on page 103
4	Generate the customization jobs for the product or for the Db2 entries on which Db2 Query Monitor is ready to be customized.	“Generating customization jobs” on page 107
5	Submit the generated customization jobs.	“Submitting customization jobs” on page 107

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

Table 36. Administrative tasks

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

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 37. Required steps for recustomizing Db2 Query Monitor

Step	Description	Instructions
1	Specify the product metadata library for the product that you want to recustomize. The name of this library is <i>hlq.SCQMDENU</i> .	“Specifying the metadata library for the product to customize” on page 99
2	Edit the specific tasks, steps, or parameters that need to be changed.	<ul style="list-style-type: none"> • “Defining Db2 Query Monitor parameters” on page 103 • “Defining Db2 parameters” on page 105
3	Generate the customization jobs for the product or for the Db2 entries on which Db2 Query Monitor is ready to be customized.	“Generating customization jobs” on page 107
4	Submit the new generated customization jobs.	“Submitting customization jobs” on page 107

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

Table 38. Administrative tasks

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

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** 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:

```
CCQPHLQ          Specify the Product or Pack Metadata Library          HH:MM:SS
Command ==>>>                                     Scroll ==>>> PAGE

Type the name of the metadata library for the product or the pack in the
Metadata library field, or select the library name in the list of previous
libraries and press Enter to populate the field. Press Enter to continue.

The default name of the metadata library after the product or the pack has been
SMP/E installed is <hlq>.SxxxDENU, where <hlq> is the high-level qualifier for
the product or the pack, and xxx is the three-character prefix for the product
or the pack.

Product or pack metadata library
' CQM.CQM330.SCQMDENU '

Name                Version  Metadata Library
```

Figure 4. The Specify the Metadata Library panel

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 command name in the command line, and press Enter.

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

```
CCQPDS      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.V3R3V3R4.SCQMSAMP(CQMPARMS)
```

Figure 5. 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 replaces 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.

Related tasks

[“Creating and associating Db2 entries” on page 101](#)

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

[“Defining parameters” on page 103](#)

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

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:

```

CCQPDAD                Associate DB2 Entry for Product                HH:MM:SS
Command ===>                Scroll ===> PAGE

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
                *      *
----- End of DB2 entries -----

```

Figure 6. Associate DB2 Entry for Product panel

2. Create Db2 entries.

If you need to associate Db2 entries that are already in the main 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.

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

```

CCQPCDB                               Create DB2 Entries                               Row 1 of 1
Command ==>                               Scroll ==> PAGE

Specify the SSID, the group attach name, or both in the appropriate columns
for each new DB2 entry and press Enter. To create additional entries, issue
the Inn line command, where nn is the number of entries to be inserted, and
press Enter. To cancel, press End.

New DB2 Entries
Line commands: I - Insert into list   R - Remove from list
Cmd  SSID  GrpAttch  Message
----- End of DB2 entries -----

```

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 *Inn* line command, where *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 **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 **Associate DB2 Entry for Product** panel is displayed, and the new Db2 entry is displayed in the main list, as shown in the following figure:

```

CCQPDAD                               Associate DB2 Entry for Product                               Row 1 to 3 of 3
Command ==>                               Scroll ==> CSR

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 -----

```

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 **Customizer Workplace** panel.
3. Associate Db2 entries.
 - a) Specify A against one or more Db2 entries in the main list, and press Enter to associate them with Db2 Query Monitor.

Results

The **Customizer Workplace** panel is displayed with the associated Db2 entries displayed in the associated list.

What to do next

Define the parameters.

Related concepts

[“Tools Customizer terminology” on page 763](#)

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

Related tasks

[“Defining parameters” on page 103](#)

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

Defining parameters

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

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

In TCz, *product parameters* are those parameters that 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

To define Db2 Query Monitor parameters:

1. Specify E next to the **Product parameters** field on the **Customizer Workplace (CCQPWRK)** panel, and press Enter.

The **Product Parameters (CCQPPRD)** 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.

```

CCQPPRD                               Product Parameters                               HH:MM:SS
Command ==>>>                               Scroll ==>> PAGE

Complete the following tasks to customize the products. The required tasks,
required steps within a required or selected task, and required parameters
are preceded by an asterisk (*). Ensure that values are specified for the
required parameters. Press End to save and exit.

Commands: SAVE  VERIFYOFF
Line Commands: / - Select

Usage Notes:
  Before you configure DB2 Query Monitor for z/OS, you must APF-authorize
  all of the load libraries.
  Sample COBOL programs for batch reporting can be found in the SAMPLIB.
  Optionally, you can compile and link these programs according to your
  sites standard JCL for building COBOL programs. Steps to bind and execute
  these reports are below.
Common parameters
*DB2 Query Monitor for z/OS data set high-level qualifier
  CQM.HLQ
*Started task proclib . . TASK.PROCLIB
  Started task proclib volume name . . . . .
  Started task proclib SMS storage class . .
*FEC data set high-level qualifier
  FEC.HLQ
*DB2 Data Access Common Collect data set high-level qualifier
  CQC.HLQ
*DB2 control file . . . . CONTROL.FILE
*DB2 interval file . . . INTERVAL.FILE
*DB2 profile file . . . . PROFILE.FILE
*Parameter file data set name
  CQMPARMS.PDS.DSN
. . .

```

Figure 9. **Product Parameters (CCQPPRD)** 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 contain 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 (CCQPPRD)** panel.

Results

The **Customizer Workplace (CCQPWRK)** 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 (CCQPWRK)** panel is Incomplete, Verify Values, or Discovered, edit these parameters.

Related tasks

[“Defining Db2 parameters” on page 105](#)

In TCz, Db2 parameters are parameters for a Db2 entry.

Defining Db2 parameters

In TCz, 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 instructions, see [“Creating and associating Db2 entries” on page 101](#).

Procedure

To define Db2 parameters:

1. On the **Customizer Workplace (CCQPWRK)** panel, in the **Associated DB2 Entries and Parameter Status** section, specify E next to one or more Db2 entries, and press Enter.

The is displayed, as shown in the following figure:

```

CCQPDB2          DB2 Parameters: DB2 Query Monitor          02:55:20
Command ==>>>          Scroll ==>>  CSR

Ensure that values are specified for the required DB2 parameters. Press End
to save and exit.

Commands: SAVE  VERIFYOFF

DB2 subsystem ID . . . . . : L7BB
Group attach name . . . . .

General DB2 Information - common
*Mode . . . . . NFM (CM, NFM)
*Level number . . . . . 131 (121, 131)
Db2 current function level . . . . .

DB2 Libraries - common
*Load library . . . . . DSN.SDSNLOAD          Add

DB2 Utilities - common
SYSAFF for DB2
utilities . . . . .

DB2 Query Monitor for z/OS Collector Parameters
Monitoring profile . . . . .

DB2 Query Monitor for z/OS Configuration Parameters
*SQL authorization ID . . . . . USERID
*BIND Owner ID . . . . . USERID          >
DB2 Query Monitor for z/OS schema name . . . . . >
*DB2 Query Monitor for z/OS PLAN name . . . . . CQMPLAN

```

Figure 10. **DB2 Parameters (CCQPDB2) 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 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 (CCQPDB2) panel**, and the verification state is reset to VERIFY every time you exit the **Customizer Workplace (CCQPWRK) 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 (CCQPDB2) 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 contain 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.

3. 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 (CCQPWRK)** panel is Ready to Customize.

What to do next

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

Related tasks

[“Defining Db2 Query Monitor parameters” on page 103](#)

In TCz, *product parameters* are those parameters that 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.

```
CCQPCMC                               Finish Product Customization          Row 1 to 8 of 8
Command ===>                           Scroll ===> CSR

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 >

Cmd Member  SSID GrpAttch  Template  Date      Description
-----
A0V3AA  --  --  CQMV33  2017/10/25  Configure Startup CLIST 1
A1V3AA  --  --  CQM33C  2017/10/25  Configure Startup CLIST 2
A2#DAAAA DB2A  --  CQM#DDL  2017/10/25  Create DB2 Objects
A9#BAAAA DB2A  --  CQM#BD8N 2017/10/25  CQM Binds
B3GRAAAA DB2A  --  CQMGRAN8 2017/10/25  Grant Execute Authority
B4CNA   --  --  CQMCNTFL 2017/10/25  Create Control File
B5CFAAAA DB2A  --  CQMCF2UP 2017/10/25  Update CQM Control File
-----
End of customized jobs -----
```

The member-naming conventions depend on whether the customization jobs are for Db2 entries, and LPAR, or the product.

The New filed 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>
```

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 XYZBNDDB2_entry_ID_1 and XYZBNDDB2_entry_ID_2 jobs are generated from the XYZBNDGR template, and the XYZ4DB2_entry_ID_1 and XYZ4DB2_entry_ID_2 jobs are 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 parameters and the Db2 parameters in read-only mode.

Procedure

1. On the **Customizer Workplace (CCQPWRK)** 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.DB01TEST.DB01.SANLLOAD, data set name, the DB01 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 *Inn* 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” on page 763](#)

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**, 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 main list on the **Associate DB2 Entry for Product**

Related concepts

[“Tools Customizer terminology” on page 763](#)

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 main list.

About this task

When you delete Db2 entries from the main list, any associations and all customization jobs for products that are customized on the entries will be deleted.

Procedure

1. On the **Customizer Workplace (CCQPWRK)** panel, issue the ASSOCIATE command.
The **Associate DB2 Entry for Product** 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** 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 (CCQPWRK)** 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**. 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** 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.

- a. Associate all the Db2 entries in this one instance of Tools Customizer. The LPARs on which the Db2 subsystems reside do not matter.
- b. Generate the customization jobs for each Db2 entry.
- c. 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.

Installing CAE components

Db2 Query Monitor 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 45](#).

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.

Specifying CAE agent parameters

The CAE agent refers to the parameter defined in CQMCPRMS to determine 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 115.
- 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 116.

- 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 set up executable files to a Windows PC”](#) on page 64.
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. Download [IBM Semeru Runtime Open Edition Java 1.7](#) by clicking the msi link next to JRE and install it.

Note: During the installation of the CAE server, you need to specify the install location of the IBM Semeru Runtime.

4. Launch the installer. You specified the name of the installer when you transferred it to your PC. For example, cqmqcael.exe.
5. Click **Next**.
6. Specify the location to which you would like to install Db2 Query Monitor and click **Next**.
7. 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.

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.

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.

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. 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**.

11. 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.

12. 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 403 before you begin the installation of the CAE server to ensure that you fully understand the required configuration.

When installed on USS, the CAE server requires write permission to all files in *qcmvarhome*.

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 70.

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 CQMUNPX 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(CQMCFPAX)
```

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 CQMUPPT 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 CQMUPPT 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:

```
-----1-----2-----3-----4-----5-----6-----7--
//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:

```
/*-----*
/*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 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
/*
```

To:

```
/*-----*
/*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.

Managing file permissions for CAE server on USS

Follow the steps to set the file permissions for the CAE server on USS.

Before you begin

Complete the SMP/E installation, run SCQMSAMP library member CQMCUNPX, and create MVS user IDs and group IDs as outlined in [“Configuring an MVS user ID to run the CAE server on USS” on page 118](#).

Procedure

1. Customize SCQMSAMP library member CQMCHMOD to set file permissions for the USS installation.
2. Configure the following variables:

```
CQM_HOME_MODE=ug+rwx
CQM_HOME_OWNER=username
CQM_HOME_GROUP=group
CQM_VAR_HOME=/configuration/location
CQM_VAR_HOME_MODE=ug+rwx
CQM_VAR_HOME_OWNER=username
CQM_VAR_HOME_GROUP=group
```

3. Run the CQMCHMOD JCL with the BPX.SUPERUSER resource in the FACILITY class within the Resource Access Control Facility (RACF®).

Important:

- The CQM_HOME_OWNER and CQM_VAR_HOME_OWNER should be the MVS user IDs, and the CQM_HOME_GROUP and CQM_VAR_HOME_GROUP should be the MVS group IDs, which are specified in [“Configuring an MVS user ID to run the CAE server on USS” on page 118](#).
- The value of the [“CQM_VAR_HOME” on page 727](#) environment variable must match the value specified in the CQMCAESV JCL.
- CQM_HOME_MODE, CQM_HOME_OWNER, CQM_HOME_GROUP, CQM_VAR_HOME_MODE, CQM_VAR_HOME_OWNER, and/or CQM_VAR_HOME_GROUP can be omitted to skip the corresponding CHMOD, CHOWN, and CHGRP operations if appropriate file permissions are already available.

Note: You can rerun this step when required to reset the file permissions after maintenance procedures.

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.

Ensure High-Availability Fault-Tolerance

In Db2 Query Monitor, 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.

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 .

Notes:

- The primary CAE server and the backup CAE server must be installed on separate PCs (for Windows or 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 64.](#)
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 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 35.

For more information about certificates, see [“Certificates requirements - USS and Windows”](#) on page 35.

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 WindowsServices 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 64.
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.

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.
9. After completing installation, click **Finish**.

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.

The name of the file in the `certs` directory will be used as the hostname (referred to as alias in the Java *Keytool* documentation) in the certificate store for the CAE Server.

args

(Optional) Arguments that override default certificate import behavior. These arguments include the following:

-addedcerts 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`.

-importcacerts 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.

Specifically, the `cqm_import_certs.bat` script performs the following actions:

1. Imports the certificate into `defaultKeystore.jks` by using the following command:

```
keytool -importcert -file certificate.cer -keystore keystore.jks -alias "Alias"
```

2. Set the certificate's password to "password" by using the following command:

```
keytool -keypasswd -alias "website.com" -keypass xxxxxx -new password -storetype JKS  
-keystore "D:\Program Files\IBM\DB2 Query Monitor v3.4\defaultKeystore.jks" -storepass  
password
```

Examples

Importing a certificate into the default Java™ KeyStore (defaultKeystore.jks) and specifying a password:

```
cqm_import_certs -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.

Logging in to the CAE browser client using multi-factor authentication

The CAE browser client supports multi-factor authentication (MFA) login using your user ID, MFA token, and password.

To log in to the CAE browser client using MFA, specify your username and password as follows:

Username: *<userID>*

Password: *<MFA token>:<password>*

Where *<MFA token>* is a one-time security token, *<password>* is the password for the specified *<userID>*.

The CAE browser client supports JDBC connections to databases using MFA using the method described above (for MFA login).

The CAE browser client does not support integration with Tuning Clients (DSM) using MFA credentials.

With the exception of tuning client integrations, all CAE browser client functions are available by logging into the CAE browser client using your MFA credentials.

Exporting a certificate alias from different truststore types - USS

Follow these steps to export a certificate alias from a different truststore type for a CAE Server on USS.

Procedure

1. Customize SCQMSAMP member CQMECERT. Specify input parameters as appropriate for your site's objectives in the CQMECERT STDENV DD.

The following input parameters are available for the CQMECERT STDENV DD:

CQM_VAR_HOME

(Required) Specifies the CQM_VAR_HOME path to be used by the CAE Server on USS.

Default

None

Syntax

CQM_VAR_HOME=*var_home_location*

Example

CQM_VAR_HOME=/u/cquser/cqm/var

CQM_JAVA

(Optional) Overrides the path to JAVA_HOME.

Default

\$JAVA_HOME value

Syntax

CQM_JAVA=*path_to_java_home*

Example

CQM_JAVA=/usr/java/IBM/J8.0_64

CQM_CAE_TRUSTSTORE_TYPE

(Optional) The truststore type.

Default

JKS

Valid values

- JKS
- RACF
- ICSF

Syntax

CQM_CAE_TRUSTSTORE_TYPE=*type*

Example

CQM_CAE_TRUSTSTORE_TYPE=RACF

CQM_CAE_RING_OWNER

(Required if you specify RACF or ICSF values for CQM_CAE_TRUSTSTORE_TYPE) The owner of the ring. If you specify a value other than RACF or ICSF for CQM_CAE_TRUSTSTORE_TYPE, do not specify the CQM_CAE_RING_OWNER parameter.

Default

None

Syntax

CQM_CAE_RING_OWNER=*owner*

Example

CQM_CAE_RING_OWNER=CQMADM

CQM_CAE_RING_NAME

(Required if you specify RACF or ICSF values for CQM_CAE_TRUSTSTORE_TYPE) The name of the ring. If you specify a value other than RACF or ICSF for CQM_CAE_TRUSTSTORE_TYPE, do not specify the CQM_CAE_RING_NAME parameter.

Default

None

Syntax

CQM_CAE_RING_NAME=*name*

Example

CQM_CAE_RING_NAME=CQMRING1

CQM_CAE_ALIAS

(Required) The name of the certificate alias to be exported.

Default

None

Syntax

CQM_CAE_ALIAS=*alias_name*

Example

CQM_CAE_ALIAS=CQM_ALIAS_1

CQM_CAE_KEYSTORE

(Optional) The path to key store file. This parameter is only valid for CQM_CAE_TRUSTSTORE_TYPE=JKS.

Default

defaultKeystore.jks

Syntax

CQM_CAE_KEYSTORE=*path_to_keystore*

Example

CQM_CAE_KEYSTORE=/u/cqmadm/keystore/myKeystore.jks

CQM_CAE_KEYSTORE_PASSWORD

(Optional) The password for a given key store. This parameter is only valid for CQM_CAE_TRUSTSTORE_TYPE=JKS.

Default

password

Syntax

CQM_CAE_KEYSTORE_PASSWORD=*password*

Example

CQM_CAE_KEYSTORE_PASSWORD=pass1

2. Run your customized version of SCQMSAMP member CQMECERT.

Exporting a certificate alias from a JKS type trust store - Windows

Follow these steps to export a certificate alias from a JKS type trust store for a CAE Server on Windows.

Procedure

1. Customize the cqm_export_cert.bat script. Specify input parameters as appropriate for your site's objectives.

The following input parameters are available for the cqm_export_cert.bat:

-alias

(Required) The name of the certificate alias to be exported.

Default

None

Syntax

-alias *alias_name*

Example

-alias CQM_ALIAS_1

-keystore

(Optional) The path to key store file.

Default

defaultKeystore.jks

Syntax

-keystore *path_to_keystore*

Example

-keystore C:\Program Files (x86)\Common Files\Java\Keystore\myKeystore.jks

-storepass

(Optional) The password for a given key store.

Default

password

Syntax

-storepass *password*

Example

-storepass pass1

2. Run your customized version of the `cqm_export_cert.bat` script. The exported certificate alias is placed into a new `exportedcerts` directory, located in the same place as `certs` and `addedcerts` directories.

Configuring SSL handshakes to use TLS 1.2

The CAE server and the CAE agent perform the handshakes using the default SSL protocol, which can include SSL3.0, TLS1, TLS1.1, or TLS1.2.

To force the CAE server to perform the handshakes using only TLS1.2 protocols, you can specify the following CAE server parameters.

On Windows

Specify the following in `cqm.server.properties` of the CAE server:

```
-Djdk.tls.client.protocols=TLSv1.2  
-Dhttps.protocols=TLSv1.2
```

If a `cqm.server.properties` file does not exist, create one.

On USS

Specify the following in `STDENV` parameters of the CAE server:

```
CQM_TLS_VERSION=TLSv1.2
```

For more information, see <https://www.ibm.com/support/pages/node/687653>

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 125](#).

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 336](#).
 - 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 **\$CQM_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 336.
 - 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.

Chapter 3. Getting started

Find information about how to start using Db2 Query Monitor to collect SQL activity as appropriate for your site.

Topics:

- [“Starting the Query Monitor subsystem” on page 144](#)
- [“Starting the CAE agent” on page 144](#)
- [“Starting the CAE server” on page 144](#)
- [“Verifying that the CAE agent and the CAE server are connected” on page 145](#)
- [“Accessing the CAE browser client” on page 145](#)

Configuring a Query Monitor subsystem

Configure your Query Monitor subsystem to collect the data you need to tune your SQL while using as few resources as possible.

Evaluating performance data

Performance data about your system can help you to determine the best monitoring profile settings, exception thresholds, and alert thresholds.

If you already have performance data (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 OMEGAMON 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.

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:

Customize Db2 Query Monitor and initiating the Query Monitor subsystem (requires at least 0.5 days)

Initially, configure Query Monitor subsystem to monitor one or more Db2 subsystems without specifying a monitoring profile. This allows the Query Monitor subsystem started task to gather summary data only (data about exceptions, alerts, or current activity will not be collected).

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.

Determining the number of Query Monitor subsystems your site needs

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 that 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.

Restricting a user's view of monitored Db2 subsystems

Access to data from a given Query Monitor subsystem can be restricted using an external security system such as RACF. If an installation decides to setup 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 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 subsystem 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 790](#) for instructions on calculating the space for these data sets. You 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 OMEGAMON 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.

Monitoring profiles

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you 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.

Note: monitoring profiles do not have any effect on Db2 command reporting.

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 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

Monitoring profiles are optional and can be changed for a monitoring agent while the monitoring agent is still collecting 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.

Recommendation: Create a separate monitoring profile for each Db2 subsystem that you want to monitor. This approach reduces the number of 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 are usually the same for all data sharing group members.

Related tasks

[“Creating a monitoring profile in ISPF” on page 300](#)

Create a monitoring profile for each Db2 subsystem or data sharing group that you want to monitor.

Monitoring profile lines

A monitoring profile consists of one or more monitoring profile lines. A *monitoring profile line* is a set of specifications that define the inclusion or exclusion of SQL workloads from summary reporting, exception processing, and alert processing.

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

This information is displayed on the **Insert Profile Line** panel and the **Update Profile Line** panel, as shown in the following figure:

----- Update Profile Line for USERA -----
Option ===> _____ Scroll ===> CSR
More: +

Workload Filter
INCLUDE/EXCLUDE I (I=Include, E=Exclude)
Disable Summary Reporting N (Y/N) Gather Host Variables Y (Y/N)
DB2 Subsystem * ___ Plan Name * _____
Program Name * _____
AUTHID * _____ JOBNAME * _____
Connection ID * _____ CORRID * _____
CORRNAME * _____
Workstation User * _____
Workstation Trans * _____
Workstation Name * _____
Workload Name _____

Exceptions
Exception Limit 0 _____
(zero means do not process this profile line for exceptions)
Threshold Exceptions N (Y/N)
Exception CPU 00 : 00 : 00 . 000000
Exception Elapsed 00 : 00 : 00 . 000000
Exception Getpages 0 _____
Exception SQL Calls 0 _____
Anomaly-based Exceptions
CPU Anomalies N (Y/N) Toleration Level 6.0 _____
Elapsed Anomalies N (Y/N) Toleration Level 6.0 _____
Getpage Anomalies N (Y/N) Toleration Level 6.0 _____
Generate SQLCODE Exceptions Y (Y/N)
Include Exception SQLCODEs N (Y/N)
Exclude Exception SQLCODEs N (Y/N)
Collect Exception Positive SQLCODEs N (Y/N)

Alerts
Threshold Alerts N (Y/N)
Alert CPU 00 : 00 : 00 . 000000
Alert Elapsed 00 : 00 : 00 . 000000
Alert Getpages 0 _____
Alert SQL Calls 0 _____
Anomaly-based Alerts
CPU Anomalies N (Y/N) Toleration Level 6.0 _____
Elapsed Anomalies N (Y/N) Toleration Level 6.0 _____
Getpage Anomalies N (Y/N) Toleration Level 6.0 _____
Generate SQLCODE Alerts N (Y/N)
Include Alert SQLCODEs N (Y/N)
Exclude Alert SQLCODEs N (Y/N)
Collect Alert Positive SQLCODEs N (Y/N)
Include Getpage Objects N (Y/N)

Discard Above (sigmas)
CPU Discard Level 12.0 _____
Elapsed Discard Level 12.0 _____
Getpage Discard Level 12.0 _____

Summaries
Include Summary SQLCODEs N (Y/N)
Exclude Summary SQLCODEs N (Y/N)
Collect Summary Positive SQLCODEs N (Y/N)

Ignore positive SQLCODE 100 for Read Activity Y (Y/N)

Optional Keys
Override OPTKEYS N (Y/N)
OPTKEYS(TEXT) N (Y/N)
OPTKEYS(AUTHIDS) N (Y/N)
OPTKEYS(CORRID) N (Y/N)
OPTKEYS(CORRNAME) N (Y/N)
OPTKEYS(CORRNUM) N (Y/N)
OPTKEYS(WSUSER) N (Y/N)
OPTKEYS(WSTRAN) N (Y/N)
OPTKEYS(WSNAME) N (Y/N)
OPTKEYS(CALLS) N (Y/N)
OPTKEYS(PTEXT) N (Y/N)
OPTKEYS(SCHEMA) N (Y/N)
OPTKEYS(CONNTYPE) N (Y/N)
OPTKEYS(CONNNAME) N (Y/N)
OPTKEYS(SP) N (Y/N)
OPTKEYS(JOBNAME) N (Y/N)
OPTKEYS(PARALLEL) N (Y/N)

Misc Collection
Collect Object Data Y (Y/N)
Override SQL Collection N (Y/N)

Related tasks

[“Creating and updating monitoring profile lines in ISPF” on page 301](#)

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.

Setting alert and exception thresholds

An *alert* is an SQL event for which you want a system operator or database administrator (DBA) to take immediate action. An *exception* is an SQL event that you want the operator or DBA to research. You can define the conditions that, when exceeded, cause an exception or an alert to be generated by specifying them in an INCLUDE monitoring profile line. 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 the system operator. Some overhead is associated with an alert; so you should set thresholds that are high enough to avoid excessive resource consumption by the CAE agent and CAE server.

When you set an alert or exception threshold, consider the following questions:

- 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 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.

Optimal thresholds vary depending on the kinds of workloads they target. 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 time, or > 20 seconds of elapsed time?

When setting thresholds for SQLCODEs, you should evaluate whether an error requires human intervention. For example, would an application developer or DBA want to 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** field for alerts. Many sites should exclude -803, because it is a fairly common coding technique to insert first and then update if necessary based on a -803.
- Setting alert thresholds too low for CPU, Elapsed, Getpages, or SQL Calls. If you want to look at the activity after it has occurred, 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 time might be cause for concern for a transactional workload but not for a batch workload.

Excluding SQLCODEs from exceptions and alerts

Most SQLCODEs are excluded from exception and alert processing. Only the first matching profile line is used for evaluating the SQLCODEs to be excluded. Therefore, the list of exclude alert SQLCODEs must be included on every profile line to ensure that the SQLCODEs are excluded for all workloads.

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 be generated only for SQLCODEs that are important enough to require that a DBA take immediate action. An exception is the case where you want 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 of the distinct SQL codes collected.
4. Build the most generic profile line first.
 - a. Specify Y for **Exclude Exception SQLCODEs** and for **Exclude Alert SQLCODEs**.
 - b. Enter the list of SQLCODEs from item 3 on the **Exception SQLCODE Exclusion List** panel, and exit the panel (PF3).
 - c. Enter the same list on the **Alert SQLCODE 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 that you started with a complete list of excluded SQL codes when the line was replicated.
3. Move the new line to the appropriate place in the monitoring profile.

Determining OPTKEYS overrides

The OPTKEYS parameter in CQMPARMS can be used to specify additional information that Db2 Query Monitor is to collect. Because the OPTKEYS value can increase the overall volume of data collected, thereby increasing real storage usage, use OPTKEYS with caution. In your monitoring profile, you have the option to override the OPTKEYS settings by specifying individual OPTKEYS options in the monitoring profile lines.

Which OPTKEYS overrides you should create depends on the environments in which the monitoring profile is used. Consider the following environments and recommendations:

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 generally 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 specification results in summarizing all SQL by all possible OPTKEYS and generating exceptions for most, if not all, of the SQL executed in the Db2 subsystem. This setup is typically not a problem if 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 performance-profile mode. Because the volume is typically much lower than production, OPTKEYS settings might be dramatically different than a production environment, as follows:

- 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 to track 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 values that are specific to distributed applications (WSUSER, WSTRAN, WSNAME) are typically used if they are being coded by the applications. If the application does not supply those fields, these OPTKEYS values 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. You might also 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, the monitoring profile usually has at least one monitoring profile line per application. This setup 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, RRSF, 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, RRSF - 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 WSNAME 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 an excessive amount of summary data. Care should be used when specifying this OPTKEY.

WSNAME

The WSNAME 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 an excessive amount of summary data.

Arranging monitoring profile lines in the proper sequence

Monitoring profile lines are evaluated in the sequence in which they are listed in the monitoring profile.

The first matching monitoring profile line (and only the first matching monitoring profile lines), 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 matching monitoring profile line is found. Whether the SQL statement qualifies for an exception or alert is 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 following workload definition lines are ordered by their decreasing frequency of use.

This rule has exceptions. If the monitoring profile has a catch-all line with an asterisk (“*”) for all matching criteria, that line must be placed last in the sequence. If the monitoring profile has lines with more specific criteria, these lines should be placed before those lines 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*; a profile line that matches on program name DSN* and AUTHID ADMF001 should be placed before one that matches only on program name DSN*. After 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.

The following example shows a sample profile:

```

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
----->
CMD  WORKLOAD NAME          INCL\EXCL  SSID Plan  Program
-----
-   CICS Transactions        I      *   CICS*   *      *
-   IMS TM Work              I      *   IMS*    *      *
-   Human Resources batch work I      *   HR*     *      *
-   Accounts Payable batch work I      *   AP*     *      *
-   Exclude DB2 Performance Monitor E      *   *       *      DGO*
-   QMF work                  I      *   *       *      QMF*
-   QMF for Windows work     I      *   *       *      RAA*
-   All other work           I      *   *       *      *

***** Bottom of Data *****

```

Figure 12. Update Monitoring Profile panel

Using this monitoring profile, profile lines will be applied as follows:

- Work with a job name beginning with “CICS” will use thresholds set in the first profile line.
- Work with a job name beginning with “IMS” will use thresholds set in the second profile line.
- Work with a job name beginning with “HR” will use thresholds set in the third profile line.
- Work with a job name beginning with “AP” will use thresholds set in the fourth profile line.
- Work 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 with a plan name beginning with “QMF”, a job name not beginning with (CICS, IMS, HR, and AP), and a program (package/DBRM) name not beginning with DGO will use thresholds set in the sixth profile line.
- Work with a plan name beginning with “RAA®”, a job name not beginning with (CICS, IMS, HR, and AP), and a program (package/DBRM) name 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.

The following example shows another sample profile:

```

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
----->
CMD  WORKLOAD NAME          INCL\EXCL  SSID Plan  Program
-----
-   All other work           I      *   *       *      *
-   Exclude DB2 Performance Monitor E      *   *       *      DGO*
-   QMF work                  I      *   *       *      QMF*
-   QMF for Windows work     I      *   *       *      RAA*

***** Bottom of Data *****

```

Figure 13. Update Monitoring Profile panel

In this profile, 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: After updating, activating, or refreshing a monitoring profile, start a new interval.

Starting components

Start Db2 Query Monitor components to begin monitoring SQL queries in your environment.

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:
 - Right-click the **My Computer** icon on the desktop where the CAE server is installed and select **Manage**.
 - Expand the **Services and Applications** node of the tree structure displayed in the left panel.
 - Highlight the **Services** node.
 - 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:
 - In SDSF by issue the start command, S CQMCAESV.
 - 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'  
//* 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://cqmcae.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 35 and [“Installing a single CAE server - Windows”](#) on page 115 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 *taskname*

Stops the Query Monitor subsystem started task, *taskname*.

For example:

```
P 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 *taskname*

Cancels the Query Monitor subsystem started task, *taskname*.

For example:

```
C 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:

```
FORCE CQMPROC, ARM
```

Starting the master address space

For each z/OS image, a 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 master 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 be stopped only by using the CQMMSTR job.
- Before stopping the master address space, the CQMMSTR job verifies that no product installations are using the master address space.

Procedure

To stop the master address space, take one of the following actions:

- Use Tools Customizer to generate a customized CQMMSTR job and submit it.
- Edit and run SCQMSAMP member 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

To stop the CAE server:

- If you installed the CAE server on Windows, take the following steps:
 - 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, issue the MVS stop command:

```
/P CQMCAESV
```

In this example, CQMCAESV is the job name.

Starting and stopping HAFT processes

Under normal conditions, the watchdog, primary CAE server, and backup CAE servers start automatically.

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 an USS server by editing the USS CAE server JCL to specify `PARM='SH /u/username/cqm/bin/start_cae_server`.

Restarting the watchdog

Follow these steps to restart 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 an USS server by editing the USS CAE server JCL to specify `PARM='SH /u/username/cqm/bin/start_cae_server -restart`.

Stopping the watchdog

Follow these steps to stop the watchdog from monitoring 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 an 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,SIRWYG,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
CQM_HEAP=500
CQM_JDBC_PORT=1112
/*
```

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

To stop the primary CAE server:

- If you installed the primary CAE server on Windows, take the following steps:
 - 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, issue the MVS stop command:

```
/P CQMCAESV
```

In this example, CQMCAESV is the job name.

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.

```
//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 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:

```
cd C:\Program Files\IBM\DB2 Query Monitor\bin
```

3. Issue the following command:

```
shutdown_cqm_server.bat -agentGroup primary_server
```

Db2 Query Monitor main menu

Use the Db2 Query Monitor main menu to access the main functions in this product.

Execute the Db2 Query Monitor CLIST to access the Db2 Query Monitor main menu:

```

YYYY/MM/DD HH:MM:SS ---- IBM DB2 Query Monitor for z/OS -----
Option  ===> -----
Query Monitor Target: QM01____ (? to Select)                      User: USERID
                                                                    Release: CQM V3R3M0
-----

0. Settings
1. View Activity Summaries          2. View SQLCODEs
3. View Current Activity            4. View DB2 Command Activity
5. View Exceptions

6. Work with Monitoring Agents      7. Setup
8. Work with Profiles               9. Exit Query Monitor

Enter END command to return to ISPF.

```

Figure 14. Db2 Query Monitor main menu

The main menu has the following fields:

Query Monitor Target

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, such as whether 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 **Query Monitor Target** 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 CQMCPRMS 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.

Notes:

- 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 ? in the **Query Monitor Target** field on the **Query Monitor main menu** and press Enter. The **CAE Selection** panel displays:

```

YYYY/MM/DD HH:MM:SS ----- CAE Selection ----- Row 1 of 2      C:S-Select
Option ==>
CMD CAE SERVER NAME                                PORT      Scroll ==> PAGE
-----
-- 10.17.11.17:3449                                53415
-- 192.168.55.23:3449                               53215
-- 192.168.55.23:3449                               53335
-- 192.168.55.23:35000                             53545
***** Bottom of Data *****

```

Figure 15. 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 **Query Monitor Target** 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 **?** in the **Query Monitor Target** field on the Db2 Query Monitor main menu and press Enter. The **QM Subsystem Discovery** panel displays:

C:S-Select

```
-----
                                QM Subsystems
-----
```

CMD	QM	VER	DB2	VER	DS GROUP	MSTATUS	CURRENT INTERVAL	STRT
---	QM01	330		db2ver		UNAVAIL	DD/MM/YYYY - HH:MM:SS	
	QM02	330	DB01	db2ver		ACTIVE	DD/MM/YYYY - HH:MM:SS	
		330	DB02	db2ver		ACTIVE	DD/MM/YYYY - HH:MM:SS	
---	QM03	330	DB03	db2ver	DSG1	ACTIVE	DD/MM/YYYY - HH:MM:SS	
---	QM04	330	DB04	db2ver	DSG2	ACTIVE	DD/MM/YYYY - HH:MM:SS	
		330	DB05	db2ver	DSG3	ACTIVE	DD/MM/YYYY - HH:MM:SS	
		330	DB06	db2ver	DSG4	ACTIVE	DD/MM/YYYY - HH:MM:SS	

```
-----
                                Data Sharing
-----
```

DS GROUP	VER	DB2	VER	MSTATUS	CURRENT INTERVAL	STRT
---	QDS1	330	DBA6	db2ver	ACTIVE	DD/MM/YYYY - HH:MM:SS
		330	DBB6	db2ver	ACTIVE	DD/MM/YYYY - HH:MM:SS
---	QDS2	330	DBC6	db2ver	ACTIVE	DD/MM/YYYY - HH:MM:SS
		330	DBD6	db2ver	ACTIVE	DD/MM/YYYY - HH:MM:SS
---	QDS3	330	DBE6	db2ver	ACTIVE	DD/MM/YYYY - HH:MM:SS
		330	DBF6	db2ver	ACTIVE	DD/MM/YYYY - HH:MM:SS
---	QDS4	330	DBG6	db2ver	ACTIVE	DD/MM/YYYY - HH:MM:SS
		330	DBH6	db2ver	ACTIVE	DD/MM/YYYY - HH:MM:SS

***** Bottom of Data *****

Figure 16. 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.

If the Query Monitor subsystems is inactive, the **Db2** field will be blank.

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.

SMF

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.

If the Query Monitor subsystems is inactive, the **Db2** field will be blank.

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 CQMCPRMS. 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

In Db2 Query Monitor, you can set various ISPF dialog options, such as whether to issue sort warnings and whether to create dumps at the first error.

Procedure

To set ISPF dialog options:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 0, and press Enter.
2. On the **Query Monitor Dialog Options** panel, specify the options that you want:

```
CQM$OPTN ----- Query Monitor Dialog Options -----
Option  ===> -----

DB2 QM Dialog Options:
Enter "/" to select option
- Issue Sort Warning
- Unstack To Prior Level In Summaries
- Dump on 1st error
- Display Full Command List on Summary Level

Press Enter to update dialog options or PF3/CANCEL to exit
```

Figure 17. **Query Monitor Dialog Options** panel

To enable one of the following options, specify a forward slash (/) next to it. To disable an option, remove the forward slash.

Issue sort warning

When this option is enabled, a warning is issued when you select sorting by SQL text to ensure that you want to perform the sort. The sort warning message provides an option for you to disable the message by asking if you want to display this message again. If you disable the message, the only way to restore this warning message is to enable this **Issue sort warning** option. For more details about this message, see [“Sorting by SQLTEXT” on page 179](#).

Unstack to prior level in summaries

When processing summary data, you can drill down from any level to another 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 enabled, the full command list is shown on the **Select Summary Level** panel. When this option is disabled, an abbreviated command list is shown on the **Select Summary Level** panel.

3. Press Enter to save your selections.
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.

Configuring Db2 system parameters

Configure your Db2 system parameters to enable the Query Monitor subsystem to monitor your environment.

Procedure

1. On the IBM Db2 Query Monitor main menu, specify the appropriate Query Monitor subsystem in the **Query Monitor Target** field or type ? 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 18. 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 **Query Monitor Target** 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 19. 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 boot strap 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.

```

DB2 Query Monitor - Update Parameters for DB2 Subsystem SSID
Command ==>

Enter or Update Specific DB2 Parameters :

Plan #1 Name          ==> CQMPLAN1

```

Figure 20. Update Parameters for DB2 Subsystem panel

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 **Query Monitor Target** field.
2. Type **7** in the option line and press Enter. The **Specify DB2PARMS Dataset** panel is displayed.

```
----- Specify DB2PARMS Dataset -----  
Option  ===> -----  
DB2PARMS DSN ... -----  
Press Enter to enter Setup or PF3/CANCEL to exit
```

Figure 21. Specify DB2PARMS Dataset panel

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 4. Using the ISPF interface

Find information about how to use Db2 Query Monitor ISPF interface.

Topics:

- [“Working in ISPF” on page 161](#)
- [“Viewing activity summaries” on page 195](#)
- [“Viewing SQLCODEs” on page 238](#)
- [“Viewing current activity” on page 246](#)
- [“Viewing Db2 command activity” on page 263](#)
- [“Viewing exceptions” on page 264](#)
- [“Working with monitoring agents” on page 285](#)
- [“Working with monitoring profiles in ISPF” on page 288](#)

Working in ISPF

Learn how to use the Db2 Query Monitor main menu, issue primary commands, tailor column display, work with filters, navigate intervals, and other general ISPF tasks.

Topics:

- [“Browsing, sorting, and filtering data” on page 161](#)
- [“Exporting data” on page 193](#)
- [“Modifying PF key settings” on page 194](#)
- [“Using the batch Db2 control file loader” on page 195](#)

Browsing, sorting, and filtering data

Browse, sort, and filter data to find and work with the SQL metrics that are most important to you.

Interval navigation commands

Use these interval navigation commands to browse query activity in previous and current intervals when viewing activity summaries, exceptions, SQLCODES, or Db2 command activity.

PREV

Show the previous interval (the interval before the interval that is currently shown).

NEXT

Show the next interval (the interval after the interval that is currently shown).

CUR

Show the current interval.

Changing the PF keys for interval navigation

Db2 Query Monitor sets the following PF keys by default:

- PF4 - PREV command
- PF6 - NEXT command

To modify these PF key settings, type KEYS in the option line of any Db2 Query Monitor window, press Enter, and change the PF key settings as appropriate.

Selecting and managing intervals

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.

Procedure

To select and manage intervals:

1. When viewing activity summaries, exceptions, SQLCODES, or Db2 commands, type INTV in the command line, and press Enter.

The **Interval Selection** panel lists the defined intervals.

```
YYYY/MM/DD HH:MM:SS ----- Interval Selection ----- Row 1 of 6
Option ===>                                         Scroll ===> PAGE

View Empty Intervals Y/N Y

C:S-Select Interval,SS-Block Select Intervals,D-Datasets,K-Keep Interval,
R-Release Interval
----->
CMD  AVAIL  START                END                INTERVAL NUMBER
---  ---
---  YES    01/01/2015 - 13:46:18                86
---  YES    01/01/2015 - 13:41:49    01/01/2015 - 13:44:04    85
---  YES    01/01/2015 - 13:00:00    01/01/2015 - 13:41:28    84
---  YES    01/01/2015 - 12:00:00    01/01/2015 - 13:00:00    83
---  YES    01/01/2015 - 11:00:00    01/01/2015 - 12:00:00    82
---  YES    01/01/2015 - 10:00:00    01/01/2015 - 11:00:00    81
---  YES    01/01/2015 - 9:00:00     01/01/2015 - 10:00:00    80
---  YES    01/01/2015 - 8:00:00     01/01/2015 - 9:00:00     79
---  YES    01/01/2015 - 7:00:00     01/01/2015 - 8:00:00     78
---  YES    01/01/2015 - 6:42:01     01/01/2015 - 7:00:00     77
---  YES    01/01/2015 - 8:40:49     01/01/2015 - 9:00:01     39
---  YES    01/01/2015 - 18:08:05    01/01/2015 - 18:26:09    18
---  YES    01/01/2015 - 18:04:57    01/01/2015 - 18:08:05    17
***** Bottom of Data *****
```

Figure 22. **Interval Selection** panel

Tips:

- Use the **View Empty Intervals** field to display (Y) or hide (N) empty intervals on this panel. *Empty intervals* are those that contain no SQL calls, CPU time, Db2 commands, or exceptions.
- Any interval that is marked as **MIGRATE** will be recalled to be processed.

For information about any of the columns on this panel, see [“Interval Selection panel” on page 163](#).

2. To manage these intervals, use the following line commands:

D

Show the data set names and volumes for the selected interval.

K

Keep the interval. The interval cannot be released even if it is outside of the range set by the RETAIN parameter in CQMPARMS.

R

Release the interval. Use this line command to override the RETAIN value in CQMPARMS.

3. To select one or more intervals for display, use the following line commands:

S

Select a single interval.

SS

Select multiple consecutive intervals. Type SS in the CMD field next to the first and last intervals of interest to start and end the block of intervals.

You can select one or more individual intervals and one or more interval blocks. Then, press Enter.

The display is updated to show activity for the interval or intervals that you selected.

4. If you did not select any intervals for display, exit (PF3) this panel.

Related reference

“RETAIN” on page 702

Use the RETAIN parameter in CQMPARMS to control the interval retention behavior of your Query Monitor subsystem.

Interval Selection panel

Use the **Interval Selection** panel to select and manage the intervals that you want to use to view Db2 Query Monitor data.

```
YYYY/MM/DD HH:MM:SS ----- Interval Selection ----- Row 1 of 6
Option ===>                                     Scroll ===> PAGE

View Empty Intervals Y/N Y

C:S-Select Interval,SS-Block Select Intervals,D-Datasets,K-Keep Interval,
R-Release Interval
----->
CMD  AVAIL  START                END                INTERVAL NUMBER
---  ---    -----
---  YES    01/01/2015 - 13:46:18                86
---  YES    01/01/2015 - 13:41:49    01/01/2015 - 13:44:04                85
---  YES    01/01/2015 - 13:00:00    01/01/2015 - 13:41:28                84
---  YES    01/01/2015 - 12:00:00    01/01/2015 - 13:00:00                83
---  YES    01/01/2015 - 11:00:00    01/01/2015 - 12:00:00                82
---  YES    01/01/2015 - 10:00:00    01/01/2015 - 11:00:00                81
---  YES    01/01/2015 - 9:00:00     01/01/2015 - 10:00:00                80
---  YES    01/01/2015 - 8:00:00    01/01/2015 - 9:00:00                 79
---  YES    01/01/2015 - 7:00:00    01/01/2015 - 8:00:00                 78
---  YES    01/01/2015 - 6:42:01    01/01/2015 - 7:00:00                 77
---  YES    01/01/2015 - 8:40:49    01/01/2015 - 9:00:01                 39
---  YES    01/01/2015 - 18:08:05    01/01/2015 - 18:26:09                 18
---  YES    01/01/2015 - 18:04:57    01/01/2015 - 18:08:05                 17
***** Bottom of Data *****
```

Figure 23. **Interval Selection** panel

The following columns are available on this panel:

AVAIL

Indicates whether the interval is available for viewing. Valid values are:

MIGRAT

The interval has been migrated.

NO

The interval is not available. It was removed or deleted from the VSAM data sets.

YES

The interval is immediately 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.

Offload table name

CQM_INTERVALS

Column name

TOTAL_GETPAGES

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 the interval is to be kept.

Working with interval data sets

Use the **Interval Datasets** panel to access data set information for your intervals.

Procedure

1. When viewing activity summaries, exceptions, SQLCODES, or Db2 commands, type INTV in the command line 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.

CMD	DATASET NAME	VOLUME
-----	CQM.DB01.EDATA.D000001.T1111.I00005	*VSAM*
-----	CQM.DB01.EDATA.D000001.T1111.I00005.DATA	DTP100
-----	CQM.DB01.EINDX.D000001.T1111.I00005	*VSAM*
-----	CQM.DB01.EINDX.D000001.T1111.I00005.DATA	DTP101
-----	CQM.DB01.METRD.D000001.T1111.I00005	*VSAM*
-----	CQM.DB01.METRD.D000001.T1111.I00005.DATA	DTP103
-----	CQM.DB01.OBJSJ.D000001.T1111.I00005	*VSAM*
-----	CQM.DB01.OBJSJ.D000001.T1111.I00005.DATA	DTP100
-----	CQM.DB01.TEXTD.D000001.T1111.I00005	*VSAM*
-----	CQM.DB01.TEXTD.D000001.T1111.I00005.DATA	DTP108
-----	CQM.DB01.SQLCD.D000001.T1111.I00005	*VSAM*
-----	CQM.DB01.SQLCD.D000001.T1111.I00005.DATA	DTP109
-----	CQM.DB01.SQLCD.D000001.T1111.I00005.INDEX	DTP109
-----	CQM.DB01.DB2CD.D000001.T1111.I00005	*VSAM*
-----	CQM.DB01.DB2CD.D000001.T1111.I00005.DATA	DTP104

***** Bottom of Data *****

Figure 24. Interval Datasets panel

The following columns are available:

Dataset Name

The names of the Db2 Query Monitor data sets that were created for the selected interval.

Volume

The volume on which the data set is located.

Note: The commands available to users who access the Interval Data Sets panel can be customized by editing a copy of SCQMSAMP library member CQMCMDS. After customization, the CQMCMDS 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 CQMCMDS CLIST as parameters.

Using 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:

- Filters do not affect the data that is collected by Db2 Query Monitor, they only filter data for display purposes.
- The FILTER command is valid for:
 - The Object panel, available when viewing current activity
 - The Calls panel, available when viewing exceptions
 - View DB2 Command Activity panels
 - View Activity Summaries panels
- Filters only apply to the summary drill-down paths that contain the filtered data. For example, the object names do not apply to operational summaries.

Working with active filters

Enable and tailor your active filters as needed to show the data most important to you.

Procedure

1. Type FILTER in the **Option** field of a panel that allows filtering and press Enter.

The **Active Filters** panel is displayed:

```
----- Active Filters ----- ROW 1 OF 1
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
***** Bottom of Data
*****

Press Enter/PF3 to update filter variables or CANCEL to exit
```

Figure 25. Active Filters panel

The following fields are available:

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 filed 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:

```
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 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:

```
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 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 following commands are available:

Create (Primary command CREATE)

When you type 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

Filter lines consist of a column name, an operator, and a column value.

About this task

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.
2. Type **CREATE** on the command line and press Enter.

```
----- 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 26. 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, abcde, abcdef, 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).

- Specify a column name, operator, and column value for the filter line.
- 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
***** Bottom of Data *****
Press Enter/PF3 to update filter variables or CANCEL to exit

```

Figure 27. Active Filters panel

- 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

- Type FILTER in the **Option** field of a panel that allows filtering and press Enter.
- 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.

- Press PF3 to save the filter.

Repeating a filter line

Follow these steps to repeat a filter line.

Procedure

- Type FILTER in the **Option** field of a panel that allows filtering and press Enter.
- Type R next to the filter line you want to repeat, and press Enter. The filter line is repeated below the original filter line.
- 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

- Type FILTER in the **Option** field of a panel that allows filtering and press Enter.
- 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,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  fds_____
-----

```

Figure 28. 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 29. 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, CONN, 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

Enable a filter to display data according to the criteria specified within the filter. Disable a filter to stop using the filter criteria to control the display of data.

Procedure

1. Enable a filter:

- a) Type **FILTER** in the **Option** field of a panel that allows filtering and press Enter.
- b) 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)

C:I-Insert,U-Update,V-View,R-Repeat,D-Delete
----- >
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 30. Active Filters panel

- c) Type **FILTER** in the **Option** field of a panel that allows filtering and press Enter.
 - d) Press PF3 to save your changes, exit the **Active Filters** panel, and enable the filter.
- #### 2. Disable a filter:
- a) Issue the **FILTER** command from the **View Current Activity** or **View Exceptions** panels.
 - b) Type **N** 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..... 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
***** Bottom of Data *****
Press Enter/PF3 to update filter variables or CANCEL to exit
```

Figure 31. Active Filters panel

- c) 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. These filters are referred to as defined filters.

Defined filters allow you to efficiently manage and share filters between users. You can share individual defined filters by copying their corresponding members from one filter data set to another.

Before you begin you must create a filter data set (that will hold your defined filters). This data set must be a partitioned data set (PDS) with an LRECL 80.

Accessing filter management

Follow these steps to access Db2 Query Monitor 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'
```

```
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.. Y (Y/N)
Filter Dataset Name..... 'TWUSER.CQM.FILTERS' -----
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 *****
Press Enter/PF3 to update filter variables or CANCEL to exit
```

Figure 32. Active Filters panel

3. Press Enter. The **Filter Maintenance** panel displays:

```
YYYY/MM/DD HH:MM:SS ----- Filter Maintenance ----- Row 1 of 2
Option ==> ----- Scroll ==> PAGE
Filter DSN: USER.CQM.FILTERS
Type "CREATE" on command line to create filter
C:S-Select,U-Update,V-View,D-Delete,C-Copy,R-Rename,N-New Filter
-----
CMD Name          Description
- -----
- FILTER01
- FILTER02
***** Bottom of Data *****
```

Figure 33. 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:

```

CQM$FNAB ----- Create Filter -----
Option  ===>  _____

Filter Name ..... _____
Description ..... _____

Press Enter to create filter or PF3/CANCEL to exit

```

Figure 34. 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:

```

CQM$FLTC 2 17:14:51 ----- Create Filter ----- No rows to display
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
-----

```

Figure 35. 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:

```
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 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 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 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 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 36. 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 37. 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 38. 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 39. 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 40. 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 -----
Option  ==>  _____

The following filter will be renamed

Filter Name ..... FILTER02
New Filter Name ..... _____

Press Enter to rename filter or PF3/CANCEL to exit
```

Figure 41. 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:

```
----- View Filter -----
Option  ===> -----
Filter Name ..... FILTER01
Description ..... FILTER PLANS
Press Enter to update filter or PF3/CANCEL to exit
```

Figure 42. View Filter window

These display fields are shown on the **View Filter** panel:

Filter Name

The name of the filter you are currently viewing.

Description

The description of the filter.

3. When you have finished viewing the filter, press PF3 to close the **View Filter** window.

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 43. 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.
3. Press PF3.

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 44. 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.

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 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 45. *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 ----- Setup Primary Option Menu ----- YYYY/MM/DD HH:MM:SS
Command ==>
                                                    Temporary View

1  CFIX          Select columns to be fixed on the left side of the report
2  CORDER       Modify the horizontal placement of unfixed columns
3  CSIZE        Customize the size of columns
4  CSORT        Select columns to sort
5  CRESET       Reset column values
6  CREMOVE      Remove all customizations, including original defaults
7  PVIEW        Permanent View (toggle between temporary and permanent)

HELP           Setup Tutorial

```

Figure 46. 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 unfix 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 47. 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:

```

CTCORD ----- Define Column Display Order -----   YYYY/MM/DD HH:MM:SS
Option  ===>                                         Scroll  ===> PAGE
----->
                                                    ROW 1 OF 9

Column Function ===> 2 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View  ===> N (Y-Perm, N-Temp)  Reset View ===> N (Y,N)

Cmd  Fix  New  Old  Column_Name
----  -   -   -   -
----  P           1  CMD
----  P           2  NAME
----                   3  CREATOR
----                   4  UPDT
----                   5  DESCRIPTION
----                   6  LAST_USER
----                   7  LAST_UPDATED
----                   8  CRTD_USER
----                   9  CREATED_USER
***** Bottom of Data *****

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Line Cmds: Specify number for column position

```

Figure 48. 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:

```

CSIZE ----- Define Column Size ----- YYYY/MM/DD HH:MM:SS
Option  ==>                                     Scroll ==> PAGE
-----+>
                                                    ROW 1 OF 9

Column Function ==> 3 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View ==> N (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  Min  Max  Fix  Column_Name
   5    5    5    5    P    CMD
  32   32   32   32   P    NAME
  10   10   10   10           CREATOR
   5    5    5    5           UPDT
  32   32   32   32           DESCRIPTION
  10   10   10   10           LAST_USER

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Line Cmds: Column size, between MIN and MAX

```

Figure 49. 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.

- **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).

Note: **CRESET** differs from **CREMOVE** in that **CREMOVE** sets all column sizes to their maximum values ignoring any initial, suggested sizes.

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

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:

CRIGHT *n*

Enables you to scroll the left side of the display window *n* report columns to the right.

CLEFT *n*

Enables you to scroll the left side of the display window *n* report columns to the left.

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:

ICRIGHT

Enables you to scroll to the right within one report column while the other report columns remain stationary.

ICLEFT

Enables you to scroll to the left 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.

Exporting data

You can export data such as SQL text or the ISPF log to a data set.

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

This task uses the EXPORT command, which is valid only when viewing the entire SQL. It is not valid on the **SQL Activities** panel.

Procedure

To export SQL text to a data set:

1. Navigate to the **Display SQL Statement Text** panel.

You can navigate to this panel from the main menu by selecting any of the following options:

1 (View Activity Summaries)

After you press Enter, complete the following steps:

- a. On the **Select Summary Level** panel, select any option depending on how you want to view the data and press Enter.
- b. On the **Operational Summaries** panel, specify the S line command next to the row of interest.

- c. On the **Activity by SQL Text** panel, specify the V line command next to the SQL statement that you want to view.

3 (View Current Activity)

After you press Enter, the **Current SQL Activity** panel is displayed. Specify the S line command next to the activity of interest.

5 (View Exceptions)

After you press Enter, the **Display Exceptions** panel is displayed. Specify the S line command next to the exception of interest.

2. On the **Display SQL Statement Text** panel, type **EXPORT** in the Option line and press Enter.
3. On the **Export SQL Text to DSN** panel, specify the data set to which you want to export SQL text, and, if the data set is a PDS, the member name:

```
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 51. Export SQL Text to DSN panel

4. Optional: If you want to use SQL PA to analyze the data set containing the exported SQL text, specify Y in the **Execute SQL/PA against exported data set** field.
5. 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 52. 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.

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.

Using the 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.

Viewing activity summaries

Browse summary level information from an operational or structural perspective for the Db2 subsystems monitored by your Query Monitor subsystem.

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
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 are 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 forward slash (/) in the CMD field and press Enter. For example, the following screen shows the valid commands for

```

CQM$LNCD Summaries Actions
1. P-Plan 19. D-Delay
2. 2-DB2(Op) 20. L-Lock
3. R-Pgm 21. Q-Misc
4. U-Auth 22. B-BStat
5. 5-DB2(St) 23. E-Excp
6. J-DBase 24. A-CAct
7. F-Buff 25. Z-Accel
8. G-PSet 26. CL-Collection
9. O-Objs 27. JN-JobName
10. I-Corr 28. PR-Parallel
11. T-Sect 29. K-ConnName
12. C-Call 30. Y-ConnType
13. W-WSUs 31. SC-Schema
14. M-WSNm 32. CN-CorrNum
15. N-WSTr 33. SP-StoredProc
16. S-SQL 34. CT-ConToken
17. V-View 35. CR-CorrName
18. PA-Analyze 36. X-Usage

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.

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.

TBName

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 Db2authorization IDs for the SQL activity.

5. 5 - DB2 (St)

Display the Db2subsystems 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 page sets 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. PA - 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. A - 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 could be saved if the statement or call were to 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 that could be saved if the statement or call were to 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 could be saved if the statement or call were to 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 might run. 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 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. Avg Elap = (Total Elap for this object)/(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 - RRSF
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 that 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

Description

The type of SQL call executed by a package or DBRM within Db2, for example, OPEN, FETCH.

Offload table name
CQM_SUMM_METRICS

Column name
TYPE

<%Dly>

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 the SQL statement has been 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 for buffer pools.

Calculation

Hit Ratio = (Get Page Requests - Synchronous Pages Read - Async Pages Read) / Get Page Requests * 100%

Note: This formula differs from the formula that OMEGAMON Batch Reporter uses to calculate Buffer Pool Hit Ratio, so a different calculation result is expected.

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

LockEvt

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

LtchEvt

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

PgLtEvt

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.

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_SUMM_METRICS

Column name

STMT_ID

SyncIOEvt

The number of synchronous IO events detected for the object.

Offload table name

CQM_SUMM_OBJECTS

Column name

SYNC_IO_EVENTS

SyncIODelay

The total amount of Sync IO delay time for the object spent in Db2.

Offload table name

CQM_SUMM_OBJECTS

Column name
SYNC_IO_DELAYS

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

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

Type

The type of object. Valid values are TABLE and INDEX.

Offload table name
CQM_SUMM_METRIC

Column name
TYPE

<%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.

Offload table name
not applicable

Column name
not applicable

USER

The TSO user ID.

Offload table name
not applicable

Column name
not applicable

Workstation Name

The workstation name.

Offload table name
CQM_SUMM_METRICS

Column name
WORKSTATION_NAME

Workstation Tran
The workstation transaction.

Offload table name
CQM_SUMM_METRICS

Column name
WORKSTATION_TRAN

Workstation User
The workstation user.

Offload table name
CQM_SUMM_METRICS

Column name
WORKSTATION_USER

WrteEvt
The number of log write IO events detected.

Offload table name
CQM_SUMM_METRICS

Column name
LOG_WRITE_EVT

zIIP CPU
The amount of CPU time accumulated while executing in Db2 on a zIIP processor.

Offload table name
CQM_SUMM_METRICS

Column name
ZIIP_CPU_TIME

<%ZIP>
The percent CPU time accumulated while executing in Db2 on a zIIP processor.

Offload table name
not applicable

Column name
not applicable

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 [IBM DB2 Query Monitor for z/OS panel (the 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).
3. Press PF3.

Example

If you select **Unstack To Prior Level In Summaries** and:

- Start Db2 Query Monitor and collected two SPUFI plans DSNEsprrr and DSNEspcs.
- On the **Operational Summaries** panel, select **P-Plan** and specify **R-Pgm** for the DSNEsprrr plan.
- Enter **P-Plan** again.

Then the two plans (DSNEsprrr and DSNEspcs) 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 DSNEsprrr 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:

```

YYYY/MM/DD HH:MM:SS ----- Display Summary Keys ----- Row 1 of 10
Option ==> Scroll ==> PAGE
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
MVS SMFID : DB01 Interval End Date: CURRENT Time: CURRENT
----->
2.3/2.2 SUMMARIZE BY DESCRIPTION
LINECMD KEY TYPE KEY VALUE
-----
4/U Authid DB2 Authid Operational Display
PLAN DB2V8PLN
Program DB2V8PLN
DB2 SSID DB01
3/R Program Program Operational Display
PLAN DB2V8PLN
DB2 SSID DB01
2/2 DB2 DB2 Operational Display
PLAN DB2V8PLN
1/P Plan Plan Operational Display
***** Bottom of Data *****

```

Figure 55. Display Summary Keys panel

Selecting a summary level

You can select either an operational or structural summary perspective when viewing your SQL activity.

Procedure

To select a summary level:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 1, and press Enter.

The **Select Summary Level** panel displays the summary levels that you can select.

If you have the **Display full command list on summary level** option selected on the **Query Monitor Dialog Options** panel, the full command list is displayed:

```

----- Select Summary Level -----
Option  ==>

-- Operational --          -- Structural --
1)  P-Plan                 5)  5-DB2(St)
2)  2-DB2(Op)             6)  J-Database
3)  R-DBRM/Package        7)  F-Buffer Pool
4)  U-AuthID              8)  G-Page Set

--More Choices --
9)  O-Objs                 27) JN-JobName
10) I-Corr                 28) PR-Parallel
11) T-Sect                 29) K-ConnName
12) C-Call                 30) Y-ConnType
13) W-WSUs                 31) SC-Schema
14) M-WSNm                 32) CN-CorrNum
15) N-WSTr                 33) SP-StoredProc
25) Z-Accel                 34) CT-ConToken
26) CL-Collection          35) CR-CorrName

```

Figure 56. Select Summary Level panel

If you have not selected the **Display full command list on summary level** option, the panel shows an abbreviated command list:

```

CQM$SUMA----- Select Summary Level -----
Option  ==>

-- Operational --          -- Structural --
1)  Plan                   5)  DB2
3)  DBRM/Package          6)  Database
4)  AuthID                 7)  Buffer Pool
                             8)  Page Set

```

Figure 57. Select Summary Level panel

For information about the available line commands, see [“Activity summaries - line commands \(ISPF\)”](#) on page 198.

2. Type the option number you want to use in the **Option** field and press Enter.

Related tasks

[“Setting ISPF dialog options”](#) on page 157

In Db2 Query Monitor, you can set various ISPF dialog options, such as whether to issue sort warnings and whether to create dumps at the first error.

Viewing SQL activity for a selected summary

When you view activity summaries in Db2 Query Monitor, you can view the SQL activity for the activity level of interest, such as a specific plan, Db2 subsystem, or program.

Procedure

To view SQL activity for a selected summary:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 1, and press Enter.
2. On the **Select Summary Level** panel, specify the level at which you want to summarize activity information, and press Enter.
3. On the **Operational Summaries** panel or the **Structural Summaries** panel, specify the S line command next to the activity level of interest for which you want to view SQL activity.

The **Activity by SQL Text** panel is displayed:

```

YYYY/MM/DD HH:MM:SS ---- Activity by SQL Text ---- Row 1 of 6
Option ==> Scroll ==> PAGE
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N Interval End Date: CURRENT Time: CURRENT
NAVI: Plan:PLAN0123
CMD - Enter "/" to select action
----->
CMD SQL Text Exec Count Calls
---
--- SELECT MIN(E.SALARY) FROM GLWTEMP E, GLW 12 12
--- SELECT MIN(E.SALARY) FROM GLWTEMP E, GLW 1 5
--- SELECT MAX(EMPTIME) FROM GLWTEPA 17 17
--- SELECT MAX(EMPTIME) FROM GLWTEPA 1 5
--- SELECT MAX(E.SALARY), MAX(D.EMPLOYEE_CNT) 29 29
--- SELECT MAX(E.SALARY), MAX(D.EMPLOYEE_CNT) 1 5
***** Bottom of Data *****

```

Figure 58. Activity by SQL Text panel

For rows that display dynamic SQL, the **Db2**, **Plan**, **Program**, and **Section number** columns are blank.
4. Optional: To view the complete SQL text for a specific row, use the V or VF line command.

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
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 59. 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 are 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.

Notes:

- 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 SQL activity for a selected summary

When you view activity summaries in Db2 Query Monitor, you can view the SQL activity for the activity level of interest, such as a specific plan, Db2 subsystem, or program.

Procedure

To view SQL activity for a selected summary:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 1, and press Enter.
2. On the **Select Summary Level** panel, specify the level at which you want to summarize activity information, and press Enter.
3. On the **Operational Summaries** panel or the **Structural Summaries** panel, specify the S line command next to the activity level of interest for which you want to view SQL activity.

The **Activity by SQL Text** panel is displayed:

```

YYYY/MM/DD HH:MM:SS ---- Activity by SQL Text ---- Row 1 of 6
Option ==> Scroll ==> PAGE
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N Interval End Date: CURRENT Time: CURRENT
NAVI: Plan:PLAN0123
CMD - Enter "/" to select action
----->
CMD SQL Text Exec Count Calls
---
--- SELECT MIN(E.SALARY) FROM GLWTEMP E, GLW 12 12
--- SELECT MIN(E.SALARY) FROM GLWTEMP E, GLW 1 5
--- SELECT MAX(EMPTIME) FROM GLWTEPA 17 17
--- SELECT MAX(EMPTIME) FROM GLWTEPA 1 5
--- SELECT MAX(E.SALARY), MAX(D.EMPLOYEE_CNT 29 29
--- SELECT MAX(E.SALARY), MAX(D.EMPLOYEE_CNT 1 5
***** Bottom of Data *****

```

Figure 60. Activity by SQL Text panel

For rows that display dynamic SQL, the **Db2**, **Plan**, **Program**, and **Section number** columns are blank.

4. Optional: To view the complete SQL text for a specific row, use the V or VF line command.

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 0 in the **CMD** field next to the SQL activity of interest and press Enter.

The **Object Detail** panel is displayed:

```

YYYY/MM/DD HH:MM:SS ----- Object Detail ----- Row 1 of 2
Option ===> Scroll ===> PAGE
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: DB2(ST):DB01
CMD - Enter "/" to select action
-----+>
CMD Creator Name Type DataBase BPool PageSet GetPages
-----+>
-- SYSIBM OBJECT01 INDEX DB01 BP01 PAGESET1 6
-- SYSIBM OBJECT02 TABLE DB02 BP02 PAGESET2 53
***** Bottom of Data *****

```

Figure 61. Object Detail panel

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.

```

YYYY/MM/DD HH:MM:SS ----- Delay Statistics ----- Row 1 of 30
Option ===> Scroll ===> PAGE
NAVI: DB2(ST):DB01
-----+>
Delay Event Event Count Delay Time
Lock or Latch Delays 0 0.000000
Synchronous I/O Delays 11,260 20.285012
Database I/O Delays 10,635 20.033022
Log Write I/O Delays 625 0.251989
Other Read Delays 11 0.047683
Other Write Delays 0 0.000000
Service Task Switch Delays 5,231 23.957937
Update Commit Delays 0 0.000000
Open/Close Delays 2,475 19.004652
SYSLGRNG Rec Delays 160 0.039277
EXT/DEL/DEF Delays 2,507 4.793309
Other Service Delays 89 0.120698
Archive Log Quiesce Delays 0 0.000000
Archive Log Read Delays 0 0.000000
Drain Lock Delays 0 0.000000
Claim Release Delays 0 0.000000
Page Latch Delays 0 0.000000
Stored Procedure Delays 0 0.000000
UDF Schedule Delays 0 0.000000
Notify Message Delays 1,385 0.310889
Global Contention Delays 0 0.000000
L-Locks Parent (DB,TS,TAB,PART) 0 0.000000
L-Locks Child (PAGE,ROW) 0 0.000000
L-Locks Other 0 0.000000
P-Locks Pageset/Partition 0 0.000000
P-Locks Page 0 0.000000
P-Locks Other 0 0.000000
Commit Phase 1 Write IO Delays 0 0.000000
Asynch CF Requests Delays 0 0.000000
Total Delays 17,887 44.601523
***** Bottom of Data *****

```

Figure 62. Delay Statistics panel

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:

```

YYYY/MM/DD HH:MM:SS ----- Buffer Pool Statistics ----- Row 1 of 16
Option ==> ----- Scroll ==> PAGE

Filters Enabled: N
NAVI:   DB2(ST):DB01
-----
Buffer Pool: ALL
Buffer Pool Hit Ratio (%)          Total          Average
Hiper Pool Hit Ratio (%)          N/A            97.44
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 63. 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.

Calculation

Hit Ratio = (Get Page Requests - Synchronous Pages Read - Async Pages Read) / Get Page Requests * 100%

Note: This formula differs from the formula that OMEGAMON Batch Reporter uses to calculate Buffer Pool Hit Ratio, so a different calculation result is expected.

Offload table name

not applicable

Column name

not applicable

Hiper Pool Hit Ratio (%)

The hit ratio for hiperpools.

Offload table name

not applicable

Column name

not applicable

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.

Offload table name

CQM_SUMM_METRICS

Column name

GETPAGES

Buffer Pages Updated

The number of buffer pages updated.

Synchronous Pages Read

The number of synchronous read I/O for the object.

Offload table name

CQM_SUMM_METRICS

Column name

SYNC_READS

Synchronous Pages Written

The number of synchronous write I/O for the object.

Offload table name

CQM_SUMM_METRICS

Column name

SYNC_WRITES

Sequential Prefetch Requests

The number of SEQ PREFETCH requested for the object.

Offload table name

CQM_SUMM_METRICS

Column name

SEQ_PREFETCH

List Prefetch Requests

The number of LIST PREFETCH requests for the object.

Offload table name

CQM_SUMM_METRICS

Column name

LIST_PREFETCH

Dynamic Prefetch Requests

The number of DYNAMIC PREFETCH requested for the object.

Offload table name

CQM_SUMM_METRICS

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:

```
YYYY/MM/DD HH:MM:SS ----- Lock Related Statistics ----- Row 1 of 23
Option ==> _____ Scroll ==> PAGE

Filters Enabled: N
NAVI: DB2(ST):DB01
-----
Lock Event                               Event Count
Lock Deadlocks                           0
Lock Suspensions                          0
Lock Timeouts                             0
Latch Suspensions                         0
Other Suspensions                         0
Lock Requests                             175
Unlock Requests                           36
Query Requests                            0
Change Requests                           0
Other Requests                            0
Claim Requests                            46
Claim Failures                            0
Drain Requests                            0
Drain Failures                            0
XES Lock Requests                         40
XES Change Requests                       0
XES Unlock Requests                       0
IRLM Global Resource Contention           0
XES Global Resource Contention            0
False Resource Contention                  0
Incompatible Retain Lock                   0
Shared Lock Escalations                    0
Exclusive Lock Escalations                 0
Lock Requests - PLOCKS                     2
Change Requests - PLOCKS                   0
Unlock Requests - PLOCKS                   0
```

Figure 64. 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:

```

YYYY/MM/DD HH:MM:SS ----- Miscellaneous Statistics ----- Row 1 of 39
Option ==> ----- Scroll ==> PAGE
Filters Enabled: N
NAVI: DB2(ST):DB01
-----
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
SP Application Elapsed Time          0.000000
SP Application CPU Time              0.000000
SP DB2 Elapsed Time                 0.000000
SP 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
***** Bottom of Data *****

```

Figure 65. Miscellaneous Statistics panel

Miscellaneous statistics - fields (ISPF)

These statistics are displayed on the **Miscellaneous Statistics** panel.

Trigger Elapsed 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 elapsed time generated by a user-defined function as a result of executing the SQL Call. A user-defined function might initiate a trigger or invoke a stored procedure. 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 the WLM address space.

Offload table name

CQM_SUMM_METRICS

Column name

UDF_APP_CPU

UDF DB2 Elapsed Time

The accumulated elapsed time consumed in Db2 when processing SQL statements that were used by user-defined functions.

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 elapsed time generated by a stored procedure as a result of executing the SQL call. 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 accumulated CPU time used to satisfy stored procedure requests processed in the WLM address space.

Offload table name

CQM_SUMM_METRICS

Column name

SP_APP_CPU

SP DB2 Elapsed Time

The accumulated elapsed time consumed in Db2 when processing SQL statements that were issued by stored procedures.

Offload table name

CQM_SUMM_METRICS

Column name

SP_DB2_ELAPSED

SP DB2 CPU Time

The accumulated CPU time consumed in Db2 when processing SQL statements that were issued by stored procedures.

Offload table name

CQM_SUMM_METRICS

Column name

SP_DB2_CPU

RIDLIST Used

The number of times RID list (also called RID pool) processing is used.

Offload table name

CQM_SUMM_METRICS

Column name

RID_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).

Offload table name

CQM_SUMM_METRICS

Column name

RID_FAIL_NO_STOR

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.

Offload table name

CQM_SUMM_METRICS

Column name

RID_LIMIT_EXC

Groups Executed

The number of parallel groups executed.

Offload table name

CQM_SUMM_METRICS

Column name

RID_GROUPS_EXEC

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.

Offload table name

CQM_SUMM_METRICS

Column name

RID_SEQ_CURSOR

Sequential No ESA Sort

The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort storage.

Offload table name

CQM_SUMM_METRICS

Column name

RID_SEQ_NO_SORT

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.

Offload table name

CQM_SUMM_METRICS

Column name

RID_ONE_DB2_CONO

One DB2 Isolation Level

The total number of parallel groups executed on a single Db2 subsystem due to repeatable-read or read-stability isolation.

Offload table name

CQM_SUMM_METRICS

Column name

RID_ONE_DB2_ISO

Reoptimization

The number of times the access path for static and dynamic SQL Queries were re-optimized at run time.

Offload table name

CQM_SUMM_METRICS

Column name

RID_REOPTIMIZED

Prep Statement Matched

The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

Offload table name

CQM_SUMM_METRICS

Column name

RID_PREP_MATCHED

Prep Statement No Match

The number of times that Db2 searched the prepared statement cache but could not find a suitable prepared statement.

Offload table name

CQM_SUMM_METRICS

Column name

RID_PREP_NOMATCH

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 KEEP DYNAMIC YES).

Offload table name

CQM_SUMM_METRICS

Column name

RID_IMP_PREPS

Prep From Cache

The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

Offload table name

CQM_SUMM_METRICS

Column name

RID_PREP_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 (DSNEM68) and Program, and then enter the E line command for the line item DSNEM68, the **Summary Exceptions** panel shows the exceptions for Db2 SSID R71C, Plan DSNEM68, and Program DSNEM68:

```
YYYY/MM/DD HH:MM:SS  ----- Summary Exceptions  ----- Row 1 of 11
Option ==>                               Scroll ==> PAGE
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
CMD - Enter "/" to select action

-----+>
CMD  SSID Plan      Program  DB2 CPU Time  DB2 Elapsed  GETPAGES
-----+>
-   R71C PLAN01    DSNEM68    0.001893    0.115371    13
-   R71C PLAN01    DSNEM68    0.001420    0.001553    13
-   R71C PLAN01    DSNEM68    0.000156    0.000156    0
***** Bottom of Data *****
```

Figure 66. 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.

```
YYYY/MM/DD HH:MM:SS ----- Summary SQL Activity ----- No rows to display
Option ==> Scroll ==> PAGE
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
-----
DBB6 CQMEOPLN CQMEO 2.031096 2.454969 16,190
```

Figure 67. Summary SQL Activity panel

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:

```
CQM$MDB2 ----- Multiple DB2 Subsystems for SQL text -----
Option ==> -----
Multiple DB2 Subsystems exist for the selected SQL text.
Please enter a DB2 Subsystem.

DB2 Subsystem ID ... ____

Press Enter to process request or PF3/CANCEL to exit
```

Figure 68. Multiple DB2 Subsystems for SQL Text panel

The following 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 results 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
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
----->
CMD 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 69. Operational Summaries - Accel - panel

The **Operational Summaries** panel displays accelerator information:

```

YYYY/MM/DD HH:MM:SS ----- Operational Summaries ----- Row 1 of 2
Option ===> Scroll ===> PAGE
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N Interval End Date: CURRENT Time: CURRENT
NAVI: PLAN:XYZPLAN4
CMD - Enter "/" to select action
----->
CMD ACCELERATOR Exec Count Calls Elapsed %Elap
-- -----
__ 492 1480 0.418683 100.00
***** Bottom of Data *****

```

Figure 70. 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:

```

YYYY/MM/DD HH:MM:SS ---- Activity by SQL Text ---- Row 1 of 2
Option ===> Scroll ===> PAGE
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
-----+>
CMD SQL Text Exec Count Calls
-- -----
__ SELECT C1, C2, C6 FROM USER.TABLE1 WH 1 3
***** Bottom of Data *****

```

Figure 71. 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:

```
YYYY/MM/DD HH:MM:SS ----- Structural Summaries ----- Row 1 of 1
Option ==>                               Scroll ==> PAGE
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  DB2           GetPages           Elapsed SyncRead SyncWrit SeqPfitch
--  ---           -
__  DB01           7683           0.752588         2           0           33
***** Bottom of Data *****
```

Figure 72. 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 0 in the **CMD** field next to the SQL activity of interest and press Enter.

The **Object Detail** panel is displayed:

```

YYYY/MM/DD HH:MM:SS ----- Object Detail ----- Row 1 of 3
Option ==> Scroll ==> PAGE
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N Interval End Date: CURRENT Time: CURRENT
NAVI : DB2(ST):DB06
CMD - Enter "/" to select action
----- >
CMD Creator Name Type DataBase BPool PageSet GetPages
----- >
--- CREATR1 SYSCOLUMNS TABLE DSNDDB06 BP8K0 SYSDBASE 537
--- CREATR1 ABCDEF01 INDEX DSNDDB06 BP0 DSNDX01 7142
--- CREATR1 ABCDEF01 INDEX DSNDDB06 BP0 DSNSSH01 4
***** Bottom of Data *****

```

Figure 73. Object Detail panel

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:

```

YYYY/MM/DD HH:MM:SS ----- Object Usage ----- Row 1 of 1
Option ==> Scroll ==> CSR
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N Interval End Date: CURRENT Time: CURRENT
NAVI : DB2(ST):DB06 -> TBCreator:QMQTOOLZ TBName:TABLE_MGR
----- >
PLAN PROGRAM USER CORRID WSUSER
----- >
CQMEOPLN CQM01 XXXYYY XXXYYY XXXYYY
***** Bottom of Data *****

```

Figure 74. Object Usage panel

Viewing SQLCODES

View SQLCODES for the Db2 subsystems monitored by your Query Monitor subsystem.

Topics:

- [“About SQLCODEs” on page 238](#)
- [“Grouping SQLCODE information” on page 242](#)
- [“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 **IBM DB2 Query Monitor for z/OS** panel (the 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:

- 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.
- 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 profile. Therefore, the number of SQLCODES might differ between option **2. View SQLCODES** and options **1. View Activity Summaries** and **3. View Current Activity**.
- Db2 Query Monitor does not collect the values of host variable data for FETCH statements.
- 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.

Query Monitor operates 'inline' with SQL related execution that takes place on the host. Certain database processing activities engage 'off-host' components, which are called 'distributed' or DRDA applications. Once a transaction moves 'off-host', Query Monitor will be unable to correlate the end of a transaction to the start until the transaction returns to the host. For example, when an accelerator takes over the transaction, it appears to Db2 z/OS as being remote or not part of the engine. In such cases,

- SQLCODE may be returned to the originating transaction, but only after the remote process (and not Db2) has populated the SQLCA of the application.
- Query Monitor is not posted about the success or failure of the transaction, so it appears to 'lose' the SQLCODE and not be inline with the second part of the transaction.

There is no definitive list of the SQLCODE that falls into this category. But users should be aware that any discrepancies between the codes presented on the appliance 'console' and in Query Monitor may fall directly into this category.

SQLCODEs - fields (ISPF)

This topic describes the fields that are available for use on the various SQLCODEs panels.

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)

The line commands on the various SQLCODE panels display additional information about the selected SQLCODE.

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 reached the maximum SQL code detail value that you have set in CQMparms. An asterisk is only shown for the current interval on the local Query Monitor subsystem .

Plan

The Db2 plan name.

Offload table name

CQM_SQLCODE_DET

Column name

PLAN

SECT#

The section number.

Offload table name

CQM_SQLCODE_DET

Column name

SECTION

Sqlcode

The SQL return code issued by Db2.

Offload table name

CQM_SQLCODE_DET

Column name

SQLCODE

SSID

The Db2 subsystem on which the activity occurred.

Offload table name

CQM_SQLCODES

Column name

DB2_SUBSYSTEM

STMT#

The statement number assigned by PRECOMPILER.

Offload table name

CQM_SQLCODE_DET

Column name

STMT

Statement Type

The type of SQL call executed by a package or DBRM within Db2 (for example, PREPARE, OPEN, FETCH, etc).

Offload table name

CQM_SQLCODE_DET

Column name

TYPE

Timestamp

The timestamp of the SQLCODE.

Offload table name

CQM_SQLCODE_DET

Column name

SQLCODE_TIMESTAMP

SQLCODE

The return codes in the SQLCODE and SQLSTATE host variables or corresponding fields of the SQLCA.

Grouping SQLCODE information

You can group SQLCODE information to help you locate problematic SQL activity.

Procedure

To group SQLCODE information:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 2, and press Enter.

2. On the **DB2 QM SQL Code Summary** panel, type the appropriate command in the **Group By** field to refine the display of information to suit your needs.

```

YYYY/MM/DD HH:MM:SS ----- DB2 QM SQL Code Summary ----- Row 1 of 2
Option ==> Scroll ==> CSR
QM Subsystem : QM01          Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
                             Interval End   Date: CURRENT   Time: CURRENT
Group by S (P-Plan, D-DBRM/Package, A-Authid, S-SQLCode, I-CorrID,
           N-CorrName) Specify "*" for no grouping
C: S-Select detail, P-Plans, D-DBRMs/Packages, A-AUTHIDs, I-CorrID, N-CorrName
-----
CMD SQL Code      Occurrences
- - - - -
_ -104            3
_ -204            5
***** Bottom of Data *****

```

Figure 75. **DB2 QM SQL Code Summary** panel

For example, to group by Db2 authorization ID, type A in the **Group By** field and press Enter. The SQLCODE information is grouped by authorization ID:

```

YYYY/MM/DD HH:MM:SS ----- DB2 QM SQL Code Summary ----- Row 1 of 2
Option ==> Scroll ==> CSR
QM Subsystem : QM01          Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
                             Interval End   Date: CURRENT   Time: CURRENT
Group by A_ (P-Plan, D-DBRM/Package, A-Authid, S-SQLCode, I-CorrID,
            N-CorrName) Specify "*" for no grouping
C: P-Plans, D-DBRMs/packages, S-SQLCODEs, I-CorrID, N-CorrName
-----
CMD Authid       Occurrences
- - - - -
_ USERID1        5
_ USERID2        3
***** Bottom of Data *****

```

Figure 76. **DB2 QM SQL Code Summary** panel

3. Issue line commands to drill down into a row.

For example, you can issue the P line command and press Enter to view plans associated with an item.

```

YYYY/MM/DD HH:MM:SS --- DB2 QM SQL Code Group Summary --- Row 1 of 1
Option ==> Scroll ==> PAGE
QM Subsystem : QM01          Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
                             Interval End   Date: CURRENT   Time: CURRENT
Plan level SQLCODE summary for :
Primary Authid: PDUSERA
C: D-DBRMs/Packages, I-CorrID, N-CorrName, S-SQLCODEs
-----
CMD Plan         Occurrences
- - - - -
__ PLAN01        5
***** Bottom of Data *****

```

Figure 77. **DB2 QM SQL Code Group Summary** panel

To view the SQLCODEs associated with an item, issue the S line command, and press Enter.

```

YYYY/MM/DD HH:MM:SS --- DB2 QM SQL Code Group Summary --- Row 1 of 2
Option ==> Scroll ==> CSR
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Interval End Date: CURRENT Time: CURRENT

SQLCODE data captured for:
Primary Authid: PDUSERA
Plan Name: DSNESPRR

C:S - Select Detail
-----
CMD SQLCODE Occurrences
-- --
-- -552 3
-- -551 2
***** Bottom of Data *****

```

Figure 78. DB2 QM SQL Code Group Summary panel

You can now view SQLCODE details by issuing the S line command.

Viewing SQLCODE information with no grouping

You can view SQLCODE information without grouping it.

Procedure

To view SQLCODE information with no grouping:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu)), specify option 2, and press Enter.
2. On the **DB2 QM SQL Code Summary** panel, type an asterisk (*****) in the **Group By** field, and press Enter.

```

YYYY/MM/DD HH:MM:SS ----- DB2 QM SQL Code Summary ----- Row 1 of 2
Option ==> Scroll ==> CSR
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Interval End Date: CURRENT Time: CURRENT
Group by A (P-Plan, D-DBRM/Package, A-Authid, S-SQLCode, I-CorrID,
N-CorrName) Specify "*" for no grouping
C: P-Plans, D-DBRMs/packages, S-SQLCODEs, I-CorrID, N-CorrName
-----
CMD Authid Occurrences
- -
_ USERID1 1
***** Bottom of Data *****

```

Figure 79. DB2 QM SQL Code Summary panel

The **DB2 QM SQL Code Detail Display** panel display the detail SQLCODE information:

```

YYYY/MM/DD HH:MM:SS --- DB2 QM SQL Code Detail Display --- Row 1 of 1
Option ==> Scroll ==> PAGE
QM Subsystem : QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Interval End Date: CURRENT Time: CURRENT
C:S-SQL Text, C-SQLCA
-----
CMD SSID Timestamp SQLCODE Plan DBRM JOBNAME >
- - - - -
_ SS01 YYYY/MM/DD - HH:MM:SS -204 DSNESPCS DSNESM68 PDUSER
***** Bottom of Data *****

```

Figure 80. DB2 QM SQL Code Detail Display panel

Viewing details, SQLCA, and text for an SQLCODE

You can view detailed data captured for a specific SQLCODE. You can access both the SQL Communication Area (SQLCA) and the SQL text for the activity of interest.

Procedure

To view details, SQLCA, and text for an SQLCODE:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 2, and press Enter.
2. On the **DB2 QM SQL Code Summary** panel, either specify the S line command next to the SQLCODE for which you want to view details or specify no grouping (**Group by ***).

The **DB2 QM SQL Code Detail Display** panel displays the SQLCODE details:

```

YYYY/MM/DD HH:MM:SS --- DB2 QM SQL Code Detail Display --- Row 1 of 5
Option ==> Scroll ==> CSR
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 DSNTPE2 DSN@EP2L JOB0001 1,494 DSNTPE2 1 USERA
_ DB02 DSNTPE2 DSN@EP2L JOB0002 1,559 DSNTPE2 1 USERA
_ DB01 DSNTPE2 DSN@EP2L JOB0001 1,494 DSNTPE2 1 USERA
_ DB02 DSNTPE2 DSN@EP2L JOB0002 1,559 DSNTPE2 1 USERA
_ DB01 DSNTPE2 DSN@EP2L JOB0001 1,494 DSNTPE2 1 USERA
***** Bottom of Data *****

```

Figure 81. DB2 QM SQL Code Detail Display panel

3. Specify one of the following line commands to view the information that you want.

C line command

Use this line command to view the SQL Communication Area (SQLCA) for the selected item. 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: DSNTPE2 DBRM: DSN@EP2L Coll: DSNTPE2
Cursor: Section: 1
Stmt: 1,494 Type: PREPARE
-----
DSNT408I SQLCODE = -204, ERROR: USERA.U_TAB IS AN UNDEFINED NAME
DSNT418I SQLSTATE = 42704 SQLSTATE RETURN CODE
DSNT415I SQLERRP = DSNXOTL SQL PROCEDURE DETECTING ERROR
DSNT416I SQLERRD = -500 0 0 -1 0 0 SQL DIAGNOSTIC INFORMATION
DSNT416I SQLERRD = X'FFFFFFE0C' X'00000000' X'00000000'
X'FFFFFFF' X'00000000' X'00000000' SQL DIAGNOSTIC
INFORMATION

SQLCAID SQLCA
SQLCABC 136
SQLCODE -204
SQLERRML 13
SQLERRMC USERA.U_TAB
SQLERRP DSNXOTL

```

Figure 82. SQLCA Display panel

S line command

Use this line command to display SQL text. The **Display SQL Statement Text** panel is displayed:

```

YYYY/MM/DD HH:MM:SS   ---- Display SQL Statement Text ----   Row 1 of 3
Option ==>> ----- Scroll ==>> CSR

  DB2 SSID: DB01 Plan: DSNTEP2   DBRM: DSN@EP2L   Coll: DSNTEP2
        Cursor: N/A             Section: 1
-----

SELECT UC1, HEX(UC1), UG1, HEX(UG1)
FROM U_TAB
WHERE UF > 1234 ORDER BY UC1
***** Bottom of Data *****

```

Figure 83. Display SQL Statement Text panel

4. Exit (PF3) back to the **DB2 QM SQL Code Detail Display** panel.

Viewing current activity

Browse information about current SQL activity for the Db2 subsystems monitored by your Query Monitor subsystem.

Topics:

- [“Monitoring SQL statements in current activity” on page 246](#)
- [“Viewing current activity” on page 247](#)
- [“Viewing buffer pool statistics for current activity” on page 254](#)
- [“Viewing call level statistics for current activity” on page 255](#)
- [“Viewing delay statistics for current activity” on page 255](#)
- [“Canceling a thread” on page 256](#)
- [“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 260](#)
- [“Viewing host variables for current activity” on page 261](#)
- [“Viewing parallel activity for current activity” on page 261](#)
- [“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 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

You can view SQL statements as they execute.

Procedure

To view current activity:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 3, 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
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 84. Current SQL Activity panel

Note: The interval navigation and selection commands (INTV, PREV, NEXT, CUR) are not valid on the **Current SQL Activity** panel, because this display includes only activity pertaining to the current interval.

2. To view available line commands, specify a forward slash (/) next to the appropriate row.

Exception Actions

- | | |
|---------------|-------------------------|
| 9. O-Objects | 21. Q-Misc Stats |
| 12. C-Calls | 22. B-Buffer Pool Stats |
| 16. S-SQL | 28. P-Parallel Activity |
| 18. A-Analyze | 37. H-Host Variables |
| 19. D-Delays | 38. E-Cancel |
| 20. L-Locks | |

Select a choice and press ENTER to continue

Figure 85. Current Activity line commands panel

Current activity - fields (ISPF)

These fields display on the **Current SQL Activity** panel.

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)

Use the line commands that are available on the various current activity panels to display more information about an activity.

Current SQL activity - line commands

The following line commands are valid on the **Current SQL Activity** panel:

9. O - Objects

Show object information.

12. C - Calls

Show statistics for SQL calls.

16. S - SQL

Show individual SQL statements.

18. 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.

19. D - Delays

Show delay events, counts, and delay times.

20. L - Locks

Show lock events and counts.

21. Q - Misc Stats

Show additional statistics.

22. B - Buffer Pool Stats

Show buffer pool usage statistics.

28. P - Parallel Activity

Show parallel activity information.

37. H - Host Variables

Show host variable information.

38. E - Cancel

Cancels the thread executing an SQL statement.

Call level statistics - line commands

The following line commands are valid for the **Call Level Statistics** panel:

16. S - Call Text

Show the call text.

19. D - Delays

Show delay events, counts, and delay times.

20. L - Locks

Show lock events and counts.

21. Q - Misc Stats

Show additional statistics.

22. B - Buffer Pool Stats

Show buffer pool usage statistics.

37. H - Host Variables

Show host variable information.

39. 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.

Parallel task statistics - line commands

The following line commands are valid for the **Parallel Task Statistics** panel:

9. O - Objects

Show objects information.

12. C - Calls

Show statistics for SQL calls.

19. D - Delays

Show delay events, counts, and delay times.

20. L - Locks

Show lock events and counts.

21. Q - Misc Statistics

Show additional statistics.

22. B - Buffers Pool Stats

Show buffer pool usage statistics.

38. 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 could be saved if the statement or call were to 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 that could be saved if the statement or call were to 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 could be saved if the statement or call were to 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 might run. 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
- 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).

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 SQL call executed by a package or DBRM within Db2 (for example, PREPARE, OPEN, FETCH, 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 - RRSF

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.

Corrnum

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.

End Time

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 86. 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:

```

YYYY/MM/DD HH:MM:SS ----- Call Level Statistics ----- Row 1 of 3
Option ==> ----- Scroll ==> PAGE

DB2 SSID: DB01   Plan: PLAN0001   DBRM: DBRM1   Coll: DSNTEP2
Cursor: C1      Section:      1
Filters Enabled: N
CMD - Enter "/" to select action

-----
CMD STMT#   DB2 CPU Time   DB2 Elapsed   GETPAGES  SQLCODE   SQL Calls
-----
- 1,683     0.006072     0.059150     0         0         1
- 1,631     0.000030     0.000030     0         0         1
- 1,619     0.000210     0.000310     0         0         1
***** Bottom of Data *****

```

Figure 87. Call Level Statistics panel

Viewing delay statistics for current activity

You can view delay statistics for current SQL activity.

Procedure

To view delay statistics for current activity:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the 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:

```
YYYY/MM/DD HH:MM:SS ----- Delay Statistics ----- Row 1 of 30
Option ==> _____ Scroll ==> PAGE
NAVI:   DB2(ST):DB01
-----
Delay Event                               Event Count      Delay Time
Lock or Latch Delays                       0                0.000000
Synchronous I/O Delays                     11,260           20.285012
  Database I/O Delays                       10,635           20.033022
  Log Write I/O Delays                       625              0.251989
Other Read Delays                           11              0.047683
Other Write Delays                           0                0.000000
Service Task Switch Delays                  5,231           23.957937
Update Commit Delays                        0                0.000000
Open/Close Delays                           2,475           19.004652
SYSLGRNG Rec Delays                          160             0.039277
EXT/DEL/DEF Delays                           2,507           4.793309
  Other Service Delays                       89              0.120698
Archive Log Quiesce Delays                   0                0.000000
Archive Log Read Delays                      0                0.000000
Drain Lock Delays                           0                0.000000
Claim Release Delays                         0                0.000000
Page Latch Delays                           0                0.000000
Stored Procedure Delays                      0                0.000000
UDF Schedule Delays                          0                0.000000
Notify Message Delays                       1,385           0.310889
Global Contention Delays                     0                0.000000
L-Locks Parent (DB,TS,TAB,PART)             0                0.000000
L-Locks Child (PAGE,ROW)                    0                0.000000
L-Locks Other                                0                0.000000
P-Locks Pageset/Partition                    0                0.000000
P-Locks Page                                 0                0.000000
P-Locks Other                                0                0.000000
Commit Phase 1 Write IO Delays               0                0.000000
Asynch CF Requests Delays                    0                0.000000
Total Delays                                17,887          44.601523
***** Bottom of Data *****
```

Figure 88. Delay Statistics panel

For a description of each statistic listed on this panel, see [“Delay statistics - fields \(ISPF\)”](#) on page 215.

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:

```
----- Cancel DB2 Thread -----
The following thread is about to be canceled:
JOBNAME: JOBNAME1      Plan: PLAN003   Token:   3135
Cancel Thread Y       with Dump N   NOBACKOUT N
Press Enter to cancel thread or PF3 to exit
```

Figure 89. 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 not want to produce a dump when the thread is canceled.
7. Specify whether or not you want 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:

```

YYYY/MM/DD HH:MM:SS ----- Lock Related Statistics ----- Row 1 of 23
Option ===> _____ Scroll ===> PAGE

Filters Enabled: N
NAVI: DB2(ST):DB01
-----
Lock Event                      Event Count
Lock Deadlocks                   0
Lock Suspensions                 0
Lock Timeouts                    0
Latch Suspensions                0
Other Suspensions                0
Lock Requests                    175
Unlock Requests                  36
Query Requests                   0
Change Requests                  0
Other Requests                   0
Claim Requests                   46
Claim Failures                   0
Drain Requests                   0
Drain Failures                   0
XES Lock Requests                40
XES Change Requests              0
XES Unlock Requests              0
IRLM Global Resource Contention  0
XES Global Resource Contention  0
False Resource Contention        0
Incompatible Retain Lock         0
Shared Lock Escalations          0
Exclusive Lock Escalations       0
Lock Requests - PLOCKS           2
Change Requests - PLOCKS         0
Unlock Requests - PLOCKS         0

```

Figure 90. Lock Related Statistics panel

Viewing object statistics for current activity

You can view information about the objects related to a current activity.

Procedure

To view object statistics for current activity:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 3, and press Enter.
2. On the **Current SQL Activity** panel, issue line command O next to the activity of interest, and press Enter.

The **Object Statistics** panel displays object information:

```
YYYY/MM/DD HH:MM:SS ----- Object Statistics -----          Row 1 of 8
Option ==>                               Scroll ==> PAGE
Filters enabled: N
DB2 SSID: SS01   Plan: PLAN0001   DBRM: DSNESM68   Coll: DSNESPCS
                Cursor: C1           Section:      0
CMD - Enter "/" to select action
----->
CMD Creator   Name                Type   DataBase  BPool   PageSet  GetPages
-----
-  CREATR1    SYSSTMT                TABLE  DATABS1   B04K00  SYSPLAN   1438
-  CREATR1    SYSDBRM                TABLE  DATABS1   B04K00  SYSPLAN    1
-  CREATR2    PMSYSDBRM1            INDEX   DATABS1   B04K00  PMSYSDBR  2
-  CREATR1    SPTR                  TABLE  DATABS2   B04K00  SPT01     5
-  CREATR1    DSNSTPT01             INDEX   DATABS2   B04K00  DSNSTPT01 3
-  N/A        N/A                   TABLE  DATABS3   B04K00  DSN4K01   180
-  CREATR1    SYSPACKSTMT           TABLE  DATABS4   B04K00  SYSPKAGE  464
-  CREATR1    DSNKSX01              INDEX   DATABS5   B04K00  DSNKSX01  205
***** Bottom of Data *****
```

Figure 91. Object Statistics panel

You can use the following line commands as needed to view additional information about any listed object:

22. B-Buffer Pool Stats

Show buffer pool statistics for the selected 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_METRIC

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 for buffer pools.

Calculation

$$\text{Hit Ratio} = (\text{Get Page Requests} - \text{Synchronous Pages Read} - \text{Async Pages Read}) / \text{Get Page Requests} * 100\%$$

Note: This formula differs from the formula that OMEGAMON Batch Reporter uses to calculate Buffer Pool Hit Ratio, so a different calculation result is expected.

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

SeqPftch

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

You can view SQL text for any current SQL activity.

Procedure

To view the SQL text for a current activity:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 3, and press Enter.
2. Specify the S line command next to the SQL activity for which you want to view the SQL text, and press Enter.

The SQL text is displayed:

```

YYYY/MM/DD HH:MM:SS ----- Display SQL Statement Text ----- Row N of N
Option  ===> _____ Scroll ===> PAGE

DB2 SSID: DB01   Plan: PLAN0001       DBRM: ADBMAIN   Coll: ADBL
Cursor:         Section:             0
-----

DECLARE C1 SENSITIVE DYNAMIC SCROLL CURSOR FOR SELECT ROWID , COL2
FROM QMTSTB01 . BILLION_FETCH
***** Bottom of Data *****

```

Figure 92. 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:

```

YYYY/MM/DD HH:MM:SS ----- Input Host Variables ----- Row 1 of 3
Option  ===> _____ Scroll ===> PAGE

DB2 SSID: R71C   Plan: DB2V7032   DBRM: DB2V7S01   Coll: DB2V7032
Cursor: DYNAMIC1_CURSOR   Section:         1
----- >

Number  Type           Null  Length  Data
   1    CHARACTER         N      18    SYSTABLE%%%%%%%%%
      EEECCDC6666666666
      28231235CCCCCCCC
***** Bottom of Data *****

```

Figure 93. 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 94. 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:

```

YYYY/MM/DD HH:MM:SS ----- Miscellaneous Statistics ----- Row 1 of 39
Option ==> ----- Scroll ==> PAGE
Filters Enabled: N
NAVI: DB2(ST):DB01
-----
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
SP Application Elapsed Time          0.000000
SP Application CPU Time              0.000000
SP DB2 Elapsed Time                 0.000000
SP 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
***** Bottom of Data *****

```

Figure 95. Miscellaneous Statistics panel

Viewing Db2 command activity

Access information about Db2 command activity for the Db2 subsystems monitored by your Query Monitor subsystem.

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:

```

YYYY/MM/DD HH:MM:SS ----- DB2 Command Activity ----- Row 1 of 5
Option ==> Scroll ==> PAGE
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
----->
SSID JOBNAME AUTHID Command Timestamp Command Text
-----
SS01 JOBNM1 USERID MM/DD/YYYY - 2:13:49 -DISPLAY DATABASE(*)
SS01 JOBNM1 USERID MM/DD/YYYY - 2:33:34 -DISPLAY DATABASE(*)
SS01 JOBNM1 USERID MM/DD/YYYY - 3:01:22 -DISPLAY DATABASE(*)
SS01 JOBNM1 USERID MM/DD/YYYY - 3:12:27 -DISPLAY DATABASE(*)
SS01 JOBNM1 USERID MM/DD/YYYY - 3:21:11 -DISPLAY DATABASE(*)
***** Bottom of Data *****

```

Figure 96. DB2 Command Activity panel

The following options are available:

SSID

The Db2 subsystem on which the activity occurred.

Offload table name

CQM_DB2_COMMDANDS

Column name

DB2_SUBSYSTEM

Jobname

The name of the job.

Offload table name

CQM_DB2_COMMDANDS

Column name

JOBNAME

Authid

The primary authorization ID.

Offload table name

CQM_DB2_COMMDANDS

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_COMMDANDS

Column name

COMMAND_TIMESTAMP

Command Text

The text of the Db2 command.

Offload table name

CQM_DB2_COMMDANDS

Column name

COMMAND_TEXT

- When finished viewing DB2 command activity, press PF3 to return to the **IBM DB2 Query Monitor for z/OS** panel (the main menu).

Viewing exceptions

View information about exceptions for the Db2 subsystems monitored by your Query Monitor subsystem.

Topics:

- [“Viewing exceptions” on page 265](#)
- [“About color coding” on page 278](#)
- [“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

You can view information about your system's SQL-related exceptional events, such as the SQL text, object details, lock events, delay events, calls, and buffer pools.

Procedure

To view exceptions:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 5, and press Enter.
The exceptions are displayed:

```

YYYY/MM/DD HH:MM:SS  ----- Display Exceptions  ----- Row 1 of 4
Option ==>          Scroll ==> PAGE
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 DSNESPCS  DSNESM68          0.001827          0.036026          13
-   SS01 DSNESPRR DSNESM68          0.001328          0.001503          13
-   SS01 DSNESPRR DSNESM68          0.000119          0.000122          0
-   SS01 DSNESPRR DSNESM68          0.007552          0.050455          41
***** Bottom of Data *****

```

Figure 97. Display Exceptions panel

2. To view the available line commands, specify a forward slash (/) next to an exception, and press Enter.

```

Exception Actions

9.  0-Objects      21. Q-Misc Stats
12. C-Calls       22. B-Buffer Pool Stats
16. S-SQL         28. P-Parallel Activity
18. A-Analyze     37. H-Host Variables
19. D-Delays      38. E-Cancel
20. L-Locks

Select a choice and press ENTER to continue

```

Figure 98. Display Exceptions line commands panel

Exceptions - fields (ISPF)

This topic describes the fields that display on the exceptions panel.

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)

Use the line commands on the exceptions panel to view more information about an exception.

Display exceptions - line commands**9. O - Objects**

Display object information.

12. C - Calls

Display statistics for SQL calls.

16. S - SQL

Display individual SQL statements.

18. 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.

19. D - Delays

Display delay events, counts, and delay times.

20. L - Locks

Display lock events and counts.

21. Q - Misc Stats

Display additional statistics.

22. B - Buffer Pool Stats

Display buffer pool usage statistics.

28. P - Parallel Activity

Display parallel activity information.

37. H - Host Variables

Display host variable information.

Call level statistics - line commands**16. S - Call Text**

Display the call text.

19. D - Delays

Display delay events, counts, and delay times.

20. L - Locks

Display lock events and counts.

21. Q - Misc Stat

Display additional statistics.

22. B - Buffer Pool Stats

Display buffer pool usage statistics.

37. 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.

39. C - SQLCA

Display the SQL communication area.

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 could be saved if the statement or call were to 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 that could be saved if the statement or call were to 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 could be saved if the statement or call were to 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 might run. 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 RollLm (ACPU Roll Limit)

The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly alert for CPU.

Number format

6 digits after the decimal place are shown. Values smaller than 6 digits after the decimal place (.000001) are shown as zeros.

Calculation

$ACPU\ RollLm = (StdDev\ CPU * Toleration\ Level\ for\ Alerts + RollAv\ CPU)$

Exception

The P (Db2 CPU Time anomaly detected) exception is triggered when Db2 CPU Time exceeds ACPU RollLm.

Offload table name

CQM_EXCEPTIONS

Column name

ACPU_ROLLLM

AElap RollLm (AElapsed Roll Limit)

The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly alert for elapsed time.

Number format

6 digits after the decimal place are shown. Values smaller than 6 digits after the decimal place (.000001) are shown as zeros.

Calculation

$AElap\ RollLm = (StdDev\ Elapsed * Toleration\ Level\ for\ Alerts + RollAv\ Elapsed)$

Exception

The L (Db2 Elapsed Time anomaly detected) exception fires when Db2 Elapsed becomes larger than AElap RollLm.

Offload table name

CQM_EXCEPTIONS

Column name

AELAP_ROLLLM

AGetpgs RollLm (AGetpages Roll Limit)

The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly alert for getpages.

Number format

2 digits after the decimal place are shown. Values smaller than 2 digits after the decimal place (.01) are shown as zeros.

Calculation

$AGetpgs\ RollLm = (StdDev\ Getpages * Toleration\ Level\ for\ Alerts + RollAv\ Getpages)$

Exception

The T (GETPAGE anomaly detected) exception fires when GETPAGES becomes larger than AGetpgs RollLm.

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
- 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

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 into 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

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 - RRSF (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 associated with the Db2 metrics data gathered by Db2 Query Monitor.

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

Cursor Name

The cursor name.

Offload table name

CQM_EXCEPTIONS

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 (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.

Number format

6 digits after the decimal place are shown. Values smaller than 6 digits after the decimal place (.000001) are shown as zeros.

Calculation

$E_{CPU} RollLm = (StdDev CPU * Toleration Level for Exceptions + RollAv CPU)$

Exception

The P (Db2 CPU Time anomaly detected) exception is triggered when Db2 CPU Time exceeds $E_{CPU} RollLm$.

Offload table name

CQM_EXCEPTIONS

Column name

E_{CPU_ROLLLM}

EElap 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.

Number format

6 digits after the decimal place are shown. Values smaller than 6 digits after the decimal place (.000001) are shown as zeros.

Calculation

$EElap RollLm = (StdDev Elapsed * Toleration Level for Exceptions + RollAv Elapsed)$

Exception

The L (Db2 Elapsed Time anomaly detected) exception fires when Db2 Elapsed exceeds $EElap RollLm$.

Offload table name

CQM_EXCEPTIONS

Column name

$EELAP_ROLLLM$

EGetpgs 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.

Number format

2 digits after the decimal place are shown. Values smaller than 2 digits after the decimal place (.01) are shown as zeros.

Calculation

$EGetpgs RollLm = (StdDev Getpages * Toleration Level for Exceptions + RollAv Getpages)$

Exception

The T (GETPAGE anomaly detected) exception fires when GETPAGES becomes larger than $EGetpgs RollLm$.

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 into 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 into 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

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 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

RollAv CPU

The value of the CPU rolling average at the time the exception was generated.

Number format

6 digits after the decimal place are shown. Values smaller than 6 digits after the decimal place (.000001) are shown as zeros.

Offload table name

CQM_EXCEPTIONS

Column name

CPU_ROLL_AVG

RollAv Elapsed

The value of the elapsed time rolling average at the time the exception was generated.

Number format

6 digits after the decimal place are shown. Values smaller than 6 digits after the decimal place (.000001) are shown as zeros.

Offload table name

CQM_EXCEPTIONS

Column name

ELAP_ROLL_AVG

RollAv Getpages

The value of the getpage rolling average at the time the exception was generated.

Number format

2 digits after the decimal place are shown. Values smaller than 2 digits after the decimal place (.01) are shown as zeros.

Offload table name

CQM_EXCEPTIONS

Column name

GETPGS_ROLL_AVG

Section

The section number.

Offload table name

CQM_EXCEPTIONS

Column name

SECTION

SP Creat

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.

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.

Anomaly detection - calculation and number format

Additional information about how anomaly detection information is calculated, displayed, and controlled.

Calculation of anomaly detection fields

The methods used for the calculation of anomaly detection fields are shown below.

ACPU RollLm (ACPU Roll Limit)

$ACPU\ RollLm = (StdDev\ CPU * Toleration\ Level\ for\ Alerts + RollAv\ CPU)$

AElap RollLm (AElapsed Roll Limit)

$AElap\ RollLm = (StdDev\ Elapsed * Toleration\ Level\ for\ Alerts + RollAv\ Elapsed)$

AGetpgs RollLm (AGetpages Roll Limit)

$AGetpgs\ RollLm = (StdDev\ Getpages * Toleration\ Level\ for\ Alerts + RollAv\ Getpages)$

ECPU RollLm (ECPU Roll Limit)

$ECPU\ RollLm = (StdDev\ CPU * Toleration\ Level\ for\ Exceptions + RollAv\ CPU)$

EGetpgs RollLm (EGetpages Roll Limit)

$EGetpgs\ RollLm = (StdDev\ Getpages * Toleration\ Level\ for\ Exceptions + RollAv\ Getpages)$

Number format for Elapsed, CPU, and Getpage fields

The following number format applies to the anomaly detection fields as described below:

- Db2 Query Monitor displays only 6 digits after the decimal place for Elapsed fields (RollAv Elapsed, EElap RollLm, AElap RollLm). If values are smaller than 6 digits after the decimal place (.000001) then zeros are displayed in these fields.
- Db2 Query Monitor displays only 6 digits after the decimal place for CPU fields (RollAv CPU, ECPU RollLm, ACPU RollLm). If values are smaller than 6 digits after the decimal place (.000001) then zeros are displayed in these fields.
- Db2 Query Monitor displays only 2 digits after the decimal place for Getpages fields (RollAv Getpages, EGetpgs RollLm, AGetpgs RollLm). If values are smaller than 2 digits after the decimal place (.01) then zeros are displayed in these fields.

Role of StdDev in the calculation of CPU Factor

Db2 Query Monitor uses 1e-06 precision for CPU and Elapsed display. Consequently, the calculating factor for $StdDev < 1.e-06$ is not practical because initial values already have this precision. Db2 Query Monitor therefore shows N/A for cases where the CPU Factor statistical error might be too large.

The same situation exists with Getpages calculation except with the 1e-02 precision.

Defining buckets for anomalies

The logic that Db2 Query Monitor uses to define the different buckets for anomalies includes the same list of fields as is used for metrics data (displayed on Operational Summaries panels).

If the same SQL statement occurs repeatedly in exceptions and appears as a false-positive conditions, then the SQL has different combinations of the fields and consequently occurs in different buckets.

To reduce the number of such exceptions, you can turn off OPTKEYS but be aware that there are fields in the list that are not controlled by OPTKEYS and therefore cannot be turned off

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.

```

YYYY/MM/DD HH:MM:SS ----- Buffer Pool Statistics ----- Row 1 of 16
Option ==> ----- Scroll ==> PAGE

DB2 SSID: QM01 Plan: DISTSERV DBRM: SYSLHXXX Coll: NULLID
Cursor: SQL_CURSOR1 Section: 1
Accel:

-----+
Buffer Pool: ALL Total Average
Buffer Pool Hit Ratio (%) N/A 69.77
Hiper Pool Hit Ratio (%) N/A 100.00
Get Page Requests 2,388 12.24
Buffer Pages Updated 180 0.92
Synchronous Pages Read 7 0.03
Synchronous Pages Written 0 0.00
Sequential Prefetch Requests 86 0.44
List Prefetch Requests 0 0.00
Dynamic Prefetch Requests 40 0.20
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 0 0.00
Async Pages Read by Hiper Pool 0 0.00
  
```

Figure 99. Buffer Pool Statistics panel

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:

```

YYYY/MM/DD HH:MM:SS ----- Call Level Statistics ----- Row 1 of 3
Option ==> ----- Scroll ==> PAGE

DB2 SSID: DB01 Plan: DSNESPCS DBRM: DSNESM68 Coll: DSNESPCS
Cursor: C1 Section: 1
Filters Enabled: N
CMD - Enter "/" to select action

----->
CMD STMT# DB2 CPU Time DB2 Elapsed GETPAGES SQLCODE SQL Calls
-----
- 197 0.000021 0.000021 0 0 1
- 183 0.000178 0.021624 2 0 1
- 190 0.000019 0.000019 0 0 1
- 116 0.001607 0.014360 11 0 1
***** Bottom of Data *****
  
```

Figure 100. Call Level Statistics panel

Viewing delay statistics for an exception

You can view delay statistics for any exception event.

Procedure

To view delay statistics for an exception:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the 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:

```
YYYY/MM/DD HH:MM:SS ----- Delay Statistics ----- Row 1 of 30
Option ==> ----- Scroll ==> PAGE

DB2 SSID: DB01 Plan: DISTSERV DBRM: SYSLH200 Coll: NULLID
Cursor: SQL_CURLH200C1 Section: 1
Accel:

-----
Delay Event                               Event Count    Delay Time
Lock or Latch Delays                      0              0.00000
Synchronous I/O Delays                    9              0.03431
  Database I/O Delays                      9              0.03431
  Log Write I/O Delays                     0              0.00000
Other Read Delays                         0              0.00000
Other Write Delays                         0              0.00000
Service Task Switch Delays                 0              0.00000
  Update Commit Delays                     0              0.00000
  Open/Close Delays                        0              0.00000
  SYSLGRNG Rec Delays                      0              0.00000
  EXT/DEL/DEF Delays                      0              0.00000
  Other Service Delays                     0              0.00000
Archive Log Quiesce Delays                 0              0.00000
Archive Log Read Delays                    0              0.00000
Drain Lock Delays                          0              0.00000
Claim Release Delays                       0              0.00000
Page Latch Delays                          0              0.00000
Stored Procedure Delays                    0              0.00000
UDF Schedule Delays                       0              0.00000
Notify Message Delays                     0              0.00000
Global Contention Delays                   0              0.00000
  L-Locks Parent (DB,TS,TAB,PART)          0              0.00000
  L-Locks Child (PAGE,ROW)                 0              0.00000
  L-Locks Other                            0              0.00000
  P-Locks Pageset/Partition                0              0.00000
  P-Locks Page                             0              0.00000
  P-Locks Other                            0              0.00000
Commit Phase 1 Write IO Delays             0              0.00000
Asynch CF Requests Delays                  0              0.00000
Total Delays                               9              0.03431
***** Bottom of Data *****
```

Figure 101. Delay Statistics panel

For a description of each statistic listed on this panel, see [“Delay statistics - fields \(ISPF\)”](#) on page 215.

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:

```

YYYY/MM/DD HH:MM:SS ----- Lock Related Statistics ----- Row 1 of 23
Option ==> ----- Scroll ==> PAGE

DB2 SSID: QM01    Plan: DSNTEP2    DBRM: DSN@EP2L  Coll:
Cursor:                               Section:      2
-----
Lock Deadlocks                0
Lock Suspensions              0
Lock Timeouts                 0
Latch Suspensions             0
Other Suspensions             0
Lock Requests                 155
Unlock Requests               8
Query Requests                0
Change Requests               0
Other Requests                0
Claim Requests                47
Claim Failures                0
Drain Requests                0
Drain Failures                0
XES Lock Requests             0
XES Change Requests           0
XES Unlock Requests           0
IRLM Global Resource Contention 0
XES Global Resource Contention 0
False Resource Contention     0
Incompatible Retain Lock      0
Shared Lock Escalations       0
Exclusive Lock Escalations    0
Lock Requests - PLOCKS        0
Change Requests - PLOCKS     0
Unlock Requests - PLOCKS      0
***** Bottom of Data ** ** *****

```

Figure 102. Lock Related Statistics panel

Viewing object statistics for an exception

You can view information about the objects related to an exception.

Procedure

To view object statistics for an exception:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 5, and press Enter.
2. On the **Display Exceptions** panel, issue line command O next to the exception of interest, and press Enter.

The **Object Statistics** panel displays object information:

```

YYYY/MM/DD HH:MM:SS ----- Object Statistics ----- Row 1 of 8
Option ==> ----- Scroll ==> PAGE
Filters enabled: N
DB2 SSID: SS01    Plan: PLAN0001  DBRM: DSNESM68  Coll: DSNESPCS
Cursor: C1                               Section:      0
CMD - Enter "/" to select action
-----
CMD Creator  Name                Type  DataBase  BPool  PageSet  GetPages
-----
- CREATR1   SYSSTMT            TABLE DATABS1  B04K00  SYSPLAN 1438
- CREATR1   SYSDBRM            TABLE DATABS1  B04K00  SYSPLAN 1
- CREATR2   PMSYSDBRM1         INDEX  DATABS1  B04K00  PMSYSDBR 2
- CREATR1   SPTR               TABLE DATABS2  B04K00  SPT01   5
- CREATR1   DSNSP01            INDEX  DATABS2  B04K00  DSNSP01  3
- N/A      N/A                TABLE DATABS3  B04K00  DSN4K01 180
- CREATR1   SYSPACKSTMT        TABLE DATABS4  B04K00  SYSPKAGE 464
- CREATR1   DSNKSX01           INDEX  DATABS5  B04K00  DSNKSX01 205
***** Bottom of Data *****

```

Figure 103. Object Statistics panel

You can use the following line commands as needed to view additional information about any listed object:

22. B-Buffer Pool Stats

Show buffer pool statistics for the selected item.

Viewing SQL text for an exception

You can view the SQL text for an exception.

Procedure

To view the SQL text for an exception

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 5, and press Enter.
2. On the **Display Exceptions** panel, specify the S line command next to the exception for which you want to view the SQL text.

The SQL text is displayed:

```
YYYY/MM/DD HH:MM:SS  ----- Display SQL Statement Text ----- Row N of N
Option  ==>  _____ Scroll ==> PAGE

DB2 SSID: DB01   Plan: PLAN0001      DBRM: ADBMAIN   Coll: ADBL
                Cursor:                Section:        0
-----
          DECLARE C1 SENSITIVE DYNAMIC SCROLL CURSOR FOR SELECT ROWID , COL2
          FROM QMTSTB01 . BILLION_FETCH
***** Bottom of Data *****
```

Figure 104. Display SQL Statement Text panel

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:

```
YYYY/MM/DD HH:MM:SS  ---- Input Host Variables ----- Row 1 of 3
Option  ==>  _____ Scroll ==> PAGE

DB2 SSID: R71C   Plan: DB2V7032   DBRM: DB2V7S01  Coll: DB2V7032
                Cursor: DYNAMIC1_CURSOR   Section:        1
----- >

Number  Type          Null  Length  Data
   1    CHARACTER      N      18    SYSTABLE%/%/%/%/%/%/%/%
                                     EEECCDC666666666666
                                     28231235CCCCCCCC
***** Bottom of Data *****
```

Figure 105. Input Host Variables panel

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
***** Bottom of Data *****

```

Figure 106. 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:

```

YYYY/MM/DD HH:MM:SS ----- Miscellaneous Statistics ----- Row 1 of 39
Option ==> ----- Scroll ==> PAGE
Filters Enabled: N
NAVI: DB2(ST):DB01
-----
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
SP Application Elapsed Time          0.000000
SP Application CPU Time              0.000000
SP DB2 Elapsed Time                 0.000000
SP 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
***** Bottom of Data *****

```

Figure 107. Miscellaneous Statistics panel

Working with monitoring agents

Set up a monitoring agent to be used by your Query Monitor subsystem to collect data about your monitored Db2 subsystems.

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.

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 lines 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.

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 286](#)
- [“Deactivating a monitoring agent” on page 286](#)
- [“Changing a monitoring profile” on page 287](#)
- [“Refreshing a monitoring profile” on page 287](#)
- [“Viewing a monitoring profile” on page 288](#)
- [“Using the MODIFY command” on page 288](#)

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.

```
----- Activate Monitoring Agent -----
Option  ===> -----

The following monitoring agent will be activated on the QM01 QM

DB2 Subsystem ..... SS01
Profile Name .....          (Leave blank for
                             no monitoring profile or
                             enter "?" for a list of
                             profiles)

Press Enter to activate agent or PF3/CANCEL to exit
```

Figure 108. 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.

```

----- Deactivate Monitoring Agent -----
Option  ===>  -----
The monitoring agent will be deactivated for DB2 SS01

Press Enter to de-activate agent or PF3/CANCEL to exit

```

Figure 109. Deactivate Monitoring Agent panel

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.

```

----- Change Monitoring Profile -----
Option  ===>  -----
Enter new monitoring profile name for QM01

Old Profile Name ..... MPROF1
New Profile Name .....          (Enter '?' for a list
                                of monitoring profiles,
                                or leave blank for
                                no profile)

Press Enter to change monitoring profile or PF3/CANCEL to exit

```

Figure 110. Change Monitoring Agent panel

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.

```

----- Refresh Monitoring Profile -----
Option  ===>  -----
The following monitoring profile will be refreshed for QM01
Profile Name ..... MPROF2

Press Enter to refresh monitoring profile or PF3/CANCEL to exit

```

Figure 111. Refresh Monitoring Profile panel

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.

```
----- View Monitoring Profile -----
Option  ===> _____
Profile Name ..... MPROF1
Updated Timestamp..... DD/MM/YYYY   HH:MM:SS
Exclude QM Plans (Y/N)  Y
QM Plan#1  CQM*      QM Plan#2          QM Plan#3
Press Enter to view profile or PF3/CANCEL to exit
```

Figure 112. View Monitoring Profile panel

3. Press Enter.

The **View Monitoring Profile** panel is displayed:

```
YYYY/MM/DD HH:MM:SS  ----- View Monitoring Profile -----  Row 1 of 1
Option  ===>                                     Scroll ===> PAGE
Profile Name: PROF1

C:V-View
----->
CMD  INCL\EXCL  SSID  Plan      Program  AUTHID  JOBNAME  CONN  CORRID
-   -   -   -   -   -   -   -   -   -
_   I   *   *   *   *   *   *   *
***** Bottom of Data *****
```

Figure 113. View Monitoring Profile panel

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*).

MODIFY/F *cqmtaskname*,MONITOR

Restarts monitoring after being in NOMON mode for the specified monitoring agent (*cqmtaskname*).

Working with monitoring profiles in ISPF

Set up monitoring profiles to tailor how Db2 Query Monitor monitors specific workloads.

Topics:

- [“Monitoring profiles - columns and fields \(ISPF\)” on page 289](#)
- [“Viewing a monitoring profile in ISPF” on page 300](#)
- [“Creating a monitoring profile in ISPF” on page 300](#)
- [“Creating and updating monitoring profile lines in ISPF” on page 301](#)
- [“Updating a monitoring profile in ISPF” on page 308](#)
- [“Renaming a monitoring profile in ISPF” on page 308](#)
- [“Deleting a monitoring profile in ISPF” on page 309](#)
- [“Monitoring profile workflows” on page 309](#)
- [“Applying a monitoring profile to a monitoring agent ” on page 312](#)

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

Monitoring profiles - columns and fields (ISPF)

Information about each monitoring profile is displayed on the **View Monitoring Profile** panel, **Update Monitoring Profile** panel, **View Profile Line** panel, **Insert Profile Line** panel, and **Update Profile Line** panel.

AUTHID

The primary authorization ID.

Column name on View Profile panel

AUTHID

Collect Dynamic SQL

Indicates whether data is collected for dynamic SQL for the workload.

Column name on View Profile panel

COLLDSQL

Collect Object Data

Indicates whether 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.

Column name on View Profile panel

OBJECTS

Collect Static SQL

Indicates whether data is collected for static SQL for the workload.

Column name on View Profile panel

COLLSSQL

Collect Summary Positive SQLCODEs

Indicates whether positive SQLCODEs are processed in addition to negative SQLCODEs for the SQL code summaries. This column is only checked for profile include lines.

Column name on View Profile panel

SPOSSQLC

Connection ID

The connection ID.

Column name on View Profile panel

Conn

CORRID

The correlation ID.

Column name on View Profile panel

Corrid

CORRNAME

The correlation ID adjusted by the conventions used by IMS and CICS.

Column name on View Profile panel

CORRNAME

Creator

The user ID that created the monitoring profile.

Column name on View Profile panel

not applicable

Creator

The user ID that created the monitoring profile.

Created

The date and time the monitoring profile was created.

DB2 Subsystem

The Db2 subsystem.

Column name on View Profile panel

SSID

Disable Summary Reporting

Indicates whether 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 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 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 Getpages Objects

Enables you to toggle switch the display of the **Alert GETPAGE Inclusion List** panel. Valid values are **N** (DEFAULT - No) and **Y** (Yes - the **Alert GETPAGE Inclusion List** panel is displayed upon exit (PF3) to allow entry or update of GETPAGE objects).

Note: If Include or Exclude SQLCODES are also selected as **Y**, then the entry panels will display before the **Alert GETPAGE Inclusion List** panel.

Include Summary SQLCODES

Indicates whether 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 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, RRSF, 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, RRSF** - 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.

Column name on View Profile panel

OPTJOBNM

OPTKEYS(PARALLEL)

The PARALLEL parameter reduces collected information down to the level of individual queries that are formulated using Db2 query parallelism.

Column name on View Profile panel

OPTPARLL

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.

Column name on View Profile panel

OPTPTEXT

OPTKEYS(SCHEMA)

The SCHEMA parameter reduces collected information down to the level of the individual Db2 Special Register Current SCHEMA value.

Column name on View Profile panel

OPTSCHEM

OPTKEYS(SP)

The SP parameter reduces collected information down to the level of the individual stored procedure value.

Column name on View Profile panel

OPTSP

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.

Column name on View Profile panel

OPTTEXT

OPTKEYS(WSNAME)

The WSNAME parameter reduces collected information down to the level of the individual workstation name.

Column name on View Profile panel

OPTWSNAME

OPTKEYS(WSTRAN)

The WSTRAN parameter reduces collected information down to the level of the individual workstation transaction.

Column name on View Profile panel

OPTWSTRAN

OPTKEYS(WSUSER)

The WSUSER parameter reduces collected information down to the level of the individual workstation user ID.

Column name on View Profile panel

OPTWSUSER

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.

Column name on View Profile panel

OPTKEYS

Override SQL Collection

Indicates whether 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.

Column name on View Profile panel

OVRDPRMS

Plan Name

The Db2 plan name.

Column name on View Profile panel

Plan

Program Name

The Db2 package or DBRM name.

Column name on View Profile panel

Program

QM Plans

Indicates whether 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.

Column name on View Profile panel

WORKLOAD NAME

Workstation Name

The workstation name.

Column name on View Profile panel

WSNAME

Workstation Trans

The workstation transaction.

Column name on View Profile panel

WSTRAN

Workstation User

The workstation user.

Column name on View Profile panel

WSUSER

Alerts

Threshold Alerts

Indicates whether threshold-based alerts are generated for the specified CPU time, elapsed time, number of getpages, and number of 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.

Note: You must specify Y in the **Threshold Alerts** field to enable **Alert SQL Calls**.

Column name on View Profile panel

ASQLCALLS

Anomaly-based Alerts

Anomaly-based Alerts - CPU Anomalies

Indicates whether to generate alerts for CPU anomalies.

Column name on View Profile panel

ACPUANM

Anomaly-based Alerts - CPU Anomalies - Toleration Level

Indicates the tolerance value that specifies the number of standard deviation units over the rolling average CPU time 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 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

AELAPTOL

Offload table name

CQM_EXCEPTIONS

Offload column name

DB2_ELAP_TIME_PROF_ALRT_TOLER

Anomaly-based Alerts - Getpage Anomalies

Indicates whether 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 SQLCODES generate alerts. Valid values are **Y** (SQLCODES generate alerts) and **N** (SQLCODES do not generate alerts).

Notes:

- 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 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

SQLCALRTS

Include Alert SQLCODEs

Indicates whether to specify a list of SQLCODES to include in alert processing. Valid values are **Y** (shows the inclusion SQLCODE list panel where the user can specify a list of SQLCODES to include in alert processing) and **N** (DEFAULT – do not specify SQLCODES to include in alert processing).

Column name on View Profile panel

ASQLCODEI

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).

Column name on View Profile panel

ELIMIT

Threshold Exceptions

Indicates whether threshold-based exceptions are generated for the specified CPU time, elapsed time, number of getpages, and number of SQL Calls.

Column name on View Profile panel

ETHRSHLD

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.

Column name on View Profile panel

EPCU

Exception Elapsed

The Db2 elapsed time that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes these 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.

Column name on View Profile panel

EELAPSED

Exception Getpages

The number of getpages that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes these 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.

Column name on View Profile panel

EGETPAGES

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.

Column name on View Profile panel

ESQLCALLS

Anomaly-based Exceptions**Anomaly-based Exceptions - CPU Anomalies**

Indicates whether to generate exceptions for CPU anomalies.

Column name on View Profile panel

ECPUANM

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 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 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 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).

Notes:

- 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 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

SQLCXCPS

Include Exception SQLCODEs

Indicates whether 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 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**.

Notes:

- 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 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 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 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

Viewing a monitoring profile in ISPF

You can view an existing monitoring profile without making any updates.

Procedure

To view a monitoring profile in ISPF:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 8, and press Enter.
2. On the **Monitoring Profiles** panel, issue the **V** line command next to the monitoring profile that you want to view.
3. On the **View Monitoring Profile** pop-up panel, press Enter:

```
----- View Monitoring Profile -----
Option  ===> _____
Profile Name ..... MPROF1
Exclude QM Plans from Exceptions, Alerts,
and Current Activity (Y/N)  Y
QM Plan#1  CQM*      QM Plan#2      QM Plan#3

Press Enter to view profile or PF3/CANCEL to exit
```

Figure 114. **View Monitoring Profile** pop-up panel

The profile is displayed on the **View Monitoring Profile** panel:

```
YYYY/MM/DD HH:MM:SS ----- View Monitoring Profile ----- Row 1 of 1
Option  ===> _____ Scroll ===> CSR
Profile Name: MPROF1

C:V-View
----->
CMD  INCL\EXCL  SSID  Plan      Program  AUTHID  JOBNAME  CONN  CORRID
-    -         -    -        -        -        -        -    -
_    I         *    *        *        *        *        *    *
***** Bottom of Data *****
```

Figure 115. **View Monitoring Profile** panel

4. To view any monitoring profile lines, use the V line command. See [“Creating and updating monitoring profile lines in ISPF”](#) on page 301.

Creating a monitoring profile in ISPF

Create a monitoring profile for each Db2 subsystem or data sharing group that you want to monitor.

Procedure

To create a monitoring profile:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 8, and press Enter.
2. On the **Monitoring Profiles** panel, type **CREATE** on the command line, and press Enter.
3. On the **Create Monitoring Profile** pop-up panel, specify the profile name and optionally any QM plans to excludes from exceptions, alerts, and current activity, and press Enter.

```

----- Create Monitoring Profile -----
Option  ==> -----
Profile Name ..... -----
Exclude QM Plans (Y/N)  N
QM Plan#1 -----   QM Plan#2 -----   QM Plan#3 -----

Press Enter to create profile or PF3/CANCEL to exit

```

Figure 116. **Create Monitoring Profile** pop-up panel

If you want to exclude QM plans, set **Exclude QM Plans** to Y and then specify up to three plan patterns to identify the plans that you want to exclude; you can specify wildcards.

4. On the **Create Monitoring Profile** panel, add your monitoring profile lines.

```

YYYY/MM/DD HH:MM:SS ----- Create Monitoring Profile ----- Row 1 of 1
Option  ==>                                           Scroll ==> PAGE
Profile Name: MONPR1

C:I-Insert,U-Update,R-Repeat,D-Delete,C-Copy,M-Move,A-After,B-Before
-----
CMD   WORKLOAD NAME                INCL\EXCL SSID Plan      Program
-----
--           I      *      *      *
***** Bottom of Data *****

```

Figure 117. **Create Monitoring Profile** panel

Each profile line can define the inclusion or exclusion of specific workloads from summary reporting, exception processing, and alert processing. The sequence of these lines determines the order in which Db2 Query Monitor looks for a match and, if found, includes or excludes activity information.

To insert a monitoring profile line, use the I line command; see [“Adding a monitoring profile line in ISPF” on page 302](#).

Use the other line commands to edit the profile lines as needed; see [“Creating and updating monitoring profile lines in ISPF” on page 301](#)

5. When you are done entering all of your monitoring profile lines, exit the panel (PF3) to save your new monitoring profile.

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

[“Working with monitoring agents” on page 285](#)

Set up a monitoring agent to be used by your Query Monitor subsystem to collect data about your monitored Db2 subsystems.

Creating and updating monitoring profile lines in ISPF

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.

Before you begin

This procedure assumes that you are already in the process of creating or updating your monitoring profile and the **Create Monitoring Profile** panel or **Update Monitoring Profile** panel is displayed. If one of these panels is not displayed, follow the instructions in [“Creating a monitoring profile in ISPF” on page 300](#) or [“Updating a monitoring profile in ISPF” on page 308](#).

Procedure

To create and update monitoring profile lines:

1. On the **Create Monitoring Profile** panel or the **Update Monitoring Profile** panel, use line commands to perform the following actions:

Insert a new monitoring profile line

Use the I line command; see [“Adding a monitoring profile line in ISPF” on page 302](#).

Update a monitoring profile line

Use the U line command. For help with any of the fields or the subsequent panels that might be displayed depending on your selections, see [“Adding a monitoring profile line in ISPF” on page 302](#).

Duplicate a monitoring profile line

Use the R line command. This command repeats the monitoring profile line below the original. After the duplicate line is created, you can update it as needed.

If you need to create several monitoring profile lines that are similar, the R command helps you create these lines more efficiently.

Delete a monitoring profile line

Use the D line command.

Copy a monitoring profile line

Use the C line command as follows:

- a. Type **C** next to the profile line you want to copy.
- b. Type **A** (after) or **B** (before) next to the line before or after which you want to insert the copied profile line.
- c. Press Enter. The profile line is copied into the appropriate location and can now be updated as needed.

Copying enables you to quickly reproduce a profile line and then update it as necessary.

Note: If your profile has only one profile line and you want to duplicate it, do not use the copy command. Instead, use the **R** (repeat) line command.

Move a monitoring profile line

Use the M line command as follows:

- a. Type **M** next to the profile line you want to move.
- b. Type **A** (after) or **B** (before) next to the line before or after which you want to move the selected profile line.
- c. Press Enter. The profile line is moved into the appropriate location.

Moving a monitoring profile line enables you to alter the order in which these lines in a monitoring profile are processed and in turn the way the profile influences the reporting of captured activity.

For more information about each of these line commands, use the online help (PF1).

2. When you are done editing your monitoring profile line, exit the panel (PF3) to save your changes.

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

Adding a monitoring profile line in ISPF

Add a monitoring profile line to a new or existing monitoring profile to define an SQL workload that you want to monitor.

Before you begin

This procedure assumes that you are already in the process of creating or updating your monitoring profile and the **Create Monitoring Profile** panel or **Update Monitoring Profile** panel is displayed. If one of these

panels is not displayed, follow the instructions in [“Creating a monitoring profile in ISPF” on page 300](#) or [“Updating a monitoring profile in ISPF” on page 308](#).

Procedure

To add a monitor profile line:

1. On the **Create Monitoring Profile** panel or the **Update Monitoring Profile** panel, issue the I line command to insert a new profile line, and press Enter.

The **Insert Profile Line** panel displays the options for the profile line.

----- Insert Profile Line for USERA -----
Option ===> _____ Scroll ===> CSR
More: +

Workload Filter
INCLUDE/EXCLUDE I (I=Include, E=Exclude)
Disable Summary Reporting N (Y/N) Gather Host Variables Y (Y/N)
DB2 Subsystem *_____ Plan Name *_____

Program Name *_____

AUTHID *_____ JOBNAME *_____

Connection ID *_____ CORRID *_____

CORRNAME *_____

Workstation User *_____

Workstation Trans *_____

Workstation Name *_____

Workload Name _____

Exceptions
Exception Limit 0 _____
(zero means do not process this profile line for exceptions)
Threshold Exceptions N (Y/N)
Exception CPU 00 : 00 : 00 . 000000
Exception Elapsed 00 : 00 : 00 . 000000
Exception Getpages 0 _____
Exception SQL Calls 0 _____

Anomaly-based Exceptions
CPU Anomalies N (Y/N) Toleration Level 6.0 _____
Elapsed Anomalies N (Y/N) Toleration Level 6.0 _____
Getpage Anomalies N (Y/N) Toleration Level 6.0 _____

Generate SQLCODE Exceptions Y (Y/N)
Include Exception SQLCODEs N (Y/N)
Exclude Exception SQLCODEs N (Y/N)
Collect Exception Positive SQLCODEs N (Y/N)

Alerts
Threshold Alerts N (Y/N)
Alert CPU 00 : 00 : 00 . 000000
Alert Elapsed 00 : 00 : 00 . 000000
Alert Getpages 0 _____
Alert SQL Calls 0 _____

Anomaly-based Alerts
CPU Anomalies N (Y/N) Toleration Level 6.0 _____
Elapsed Anomalies N (Y/N) Toleration Level 6.0 _____
Getpage Anomalies N (Y/N) Toleration Level 6.0 _____

Generate SQLCODE Alerts N (Y/N)
Include Alert SQLCODEs N (Y/N)
Exclude Alert SQLCODEs N (Y/N)
Collect Alert Positive SQLCODEs N (Y/N)
Include Getpage Objects N (Y/N)

Discard Above (sigmas)
CPU Discard Level 12.0 _____
Elapsed Discard Level 12.0 _____
Getpage Discard Level 12.0 _____

Summaries
Include Summary SQLCODEs N (Y/N)
Exclude Summary SQLCODEs N (Y/N)
Collect Summary Positive SQLCODEs N (Y/N)

Ignore positive SQLCODE 100 for Read Activity Y (Y/N)

Optional Keys
Override OPTKEYS N (Y/N)
OPTKEYS(TEXT) N (Y/N)
OPTKEYS(AUTHIDS) N (Y/N)
OPTKEYS(CORRID) N (Y/N)
OPTKEYS(CORRNAME) N (Y/N)
OPTKEYS(CORRNUM) N (Y/N)
OPTKEYS(WSUSER) N (Y/N)
OPTKEYS(WSTRAN) N (Y/N)
OPTKEYS(WSNAME) N (Y/N)
OPTKEYS(CALLS) N (Y/N)
OPTKEYS(PTEXT) N (Y/N)
OPTKEYS(SCHEMA) N (Y/N)
OPTKEYS(CONNTYPE) N (Y/N)
OPTKEYS(CONNNAME) N (Y/N)
OPTKEYS(SP) N (Y/N)
OPTKEYS(JOBNAME) N (Y/N)
OPTKEYS(PARALLEL) N (Y/N)

Misc Collection
IBM Db2 Object Monitor for z/OS (Y/N)
Override SQL Collection N (Y/N)
Collect Static SQL Y (Y/N)
Collect Dynamic SQL Y (Y/N)

2. Specify the following information on this panel:

- In the **INCLUDE/EXCLUDE** field, Specify whether this profile line is to include (I) or exclude (E) matching SQL activity from Db2 Query Monitor processing.

The **INCLUDE/EXCLUDE** value does not affect summaries unless the **Disable Summary Reporting** parameter is set to Y. Therefore, if you do not include a Db2 subsystem for monitoring, you might still see activity for that subsystem when viewing activity summaries [option 1 from the **IBM DB2 Query Monitor for z/OS** panel (the main menu)].

- Identify the SQL activity to 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**
 - **Workload Name**

Note: You can use wildcard specifications in these fields to identify the workload.

- Identify what you want Db2 Query Monitor to do with SQL activity that matches the specified workload criteria 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**
 - **Exclude Alert SQLCODEs**
- Indicate whether you want to override OPTKEYS in the **Override OPTKEYS** field. If you specify Y, specify which OPTKEYS you want to override in the **OPTKEYS(n)** fields.
- Specify what you want Db2 Query Monitor to do with positive SQL codes by specifying values in the following fields:
 - **Collect Exception Positive SQLCODEs**

- **Collect Alert Positive SQLCODEs**
- **Ignore SQLCODE 100 for Read Activity**
- Indicate whether to exclude SQLCODEs from processing by using the following fields:

Exclude Alert SQLCODES

Excludes the specified SQLCODEs from alert processing

Exclude Exception SQLCODES

Excludes the specified SQLCODEs from exception processing

Exclude Summary SQLCODES

Excludes the specified SQLCODEs from summary processing

If you specify Y in any of these fields, you will be able to enter the specific SQLCODEs that you want to exclude after you complete this panel and press Enter.

Otherwise, if you do not explicitly specify SQLCODEs to exclude from Db2 Query Monitor processing, every negative SQLCODE is treated as an exception.

- Indicate whether to explicitly include some SQLCODEs by using the following fields:

Include Alert SQLCODES

Includes only the specified SQLCODEs in alert processing

Include Exception SQLCODES

Includes only the specified SQLCODEs in exception processing

Include Summary SQLCODES

Includes only the specified SQLCODEs in summary processing

If you specify Y in any of these fields, only the explicitly specified codes are collected, and only if they are not in the exclusion list. You will be able to enter the specific SQLCODEs that you want to exclude after you complete this panel and press Enter.

- Indicates whether to generate an alert on the collection side when the number of GETPAGES exceeds the threshold set for the object by specifying a Y or N in the **Include Getpages Objects** field.

3. After you enter all of your options on the **Insert Profile Line** panel, press Enter.

If you specified Y in any of the following fields, the indicated panel is displayed:

<i>Table 39.</i>	
Field for which you specified Y	Panel that is displayed
Include Exception SQLCODES	Exception SQLCODE Inclusion List panel
Include Alert SQLCODES	Alert SQLCODE Inclusion List panel
Include Summary SQLCODES	Summary SQLCODE Inclusion List panel
Include Getpages Objects	Alert GETPAGES Inclusion List panel
Exclude Exception SQLCODES	Exception SQLCODE Exclusion List panel
Exclude Alert SQLCODES	Alert SQLCODE Exclusion List panel
Exclude Summary SQLCODES	Summary SQLCODE Exclusion List panel

Otherwise, the **Create Monitoring Profile** panel or **Update Monitoring Profile** panel is displayed.

- 4. If an **SQLCODE Inclusion List** panel or **SQLCODE Exclusion List** panel is displayed, type the SQLCODEs that you want to include or exclude from Db2 Query Monitor processing in the blank fields.

```

--- Exception SQLCODE Exclusion List --- YYYY/MM/DD HH:MM:SS
Option ==> Scroll ==> PAGE
Profile Name: PROF1

C:I-Insert,R-Repeat,D-Delete,C-Copy,M-Move,B-Before,A-After
-----
***** Bottom of Data *****

```

Figure 119. Exception SQLCODE Exclusion List panel

Tip: 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.

You can also use the following line commands to add, delete, repeat, and move entire rows. For help with any of these line commands, see the online help (PF1).

When you are finished specifying SQLCODEs, exit (PF3) the panel to save your specifications. If another **SQLCODE Inclusion List** panel or **SQLCODE Exclusion List** panel is displayed, repeat this step.

5. If the **Alert GETPAGES Inclusion List** panel is displayed, enter or update the Db2 objects (tables or into indexes) to include in QM alert processing.

```

Row 1 of 1          --- Alert GETPAGES Inclusion List --- YYYY/MM/DD HH:MM:SS
Option ==> Scroll ==> CSR
Profile Name: USERA

C:I-Insert, D-Delete, R-Repeat, U-Update
-----
CMD  THRESHOLD      OWNER NAME      OBJECT NAME
---  -
--

```

Figure 120. Alert GETPAGES Inclusion List panel

Use the I (insert) and U (update) line commands to add and update objects. If you want to add an object that is very similar to an existing object, use the R (repeat) line command to duplicate that line and then edit it.

All three of these line commands display the Object Entry panel, where you can specify or update the threshold value and object name:

```

----- Action: INSERT -----
---- Enter INCLUDED Threshold, Object Owner, and Object Name ----
Option ==>

Threshold

DB2 Object Owner
-----

DB2 Object Name
-----

```

Figure 121. Object Entry panel

For detailed information about the fields on this panel fields, see the online help (PF1). Press Enter to save your changes on the Object Entry panel.

When you are done specifying objects on the **Alert GETPAGES Inclusion List** panel, exit (PF3) the panel to save your changes.

If a **SQLCODE Inclusion List** panel or **SQLCODE Exclusion List** panel is displayed, complete step “4” on page 306.

Updating a monitoring profile in ISPF

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

To update a monitoring profile in ISPF:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 8, and press Enter.
2. On the **Monitoring Profiles** panel, issue the **U** line command next to the monitoring profile that you want to update.
3. On the **Update Monitoring Profile** pop-up panel, optionally edit the **Exclude QM Plans**, **QM Plan#1**, **QM Plan#2**, and **QM Plan#3** fields as necessary. Then, press Enter.

```
----- Update Monitoring Profile -----
Option  ===> -----
Profile Name ..... MONPR1
Exclude QM Plans from Exceptions, Alerts,
and Current Activity (Y/N)   N
QM Plan#1  -----   QM Plan#2  -----   QM Plan#3  -----

Press Enter to update profile or PF3/CANCEL to exit
```

Figure 122. Update Monitoring Profile panel

4. On the **Update Monitoring Profile** panel, update the monitoring profile lines as needed. See “Creating and updating monitoring profile lines in ISPF” on page 301.

```
YYYY/MM/DD HH:MM:SS  ----- Update Monitoring Profile -----  Row 1 of 1
Option  ===>                                           Scroll ===> PAGE
Profile Name: MONPR1

C:I-Insert,U-Update,R-Repeat,D-Delete,C-Copy,M-Move,B-Before,A-After
----->
CMD   WORKLOAD NAME                INCL\EXCL  SSID Plan      Program
----->
      -                          -      *   *       *
***** Bottom of Data *****
```

Figure 123. Update Monitoring Profile panel

5. Exit the panel (PF3) to save your changes.
6. If the monitoring profile is in use, refresh it to implement your changes. See “Refreshing a monitoring profile” on page 287.

Renaming a monitoring profile in ISPF

You can rename an existing monitoring profile.

Procedure

To rename a monitoring profile in ISPF:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 8, and press Enter.
2. On the **Monitoring Profiles** panel, issue the **R** line command next to the monitoring profile that you want to rename.
3. On the **Rename Monitoring Profile** pop-up panel, specify the new profile name in the **New Profile Name** field.

The name can be up to 8 characters.

```

----- 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 124. Rename Monitoring Profile panel

4. Press Enter to confirm the renaming of the monitoring profile.

Deleting a monitoring profile in ISPF

Before you delete an existing monitoring profile, ensure that it is no longer being used.

Procedure

To delete a monitoring profile in ISPF:

1. On the **IBM DB2 Query Monitor for z/OS** panel (the main menu), specify option 8, and press Enter.
2. On the **Monitoring Profiles** panel, issue the **D** line command next to the monitoring profile that you want to delete.
3. Press Enter to confirm the deletion of the monitoring profile and return to the **Monitoring Profiles** panel.

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 (that is, 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 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 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**)

Notes:

- 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. Sort Exceptions based on Standard Deviation Factor for Exception Values.
The Standard Deviation Factor is the number of Stand Deviations the Exception Value is from the Mean.
7. Determine what values are anomalous and determine an acceptable value for Standard Deviation Factor.
8. 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.
9. Set Tolerance Level appropriately based on the Standard Deviation Factor.
10. If insufficient exceptions are generated in the given timeframe, 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 5. Using CAE components

Find information about Db2 Query Monitor CAE components.

CAE browser client overview

Use the CAE browser client to access browse query activity in Db2 Query Monitor, view alerts, and configure actions and responses using your browser.

Topics:

- [“About the CAE browser client” on page 313](#)
- [“Home” on page 316](#)
- [“CAE logs” on page 316](#)

About the CAE browser client

Use the CAE browser client to browse query activity, view alerts, and configure actions and responses.

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, proactively generate new alerts, and correlate alerts.

The following four alerts are triggered by threshold values controlled by profiles:

- GetPageCountExceededProblem
- SqlCallCountExceededProblem
- SqlCpuProblem
- SqlElapsedTimeProblem

Other alerts are triggered by a change in status of a Query Monitor subsystem or CAE agent, and still others are triggered by analysis of the threshold events. Analytical events have thresholds that are configured by monitored information types (MITs) and by monitoring configurations. The CAE also executes automated response analysis, executing user-defined actions in response to user-defined event scenarios.

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, Corname, 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, Corname, 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.

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 317](#)
- [“Viewing messages” on page 317](#)
- [“Working with message boards” on page 320](#)

About the blackboard

The blackboard is a component of the CAE that interacts with the CAE server and the CAE browser client.

In Db2 Query Monitor, the 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 sets 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 these 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.

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 323](#)
- [“Viewing and navigating activity” on page 324](#)
- [“Workload comparison” on page 330](#)

- [“General tasks” on page 333](#)
- [“Application Menu” on page 334](#)

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** drop-down 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 341](#).

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 341](#).

Run (button)

Applies the Source, Target, Interval, Filter, Views, and Perspective selections you have made and refreshes the data table.

Use target time zone (checkbox)

Select the checkbox to adjust the timestamps in tables and interval dialogs according to the chosen target. Note that Archive Connections are not included in the determination of the timestamp. Additionally, all other timestamps remain in the local time zone.

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 drop-down 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** drop-down 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 drill down, 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 drill down path.

Compare (toggle button)

The **Compare** toggle button shows/hides a set of drop-downs 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 drill down path taken to the current data table display. You can click on the links in the navigation path to display prior drill down 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 334](#).

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 drill down 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 on 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 navigation (for example, using the browser 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**.

The requested metrics are displayed in a data table. For a description of any column in the table, hover over the column header to display a tooltip with the column description.

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 drop-down, 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.

500

Returns the top 500 results.

1000

Returns the top 1000 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 on 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, 200, 500 or 1000).
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 the 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 the 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 the 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 drill down commands. You can use these drill down 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 will 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

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 are 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 values 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 334](#).

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 Db2 subsystems.

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 subsystem 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 tab. 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 subsystem 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.

6. Specify table information.

- 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 that 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 that 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 336](#).

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 that 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 that 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 connections.
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 drop-down

Shows a history of custom view 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 drill downs

Follow these steps to add custom views that apply to specific drill downs.

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 drill down paths.

Note: Custom views for specific drill down 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** drop-down box to select the drill down 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 drill down, 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 drill down paths, use the **Specific Drilldown View** drop-down box to select the next view and specify your custom settings for that view. Repeat as needed until you have specified all the specific drill down 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 that you want to delete.
3. Click **Delete**.

Setting a custom view as the default

Follow these steps to set a custom view as the default. When you set a custom view as the 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 that 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 that 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 339](#) or [“Adding custom views for specific drill downs” on page 339](#).

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 that 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 that 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 specify the intervals for which you want to view data in the CAE Activity Browser.

Procedure

To select intervals:

1. From any window within the CAE browser client, click the **Application Menu** icon  in the upper right corner and click **Select Intervals**.

The **Intervals Dialog** displays the available intervals.

Tip: If you want to include empty intervals, select the **Show Empty Intervals** checkbox. *Empty intervals* are those that contain no SQL calls, CPU time, Db2 commands, or exceptions.

2. To select one or more intervals, check the corresponding box in the **Sel** column.
3. If you want to stop the current interval and start a new interval for the selected subsystem, click the **Snap intervals** button.

This action is equivalent to issuing the **F cqmtaskname, INTERVAL** operator command to force the specified Query Monitor subsystem task to snap an interval.

Intervals Dialog

Use the **Intervals Dialog** in CAE to select the intervals that you want to use to view Db2 Query Monitor data.

This window has the following columns:

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.

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 are 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. Uncheck 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 (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 become outdated. For this reason, sometimes you might want to empty the cache of SQL codes so the CAE server can load 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 workload tuning tools 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.

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.

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 query workload tuning tool 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 query workload tuning tool.

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 query workload tuner before you attempt to tune an SQL statement or workload from the CAE browser client.

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 workload tuner 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 350](#).
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 query workload tuning tool you want to use to tune your SQL queries.
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

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 query workload tuning tool 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 350](#).
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 query workload tuning tool you want to use to tune your SQL queries.
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 350.
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 of host variables are running Db2 Version 11 or 12.
- You have the proper authority to use this feature.
- 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.
- 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 351](#).

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.
- You can access collected host variable samples through the Manage Workloads dialog, where you can review what has been collected so far and remove any samples you no longer need. For more information, see [“Managing workloads” on page 354](#).

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 drill down 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 354](#).

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 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 query workload tuning tool 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.
 - 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 390.

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 query workload tuning tool.

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 352](#).

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 351](#).
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.

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.

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**.

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**.

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**.

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 355](#)
- [“Scopes” on page 359](#)
- [“Responses” on page 365](#)
- [“Custom launch” on page 369](#)
- [“Monitoring” on page 370](#)
- [“Monitoring overrides” on page 371](#)
- [“MITs” on page 373](#)
- [“Action schedules” on page 375](#)
- [“Optional alert keys” on page 377](#)
- [“QM subsystems management” on page 378](#)
- [“OMEGAMON integration” on page 389](#)
- [“Truststore configuration” on page 390](#)

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 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 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 362](#).

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 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 368](#).

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:

- An event is posted
- An event is acknowledged
- An acknowledged event is unacknowledged
- An 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 358.
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 377](#).
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 365.

- 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 366.

Custom launch

Custom launch menu choices are available in pop-up menus when you right-click a domain element 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.

Apply

When editing a custom launch, enables you to apply all changes you have made.

Revert

When editing a custom launch, enables you to back out of any changes you have made and restore to the last saved version of the custom launch (or cancels if you are editing a new custom launch that has not been saved).

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 Browserpage 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 override 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 drop-down option **These Domains** and select one or more individual domains to which the override will be restricted. If you select the **These Domains** drop-down 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 drop-down option **These Domains** and select one or more individual domains to which the override will be restricted. If you select the **These Domains** drop-down 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. This 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 into 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 type 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 type 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 exceed 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.

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 in CAE to work with monitoring profiles and monitoring agents for all of your Query Monitor subsystems.

Creating a monitoring profile in CAE

Create a monitoring profile for each Db2 subsystem or data sharing group that you want to monitor. You can create these profiles in ISPF or CAE.

Procedure

To create a monitoring profile in CAE:

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 lines as needed.
8. Click **OK**.

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

[“Viewing and creating monitoring profiles - columns and fields \(CAE browser client\)” on page 381](#)

The following columns and fields are available for working with monitoring profiles in the CAE browser client.

Updating a monitoring profile in CAE

You can update a monitoring profile from the CAE interface. 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

To update a monitoring profile in CAE:

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. 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**.

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

[“Viewing and creating monitoring profiles - columns and fields \(CAE browser client\)” on page 381](#)

The following columns and fields are available for working with monitoring profiles in the CAE browser client.

Deleting a monitoring profile in CAE

You can delete a monitoring profile from the CAE interface. Before you delete an existing monitoring profile, ensure that it is no longer being used.

Procedure

To delete a monitoring profile in CAE:

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. Highlight the monitoring profile that you want to delete.
6. Click the **Remove** button.
7. Click **Yes** to confirm the deletion.

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

Viewing a monitoring profile in CAE

You can view an existing monitoring profile in CAE without making any updates.

Procedure

To view a monitoring profile in CAE:

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. Highlight the monitoring profile that you want to view.
6. Click the **View** button.
7. When you are done viewing, click the **Close** button.

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

[“Viewing and creating monitoring profiles - columns and fields \(CAE browser client\)” on page 381](#)

The following columns and fields are available for working with monitoring profiles in the CAE browser client.

Adding a monitoring profile line in CAE

You can add monitoring profile lines from the CAE interface. Add a monitoring profile line to a new or existing monitoring profile to define an SQL workload that you want to monitor.

Before you begin

This procedure assumes that you are already in the process of creating or updating your monitoring profile and the **Create Profile** window or **Update Profile** window is displayed. If one of these window is not

displayed, follow the instructions in [“Creating a monitoring profile in CAE” on page 378](#) or [“Updating a monitoring profile in CAE” on page 378](#).

Procedure

To add a monitoring profile in CAE:

1. On the **Create Profile** window or **Update Profile** window, click **Add Line**.
2. Edit the monitoring profile as needed.
3. Click **OK** to save your changes.

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

[“Viewing and creating monitoring profiles - columns and fields \(CAE browser client\)” on page 381](#)

The following columns and fields are available for working with monitoring profiles in the CAE browser client.

[“Determining OPTKEYS overrides” on page 139](#)

The OPTKEYS parameter in CQMPARMS can be used to specify additional information that Db2 Query Monitor is to collect. Because the OPTKEYS value can increase the overall volume of data collected, thereby increasing real storage usage, use OPTKEYS with caution. In your monitoring profile, you have the option to override the OPTKEYS settings by specifying individual OPTKEYS options in the monitoring profile lines.

[“Excluding SQLCODEs from exceptions and alerts” on page 138](#)

Most SQLCODEs are excluded from exception and alert processing. Only the first matching profile line is used for evaluating the SQLCODEs to be excluded. Therefore, the list of exclude alert SQLCODEs must be included on every profile line to ensure that the SQLCODEs are excluded for all workloads.

[“Setting alert and exception thresholds” on page 138](#)

Editing monitoring profile lines in CAE

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. You can make these changes in the CAE interface.

Before you begin

This procedure assumes that you are already in the process of creating or updating your monitoring profile and the **Create Profile** window or **Update Profile** window is displayed. If one of these window is not displayed, follow the instructions in [“Creating a monitoring profile in CAE” on page 378](#) or [“Updating a monitoring profile in CAE” on page 378](#).

Procedure

To edit monitoring profile lines in CAE:

1. On the **Create Profile** window or **Update Profile** window, use the buttons to perform the following actions:

Insert a new monitoring profile line

Click **Add line**. See [“Adding a monitoring profile line in CAE” on page 379](#).

Update a monitoring profile line

Highlight the monitoring profile line that you want to update and edit the fields for the profile line as needed.

Delete a monitoring profile line

Highlight the monitoring profile line that you want to remove and click **. Remove Line**.

Duplicate a line

Highlight the monitoring profile that you want to duplicate and click . **Clone Line**. After the duplicate line is created, you can update it as needed.

Move a line

Highlight the monitoring profile line that you want to move and click . **Move Up** and **Move down** as needed to place the line where you want it.

Moving a monitoring profile line enables you to alter the order in which these lines in a monitoring profile are processed and in turn the way the profile influences the reporting of captured activity.

2. Click **OK** to save your changes.

Related concepts

[“Monitoring profiles” on page 135](#)

One step of configuring your Query Monitor subsystem is to create monitoring profiles. *Monitoring profiles* enable you to tailor how Db2 Query Monitor monitors specific workloads.

[“Arranging monitoring profile lines in the proper sequence” on page 142](#)

monitoring profile line are evaluated in the sequence in which they are listed in the monitoring profile.

Exporting a monitoring profile

In the CAE interface, you can export a monitoring profile.

Procedure

To export a monitoring profile:

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 monitoring profile.
5. Click the **Export** button.
6. In the list of monitoring profiles, select the monitoring profile you want to export and click **Export**.
7. Use the tree on the left to select a target folder (the location to which you want to export a copy of the selected monitoring profile) and click **Add**. Alternatively, you can overwrite (update) an existing monitoring profile with your selected monitoring profile. Use the tree on the left to select a target monitoring profile and click **Add**.
8. 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 the specified CPU time, elapsed time, number of getpages, and number of 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 these 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 these 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 the specified CPU time, elapsed time, number of getpages, and number of 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_ALERT_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

Offload column name

TOTAL_GETP_PROF_ALRT_TOLER

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, RRSAP, 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, RRSAP** - 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/RRSAP/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 WSNAMES 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 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.

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**.

Note: If the values for the **QM Version**, **QM subsystem**, and **Profile Name** fields are not available, it displays N/A.

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 OMEGAMON for Db2 Performance Expert on z/OS.

The integration of Db2 Query Monitor with IBM OMEGAMON 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 OMEGAMON 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 OMEGAMON for Db2 Performance Expert on z/OS, executes these requests in the CAE server, and sends the results back to IBM OMEGAMON 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.

Empty

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 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 336.
- 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>.

Tools

The tools feature provides you with access to various tools for the CAE browser client.

Topics:

- [“Action Console”](#) on page 391
- [“Using the Reorganization Recommendation Monitor”](#) on page 393
- [“CAE server administration”](#) on page 396

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.

Related Event Type

The related event type.

Related Event ID

The relate 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.

Last Group Analyzed Time

The number of seconds that Reorganization Recommendation Monitor spent analyzing the selected group of job profiles.

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.

Analyzed Time, ms

The number of milliseconds that Reorganization Recommendation Monitor spent analyzing one pageset in the group (of job profiles). After PH13428, this time (for one pageset) is equal to the time in the **Last Group Analyzed Time** field for all pagesets in the group because the CAE server makes only one request for all pagesets in the selected group (of job profiles).

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 `qcm.server.properties`. If a `qcm.server.properties` file does not exist, create one.
- `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.

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 396](#)
- [“Db2 Query Monitor ports” on page 397](#)
- [“File system locations for the CAE server on USS” on page 403](#)
- [“CAE agent address space management” on page 405](#)
- [“Security for cancel thread actions, host variable viewing, and SQL text viewing” on page 405](#)
- [“Considerations for the use of DHCP versus fixed IP addresses on the CAE server” on page 405](#)
- [“Contextual information and action configurations” on page 405](#)

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 ports

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 401](#)
- [“Defining custom ports in cqm_service_install.bat \(CAE server on Windows\)” on page 402](#)
- [“Defining custom ports in CQMCAESV \(CAE server on USS\)” on page 402](#)
- [“Defining custom ports in CQMCAEWD \(backup CAE server on USS\)” on page 403](#)
- [“Defining custom ports in CQMCPRMS \(CAE agent\)” on page 403](#)

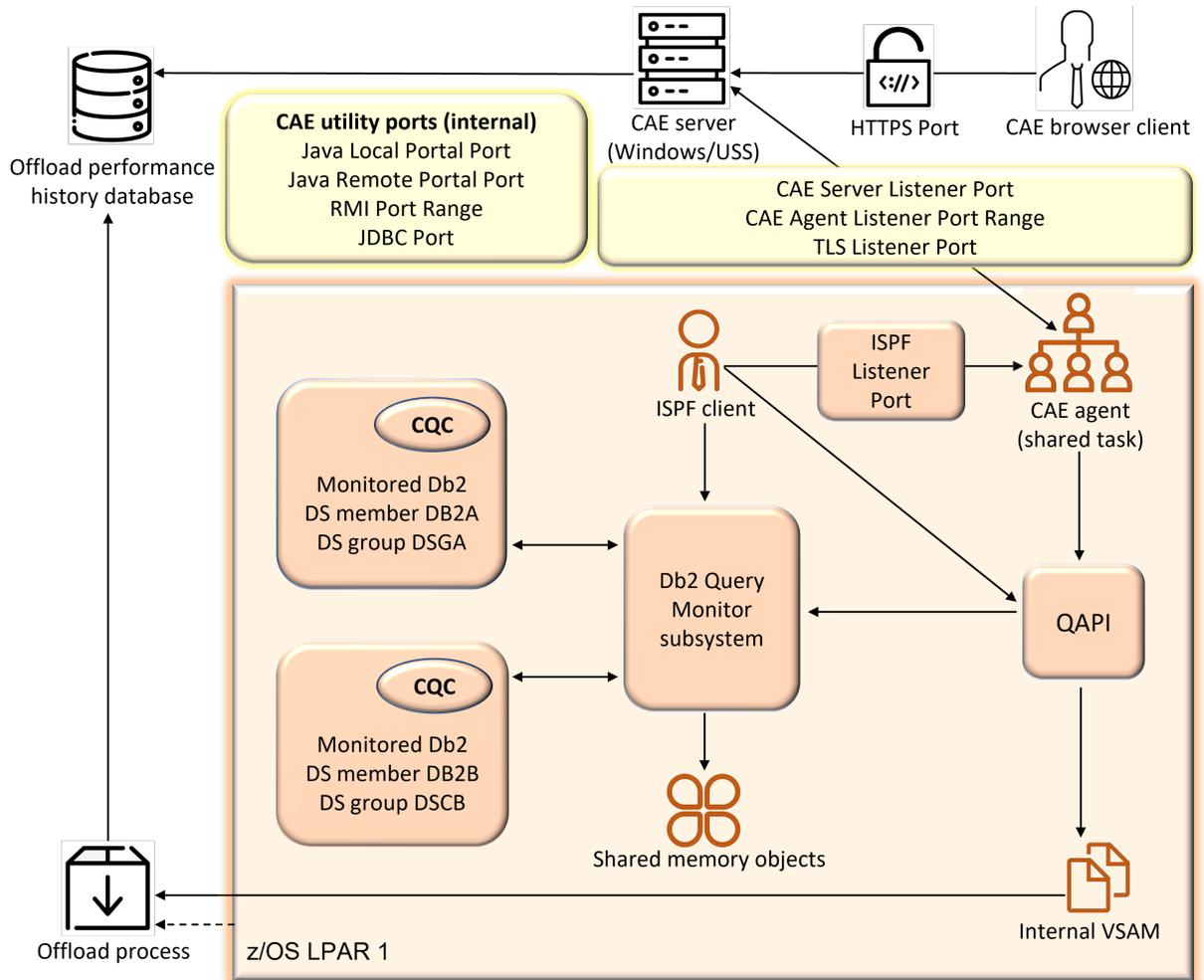


Figure 125. TCP/IP ports used by Db2 Query Monitor

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

qcm.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

CQMCPRMS 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.

Default

3448

cqm.server.properties parameter - backup CAE server on Windows`com.rocketsoft.nm.qm.caeAgent.listenerPort`**CQMCAEWD STDENV DD parameter - backup CAE server on USS**`CQM_CAE_AGENT_LISTENER_PORT`**CQMCPRMS parameter - CAE agent**`BACKUP_PORT`**Tools Customizer field**

Backup Server/Listener port

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

CQMCPRMS parameter - CAE agent`LISTENER_PORTS`**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

cqm.server.properties parameter - CAE server on Windows`com.rocketsoft.denali.agents.localPort``com.rocketsoft.denali.agents.remotePort`**CQMCAESV STDENV DD parameter - CAE server on USS**`CQM_LOCAL_PORTAL_PORT`**CQMCAEWD STDENV DD parameter - CAE server on USS**`CQM_REMOTE_PORTAL_PORT`**HTTPS Port**

The port used by CAE browser client to obtain data from the CAE server or backup CAE server.

Default

443

cqm_service_install.bat parameter - CAE server on Windows`-httpsPort`**System property in cqm.server.properties (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_HTTPS_PORT`**Tools Customizer field**

HTTPS Port Number

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

CQMCPRMS 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

CQMCAESV STDENV DD parameter - CAE server on USS

CQM_RMI_PORT_RANGE

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

Port	Parameter (defined in cqm.server.properties unless otherwise noted)	Default
CAE Server Listener Port	com.rocketsoft.nm.qm.caeAgent.listenerPort	3448
Backup CAE Server Listener Port	com.rocketsoft.nm.qm.caeAgent.listenerPort	3448
Java local portal port	com.rocketsoft.denali.agents.localPort	3444
Java remote portal port	com.rocketsoft.denali.agents.remotePort	3444

Table 40. TCP/IP ports for the CAE server on Windows (continued)

Port	Parameter (defined in <code>cqm.server.properties</code> unless otherwise noted)	Default
RMI port range	<code>com.rocketsoft.denali.agents.rmiPortRange</code>	3445-3455
JDBC Port	<code>-jdbcPort</code> (defined in <code>cqm_service_install.bat</code>)	1112
HTTPS Port	<code>-httpsPort</code> (defined in <code>cqm_service_install.bat</code>)	443

TCP/IP ports for the CAE server on USS

Table 41. TCP/IP ports for the CAE server on USS

Port	Parameter (defined in <code>CQMCAESV STDENV DD</code> unless otherwise noted)	Default
CAE Server Listener Port	<code>CQM_CAE_AGENT_LISTENER_PORT</code>	3448
Backup CAE Server Listener Port	<code>CQM_CAE_AGENT_LISTENER_PORT</code> (defined in <code>CQMCAEWD STDENV DD</code>)	3448
HTTPS Port	<code>CQM_HTTPS_PORT</code>	443
Java local portal port	<code>CQM_LOCAL_PORTAL_PORT</code>	3444
Java remote portal port	<code>CQM_REMOTE_PORTAL_PORT</code> (defined in <code>CQMCAEWD STDENV DD</code>)	3444
JDBC Port	<code>CQM_JDBC_PORT</code>	1112
RMI port range	<code>CQM_RMI_PORT_RANGE</code>	3445-3455

TCP/IP ports for the CAE agent

Table 42. TCP/IP ports for the CAE agent

Port	Parameter (defined in <code>CQMCPMRS</code>)	Default
CAE Server Listener Port	<code>SERVER_PORT</code>	3448
Backup CAE Server Listener Port	<code>BACKUP_PORT</code>	3448
CAE Agent Listener Port Range	<code>LISTENER_PORTS</code>	Required, no default
ISPF Listener Port	<code>ISPF_LISTENER_PORT</code> (corresponds to the ISPF Listener port field in Tools Customizer)	Required, no default

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`. If a `cqm.server.properties` file does not exist, create one.
2. Define any custom ports you want to add.

<i>Table 43. Custom port parameters for use in cqm.server.properties - CAE server on Windows</i>	
Port	Parameter
CAE Server Listener Port	com.rocketsoft.nm.qm.caeAgent.listenerPort
Backup CAE Server Listener Port	com.rocketsoft.nm.qm.caeAgent.listenerPort
RMI port range	com.rocketsoft.denali.agents.rmiPortRange
Java local portal port	com.rocketsoft.denali.agents.localPort
Java remote portal port	com.rocketsoft.denali.agents.remotePort

3. Save cqm.server.properties.

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.

<i>Table 44. Custom port parameters for use in cqm_service_install.bat - CAE server on Windows</i>	
Port	Parameter
HTTPS Port	-httpsPort
JDBC Port	-jdbcPort

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.

<i>Table 45. Custom port parameters for use in CQMCAESV - CAE server on USS</i>	
Port	Parameter
CAE Server Listener Port	CQM_CAE_AGENT_LISTENER_PORT
RMI port range	CQM_RMI_PORT_RANGE
Java local portal port	CQM_LOCAL_PORTAL_PORT
HTTPS Port	CQM_HTTPS_PORT
JDBC Port	CQM_JDBC_PORT

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 402.

Procedure

1. Edit the CQMCAEWD started task.
2. Define any custom ports you require in the STDENV DD.

Port	Parameter
Backup CAE Server Listener Port	CQM_CAE_AGENT_LISTENER_PORT
Java remote portal port	CQM_REMOTE_PORTAL_PORT

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.

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

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 48. 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.	The CAE server log 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: <i>install_dir/bin</i> where <i>install_dir</i> 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.	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
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.	If you use an FS to hold log files, it 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.	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.	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 <i>/u/username/cqm</i> with the FS directory that holds executable and jar files.	Replace <i>/configuration/location</i> in the CQM_VAR_HOME STDENV DD with the path to the configuration and data files FS directory you manually allocate.	Replace <i>/var/cqm/logs</i> in the STDOUT DD path and the CQM_LOGS STDENV DD with the path to the logs FS directory you manually allocate.
Should I allocate the directory to separate location?	Yes, the executables and jar files should reside in their own FS.	Yes, the configuration and data files should reside in their own FS.	If using FS to store log files, the log files should reside in their own FS.

Table 48. Description of the three file systems (FS) required for the CAE server on USS. (continued)

	Location 1: Install directory	Location 2: Configuration and data files	Location 3: Log files (if using FS) *
What if I have an existing installation of the CAE server?	Ensure the target FS to which you are installing the new executables and jar files is empty.	Ensure the target FS to which you are installing the new configuration and data files is empty.	Ensure the target FS to which you are installing the new log files is empty.

* 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 118 for more information.

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.

Contextual information and action configurations

You can add Knowledge-Based Management Language (KBML) expressions to your action configurations (such as email actions and WTO actions) to customize responses for certain events or domain elements.

KBML is a powerful language that you can use in action configurations that provides you with a method of identifying and selecting information of interest. For example, KBML enables you to report 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.

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:

```
${if event is a SqlError then
"NOTE: SQLSTATE and MessageTokens are for SqlError only"+
"\nevent.getAttribute(\"SQLSTATE\"): "+ event.getAttribute("SQLSTATE")+
"\nevent.getAttribute(\"MessageTokens\"): "+
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:

```
${trigger}
```

At other times when the identifier is an object, you can specify a property such as:

```
{event.type}
```

Sometimes the property of an object is another object in which case you can chain your dot notation as in:

```
{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”.

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

For static SQL, Db2SqlStatement corresponds to a particular section, as identified by the DB2dbms/plan/program/program version/sectionNumber. For dynamic sql, Db2SqlStatement corresponds to

a select/insert/update/delete statement identified by DB2Dbms/unique-sql-text. Both static and dynamic SQL are considered to be of type “Db2SqlStatement”.

For subject type Db2SqlStatement and event type Db2SqlEvent, the following properties (attributes) are supported:

systemTimestamp

Displays the mainframe timestamp value when the first alert was generated and received on Alerts board.

Syntax

`${event.systemTimestamp}`

Type

Long

Output

Returns the mainframe timestamp for particular event when it first been generated in milliseconds.

systemLastUpdatedTimestamp

Displays the mainframe timestamp value when the alert was last updated (for example, repetitionCount was changed for this event).

Syntax

`${event.systemLastUpdatedTimestamp}`

Type

Long

Output

Returns the mainframe timestamp when the event being last updated in milliseconds.

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.

KBML 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, SqlStatment
- 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, SqlStatment
- 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:
 $100 * \text{lockLatchDelayTime} / \text{totalLockDelayTime}$

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) $100 * (\text{totalIODelayTime} / \text{totalDelayTime})$

TotalLockDelayProblem:

The following variables are available for \${event}. for TotalLockDelayProblem event types:

totalLockDelayTime

(TimePeriod) lockLatchDelayTime + claimReleaseDelayTime + drainLockDelayTime + pageLatchDelayTime

lockDelayPercent

(Percent) $100 * (\text{totalLockDelayTime} / \text{totalDelayTime})$

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:

```
${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:

```
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:

```
${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.

```
Subject: attributes for ${event.type}
Message:
Attributes from events. Event type Db2SqlEvent.
event.getAttribute("CorrelationId"): ${event.getAttribute("CorrelationId")}
event.getAttribute("JOBNAME"): ${event.getAttribute("JOBNAME")}
event.getAttribute("SQL_TYPE"): ${event.getAttribute("SQL_TYPE")}
event.getAttribute("CONNECTION_NAME"): ${event.getAttribute("CONNECTION_NAME")}
event.getAttribute("NETID"): ${event.getAttribute("NETID")}
event.getAttribute("LUNAME"): ${event.getAttribute("LUNAME")}
event.getAttribute("CURSOR_NAME"): ${event.getAttribute("CURSOR_NAME")}
event.getAttribute("REQUESTING_SITE_NAME"):
${event.getAttribute("REQUESTING_SITE_NAME")}
event.getAttribute("WORKLOAD"): ${event.getAttribute("WORKLOAD")}
${if event is a SqlError then
"NOTE: SQLSTATE and MessageTokens are for SqlError only"+
"\nevent.getAttribute("\SQLSTATE\"): "+ event.getAttribute("SQLSTATE")+
"\nevent.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"): 023D
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 126. 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"): 023D
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 127. 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}
subject.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+
"\nsubject.wsTran: " + subject.wsTran+
"\nsubject.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(D
ECIMAL(1 / 10, 2, 1)) = ' 0,0' THEN 2 ELSE 3 END AS C1
FROM SYSIBM.SYSDUMMY1

```

Figure 128. Subject wsName set Email

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.SYSNOTTHERE
event.priority: 4
event.type: ApplicationCodingError
=====
Other identifiers
currentDatetime: Thu Jan 25 16:52:23 EST 2007
trigger: acknowledged
subject.text:
SELECT QUERYNO
FROM ANLUSER1.DSN_DET_COST_TABLE OPTIMIZE FOR 1 ROW WITH UR

```

Figure 129. No subject wsName set Email

Backus-Naur Form (BNF) for KBML

The following details KBML grammar.

```

topLevelExpression
:      kbm1Expression EOF
|      appendExpression EOF
;
kbm1Expression
:      ifExpression
;
appendExpression
:      HASH LCURLY
      (      kbm1Expression ( COMMA kbm1Expression ) *
      )
      RCURLY
;
ifExpression
:      "if" logicalOrExpression "then" logicalOrExpression "else" ifExpression
|      logicalOrExpression
;
logicalOrExpression
:      logicalAndExpression ( "or" logicalAndExpression ) *
;
logicalAndExpression
:      logicalNotExpression ( "and" logicalNotExpression ) *
;
logicalNotExpression
:      "not" equalityExpression
|      equalityExpression

```

```

;

equalityExpression
:
    relationalExpression
    (
        ( NOT_EQUAL relationalExpression )
        |
        ( EQUAL relationalExpression )
    ) *
;

relationalExpression
:
    shiftExpression
    (
        ( LT shiftExpression )
        |
        ( GT shiftExpression )
        |
        ( LE shiftExpression )
        |
        ( GE 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"
            |
            )
        (
            ( (
                "a"
                |
                )
            IDENT
            (
                "of" unaryExpression
                |
                )
            )
        |
        ( "in"
            (
                ( "scope" STRING_LITERAL )
                |
                ( "subnet" ipAddress DIV NUM_INT
            )
            )
        |
        unaryExpression
    )
    |
    ( "one" "of" expressionList )

```



```
function
:      (      "the"
      |
      )
      IDENT
      (      argList
      |
      )

;
```

Chapter 6. Using additional features

Find information about how to use Db2 Query Monitor additional features.

Topics:

- [“Using smarter reorganization recommendations” on page 425](#)
- [“Offloading data to the performance history database” on page 434](#)
- [“Offloading data to Analytics Accelerator” on page 440](#)
- [Chapter 7, “Detecting a loop in an application,” on page 445](#)

Using smarter reorganization recommendations

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 to leverage the SQL performance data that Db2 Query MonitorDb2 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 for the smarter reorganization recommendation feature

Using the smarter reorganization recommendation feature requires Db2 Automation Tool 4.3 and Db2 Query Monitor 3.3.0 with the corresponding APARs applied.

Product requirements

The following APARs must be applied to use smarter reorganization recommendations:

- Db2 Automation Tool 4.3: PI92498
- Db2 Query Monitor 3.3.0: PI92519
- If Db2 Autonomics Director 1.6 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 4.3 documentation.
- Db2 Query Monitor is set up for reorganization recommendations as follows:
 - The 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 \(DB2 Automation Tool for z/OS 4.3.0 documentation\)](#).
 - The 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 54.

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 429.

At the end of each performance window, the CAE server checks whether or not each pageset has 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. After PH13428, the CAE server makes only one request for all pagesets in the job profile.

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)

After PH13428, the time the CAE server requires to process the end of a performance window is roughly equal to

1 minute + time-to-check-group-of-pagesets

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 433](#).

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” on page 658](#).

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
- 12:00 - 12:30
- 12:30 - 13:00 (part of performance window)
- 13:00 - 13:30 (part of performance window)
- 13:30 - 14:00
- 14:00 - 15:00

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 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 433](#).

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” on page 658](#).

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 [“Offload parameters” on page 734](#).

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 Query Monitor subsystem. For more information, see [“Starting the Query Monitor subsystem” on page 144](#).
2. In Db2 Query Monitor, specify the appropriate reorganization recommendation settings, either in a monitoring profile or in the 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 in ISPF” on page 300 - ISPF client](#)
 - [“Creating a monitoring profile in CAE” on page 378 - CAE browser client](#)
 - [“Query Monitor subsystem parameters” on page 658](#)
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 433](#).
 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 433](#).
 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 286 - ISPF client](#) or [“Activating a monitoring agent” on page 388 - CAE browser client](#).
 6. Start the CAE agent on the LPAR where the Query Monitor subsystem is running. For more information, see [“Starting the CAE agent” on page 144](#).
 7. Start the CAE server. For more information, see [“Starting the CAE server” on page 144](#).
 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 145](#).
 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 4.3 documentation.
 10. In Db2 Automation Tool, create a performance window.
For more information, see "Creating and associating performance windows" in the Db2 Automation Tool 4.3 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 393](#).

The objects in the object profile are now monitored for smarter reorganization recommendations.

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 Stopping reorganization recommendation monitoring" in the Db2 Automation Tool 4.3 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 393](#).

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` file 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 \(Windows\)”](#) on page 728.
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 \(USS\)”](#) on page 718.

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` file does not exist, create one.
 - If your CAE server is installed on Windows, `cqm.server.properties` is located in the root folder of your CAE installation directory. If a `cqm.server.properties` file does not exist, create one.
 - If your CAE server is installed on USS, the `cqm.server.properties` file is 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 \(Windows\)”](#) on page 728.
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, `cqm.server.properties` is located in the root folder of your CAE installation directory. If a `cqm.server.properties` file does not exist, create one.
 - If your CAE server is installed on USS, the `cqm.server.properties` file is 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.MinIntervallLength parameter, see [“CAE server properties \(Windows\)” on page 728](#).

3. Save `qcm.server.properties`.

Offloading data to the performance history database

You can offload data from your Db2 Query Monitor VSAM performance history files to the Db2 tables in Db2 Query Monitor performance history database. You can tailor this process to offload selected performance history files, intervals, time periods, or data types. The load process maintains data uniqueness across z/OS systems, Db2 subsystems, and Query Monitor subsystems.

Related concepts

[“Terminology” on page 25](#)

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

Prerequisites

Verify that your system adheres to the following prerequisites before offloading data to the performance history database.

Supported Db2 versions

- Db2 version Db2 12 or later

Encoding schemes and conversion services

- CQMDDL does not support ASCII encoding.
- Conversion services must be in place to convert between your subsystem default EBCDIC CCSID 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.

Table requirements and limitations

- The tables in the performance history database are designed to be used in JOIN operations with other performance history database tables or with Db2 catalog tables.
- The tables in the performance history database do not have a defined code set. 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.
- The TEXT_TIMESTAMP column in SYSTOOLS.CQM_SUMM_TEXT is reserved for internal use only.

Recovery of offloaded data

- The performance history database uses standard SQL tables. If you need to recover tables in the performance history database, use your site's standard recovery procedures.

Uniqueness of offload data

- The SMFID and CQM_SUBSYSTEM columns are required to ensure the uniqueness of offloaded data across multiple Query Monitor subsystems or multiple z/OS systems.
- The DB2_SUBSYSTEM column is required to ensure uniqueness of offloaded data for a single z/OSsystem.
- 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.

- SCQMSAMP member CQMINDEX identifies the columns in the child tables that relate them to their parent table.

Other considerations

- If you split your offload process into multiple steps, you must ensure that the tables in your performance history database are not altered or changed between offload steps.
- Performance history files are closed after each interval is offloaded. If you offload multiple intervals, Db2 Query Monitor opens, extends, and closes the performance history file each time another interval is offloaded. If you offload more than one interval per run, you should customize CQM@LDB2 and use a larger secondary quantity or omit the RLSE option.
- All data is in Db2 UNLOAD format with the exception of SQL text data.
- Static SQL is not duplicated to performance history files. Static SQL text is stored in Db2 system catalog tables and can be retrieved by using SQL. Db2 Query Monitor offloads static SQL metrics but does not collect SQL text for SQL statements.
- The Db2 offload table, CQM_EXCEPTIONS, includes the CLIENT_ENDUSER column, a 128-byte field that enables the data offloaded from Db2 Query Monitor to be joined with data in IBM OMEGAMON for Db2 Performance Expert on z/OS tables.

Configuring the offload to the performance history database

Before you load Db2 Query Monitor data to your performance history database for the first time, you must configure this offload process.

Before you begin

For more information about the SCQMSAMP library members mentioned in the steps below, see [“SCQMSAMP members for loading data to the performance history database”](#) on page 758.

Procedure

To configure the offload to the Performance History Database:

1. Tailor and run SCQMSAMP library member CQMCRDB to create the performance history database database.
2. Tailor and run SCQMSAMP library member CQMDDL according to the instructions in the member.
3. Tailor and run SCQMSAMP library member CQMDDLST according to the instructions in the member.
4. Tailor and run SCQMSAMP library member CQMBIND according to the instructions in the member to rebind the CQM plan.
5. Run SCQMSAMP library member CQMGRTB to grant the appropriate privileges to authorization IDs that access the performance history database.
6. In SCQMSAMP member CQM@LDB2, tailor the CQMLOADP DD statement to include the appropriate offload parameters. For more information, see [“Offload parameters”](#) on page 734.

<i>Table 49. Parameter DDNAME to specify in CQM@LDB2</i>	
DDNAME	Description
CQMLOADP	Specifies the parameters that control the offload process.

Tips:

- Use the STARTING_INTERVAL, ENDING_INTERVAL, and INTERVAL_UNITS parameters to specify the appropriate interval selection criteria.

- Use the DATA parameter to specify the appropriate data selection criteria. The DATA parameter 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.
 - Use the LOAD parameter to specify the appropriate load options and control whether or not existing data is deleted from Db2 tables prior to loading new data.
 - If you modify table names or creators, be sure to make the corresponding required changes using the offload parameters that control table creator and table names:
 - DB2_COMMANDS_TBNAME
 - EXCEPTION_CALLS_TBNAME
 - EXCEPTION_HOSTV_TBNAME
 - EXCEPTION_OBJS_TBNAME
 - EXCEPTION_TEXT_TBNAME
 - EXCEPTIONS_TBNAME
 - OBJECTS_TBNAME
 - SQLCODE_DETAIL_TBNAME
 - SQLCODE_TEXT_TBNAME
 - SQLCODES_TBNAME
 - SQLTEXT_TBNAME
 - STATEMENT_TYPE_TBNAME
 - TBCreator
7. In SCQMSAMP member CQM@LDB2, include any DD statements that are required by the values you specified for the “DATA” on page 735 parameter in the CQMLOADP DD.
- The DD statements you might need to include are shown in the table below.

<i>Table 50. DATA parameter and corresponding required DDNAMES</i>	
Specified DATA value	Required DDNAME
DATA(METRICS)	METRDATA
DATA(OBJECTS)	OBJSDATA
DATA(SQLTEXT)	TEXTCLOB
DATA(EXCEPTIONS)	EXCPINDX EXCPHSTV EXCPOBJS EXCPCALL EXCPCLOB
DATA(DB2CMDS)	DB2CDATA
DATA(SQLCODES)	SQLCDATA SQLDDATA SQLCCLOB

8. In SCQMSAMP member CQM@LDB2, tailor the LOADCARD, CQMERROR, and DB2PARMS DD statements as appropriate for your offload process.

<i>Table 51. Additional DDNAMES to specify in CQM@LDB2</i>	
DDNAME	Description
LOADCARD	Specifies the generated load cards for the offload process.
CQMERROR	Specifies the error file that is required if SQL text is not available. For more information, see “Special considerations for CQMERROR DD” on page 439.
DB2PARMS	Specifies Db2 connection information, STEPLIB data, plan names. Supports connection to Db2 by the CQM@WDB2 program.

9. In SCQMSAMP member CQM@LSTM, tailor the CQMLOADP and DB2PARMS DD statements as appropriate for your offload process.

<i>Table 52. DDNAMES to specify in CQM@LSTM</i>	
DDNAME	Description
CQMLOADP	Specifies the DB2_SUBSYSTEM parameter appropriate for offloading data to statement tables.
DB2PARMS	Specifies Db2 connection information, STEPLIB data, plan names. Supports connection to Db2 by the CQM@WDB2 program.

10. Tailor SCQMSAMP member CQMCOMM according to the instructions provided in the member to add table and column descriptions to the system catalog.

Related information

[“CQM1006E”](#) on page 509

statement DD STATEMENT MISSING

[“CQM2604E”](#) on page 525

VSAM LOGIC ERROR VASMRC= rc VSAMRS=rc

Running the offload to the performance history database

Complete these steps to offload data from your performance history files to your performance history database.

Before you begin

For more information about the SCQMSAMP library members mentioned in the steps below, see [“SCQMSAMP members for loading data to the performance history database”](#) on page 758.



CAUTION: If you split your offload process into multiple steps, you must ensure that the tables in your performance history database are not altered or changed between offload steps.

Procedure

1. Follow the steps in [“Configuring the offload to the performance history database”](#) on page 435 to set up the Db2 offload process as appropriate for your site's objectives.
2. Run your customized CQM@LDB2 job.
3. (Optional) Run your customized CQMCOMM job to add table and column descriptions to the system catalog.

Primary keys for table joins

Primary keys and usage examples for joining tables in your performance history database.

CQM_SUMM_METRICS and CQM_SUMM_TEXT joins

Primary key

TEXT_TOKEN

Note: The TEXT_TIMESTAMP column in CQM_SUMM_TEXT is reserved for internal use only.

Example

```
--SELECT COUNT (*) FROM SYSTOOLS.CQM_SUMM_METRICS A,  
--      SYSTOOLS.CQM_SUMM_TEXT B  
--WHERE A.TEXT_TOKEN = B.TEXT_TOKEN ;
```

CQM_EXCEPTIONS and CQM_EXCP_TEXT joins

Primary key

EXCEPTION_TIMESTAMP

In the CQM_EXCEPTIONS table.

TEXT_TIMESTAMP

In the CQM_EXCP_TEXT table.

Example

```
--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 joins

Primary keys

If the text token is not 0 (dynamic text):

SQLCODE_TIMESTAMP

In the CQM_SQLCODE_DET table.

TEXT_TIMESTAMP

In the CQM_SQLCODE_TEXT table.

If the text token is 0 (static text), you can retrieve the text from the DB2 Catalog.

Example - Dynamic text

```
--SELECT COUNT(*) FROM SYSTOOLS.CQM_SQLCODE_DET A,  
--      SYSTOOLS.CQM_SQLCODE_TEXT B  
--WHERE A.SQLCODE_TIMESTAMP = B.TEXT_TIMESTAMP;
```

Example - Static text

```
--SELECT TEXT  
--      ,SEQNO  
-- FROM SYSIBM.SYSPACKSTMT  
-- WHERE NAME = program  
--      AND PLNAME = plan  
--      AND SECTNO = section number  
--      AND STMTNO = statement number;
```

Note:

1. Lower case values can be extracted from the CQM_EXCEPTIONS table or the CQM_SQLCODE_DET 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.

CQM_EXCP_HOSTV and CQM_EXCEPTIONS joins

Primary key

EXCEPTION_TOKEN

Example

```
--SELECT COUNT(*) FROM SYSTOOLS.CQM_EXCP_HOSTV A,  
--      SYSTOOLS.CQM_EXCEPTIONS B  
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

CQM_EXCP_CALLS and CQM_EXCEPTIONS joins

Primary key

EXCEPTION_TOKEN

Example

```
--SELECT * FROM SYSTOOLS.CQM_EXCP_CALLS A,  
--      SYSTOOLS.CQM_EXCEPTIONS B  
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

CQM_EXCP_OBJS and CQM_EXCEPTIONS joins

Primary key

EXCEPTION_TOKEN

Example

```
--SELECT * FROM SYSTOOLS.CQM_EXCP_OBJS A,  
--      SYSTOOLS.CQM_EXCEPTIONS B  
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

CQM_SUMM_METRICS and CQM_SUMM_OBJECTS joins

Primary key

METRICS_TOKEN

Example

```
--SELECT * FROM SYSTOOLS.CQM_SUMM_METRICS A,  
--      SYSTOOLS.CQM_SUMM_OBJECTS B  
--WHERE A.METRICS_TOKEN = B.METRICS_TOKEN;
```

Special considerations for CQMERROR DD

Review this information concerning the CQMERROR DD statement.

When you include the CQMERROR DD statement in your CQM@LDB2 offload job, the offload process writes the message SQL text not available to the CQMERROR file instead of writing 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(***)
```

```
CQM2604E VSAM LOGIC ERROR VSAMRC=X'08' VSAMRS=X'0010' CQM#IVSM(nnnnn)
```

If Db2 Query Monitor encounters errors when unloading data from interval performance history files and the CQMERROR file is not empty, the return code 4 is set. If the problem is due to translation, the corresponding field is set to "N/A" in the output record and you must decide whether or not to load data (with these errors) to the performance history database .

Review the resulting data based on the CQMERROR file. Decide whether the data is acceptable for loading to your performance history database . 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 an error is encountered and the CQMERROR DD statement is not specified in your CQM@LDB2 offload job, the offload process sets the RC=04 and issues the following message:

```
CQM1006E CQMERROR DD STATEMENT MISSING
```

Offloading data to Analytics Accelerator

Use the procedures in this section to offload data from your performance history files (VSAM files) to IBM Db2 Analytics Accelerator for z/OS (Analytics Accelerator). You can load Db2 Query Monitor data to Analytics Accelerator in order to bypass Db2, reduce cost, and reduce the time that is required to make data available.

Terminology

Accelerator-only tables (AOTs)

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 table

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.

Prerequisites

Verify that your system adheres to the following prerequisites before offloading data to Analytics Accelerator.

Supported Db2 and Analytics Accelerator versions

Refer to [IBM Db2 Analytics Accelerator for z/OS documentation](#) for prerequisites and supported versions of the accelerator.

Encoding schemes and conversion services

- The encoding scheme for the text table spaces must be EBCDIC, not UNICODE, when using IBM Db2 Analytics Accelerator for z/OS.

Limitations

- Analytics 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.

Other considerations

- When offloading to Analytics Accelerator, the 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, EXCPTTEXT, and SQLCTEXT DD statements. All elapsed times and CPU times (defined in CQMDDL) are off-loaded in decimal format.

Configuring the offload to Analytics Accelerator

Before you load Db2 Query Monitor data to Analytics Accelerator, you must configure this offload process.

Procedure

To configure the offload to Analytics Accelerator:

1. Copy SCQMSAMP library member CQMIDAA to the library that is referenced by the SYSPROC DD statement of your TSO user logon PROC and tailor it according to the instructions in the member.

CQMIDAA is an ISPF edit macro that modifies CQMDDL to be compatible with Analytics Accelerator. When you run CQMIDAA without parameters, the resulting DDL creates accelerator shadow tables. When you run CQMIDAA with parameters, the resulting DDL creates accelerator-only tables. To define accelerator-only tables, the macro requires the database name and the 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 CQMST1, 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 Analytics Accelerator.

2. Copy SCQMSAMP library member CQMDDL to a library that holds your customized DDL and tailor it according to the instructions in the member. While editing CQMDDL, invoke the CQMIDAA edit macro to modify the DDL so that it is compatible with Analytics Accelerator.
3. Run the modified CQMDDL using an appropriate SQL processing program (such as SPUFI or DSNTEP2).
4. Tailor and run SCQMSAMP library member CQMBIND according to the instructions in the member to rebind the CQM plan.
5. Run SCQMSAMP library member CQMGRTB to grant the appropriate privileges to authorization IDs that access Db2 Query Monitor Db2 tables.
6. Tailor SCQMSAMP member CQM@LIDA according to the instructions in the member. Specify the appropriate offload parameters in the CQMLOADP DD.

DDNAME	Description
CQMLOADP	Specifies the parameters that control the offload process.

Tips:

- Use the IDAA parameter to specify accelerator name and mode.
- Use the STARTING_INTERVAL, ENDING_INTERVAL, and INTERVAL_UNITS parameters to specify the appropriate interval selection criteria.

- Use the DATA parameter to specify the appropriate data selection criteria. The DATA parameter 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.
- If you modify table names or creators, be sure to make the corresponding required changes using the table name and table creator parameters:
 - DB2_COMMANDS_TBNAME
 - EXCEPTION_CALLS_TBNAME
 - EXCEPTION_HOSTV_TBNAME
 - EXCEPTION_OBJS_TBNAME
 - EXCEPTION_TEXT_TBNAME
 - EXCEPTIONS_TBNAME
 - OBJECTS_TBNAME
 - SQLCODE_DETAIL_TBNAME
 - SQLCODE_TEXT_TBNAME
 - SQLCODES_TBNAME
 - SQLTEXT_TBNAME
 - STATEMENT_TYPE_TBNAME
 - TBCREATOR

7. In SCQMSAMP member CQM@LIDA, include any DD statements that are required by the values you specified for the “DATA” on page 735 parameter in the CQMLOADP DD.

The DD statements you might need to include are shown in the table below.

<i>Table 54. DATA parameter and corresponding required DDNAMES</i>	
Specified DATA value	Required DDNAME
DATA(METRICS)	METRDATA
DATA(OBJECTS)	OBJSDATA
DATA(SQLTEXT)	TEXTDATA
DATA(EXCEPTIONS)	EXCPINDX EXCPHSTV EXCPOBJS EXCPCALL EXCPTTEXT
DATA(DB2CMDS)	DB2CDATA
DATA(SQLCODES)	SQLCDATA SQLDDATA SQLCTEXT

Related reference

[“Sample library members” on page 750](#)

The Db2 Query Monitor sample library (SCQMSAMP) includes the following sample jobs.

Running the offload to Analytics Accelerator

Complete these steps to offload data from your performance history files to Analytics Accelerator.

Procedure

1. Follow the steps in [“Configuring the offload to Analytics Accelerator”](#) on page 441 to set up the Analytics Accelerator offload process as appropriate for your site's objectives.
 - If this is the first time you plan to run CQM@LIDA, specify LOAD REPLACE or LOAD REPLACE,STATISTICS in CQMLOADP DD.
 - If this is not the first time you plan to run CQM@LIDA, specify LOAD RESUME in CQMLOADP DD.
2. Run SCQMSAMP library member CQM@LIDA to perform the Analytics Accelerator offload.

Related reference

[“LOAD”](#) on page 742

Use the LOAD parameter in CQM@WDB2 to control the offload of data to the performance history database.

Supported migration pathways for IBM Db2 Analytics Accelerator

The following IBM Db2 Analytics Accelerator migration pathways are supported for migrating data from 3.2.0 to 3.3.0.

From	To	Scripts	Description
3.2.0 accelerator shadow tables	3.3.0 accelerator shadow tables	CQMMIDAA, CQMIDAAL	You are upgrading from 3.2.0 to 3.3.0 and have offloaded your 3.2.0 data to accelerator. You want to offload to 3.3.0 accelerator tables and migrate your 3.2.0 accelerator data to 3.3.0.
3.2.0 AOT	3.3.0 AOT	CQMMIDAA	You are upgrading from 3.2.0 to 3.3.0 and have offloaded your 3.2.0 data to accelerator. You want to offload to 3.3.0 accelerator tables and migrate your 3.2.0 accelerator data to 3.3.0.
Analytics Accelerator shadow tables with INTEGER columns (created Analytics Accelerator tables before PI83232)	Analytics Accelerator shadow tables with BIGINT columns (PI83232)	CQMIDAM1	Required after applying PI83232, if you have offloaded to accelerator before this enhancement.

Table 55. IBM Db2 Analytics Accelerator migration pathways (continued)

From	To	Scripts	Description
Existing Db2 offload tables	Analytics Accelerator shadow tables	CQMIDAM2	Required if you intend to offload to Analytics Accelerator and want your old Db2 data to be migrated to Analytics Accelerator.
Existing Analytics Accelerator tables, created prior to PH17430	Analytics Accelerator tables that have been updated with column formats required for anomaly detection and data collection	CQMIDAM3	Required if you intend to offload to Analytics Accelerator and want to use anomaly detection and reporting.

Chapter 7. 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.

Related reference

[“THREAD_SQLCODE_DUPLICATES” on page 711](#)

Use the `THREAD_SQLCODE_DUPLICATES` parameter in `CQMPARMS` to control the SQLCODE collection behavior of the Query Monitor subsystem.

[“THREAD_SQLCODE_DUPLICATES_TIME” on page 712](#)

Use the `THREAD_SQLCODE_DUPLICATES_TIME` parameter in `CQMPARMS` to control the SQLCODE collection behavior of the Query Monitor subsystem.

[“DB2_SQLCODE_DUPLICATES” on page 667](#)

Use the `DB2_SQLCODE_DUPLICATES` parameter in `CQMPARMS` to control the SQLCODE detail record collection behavior of your Query Monitor subsystem.

[“DB2_SQLCODE_DUPLICATES_TIME” on page 668](#)

Use the `DB2_SQLCODE_DUPLICATES_TIME` parameter in `CQMPARMS` to control the SQLCODE collection behavior of your Query Monitor subsystem.

Chapter 8. Using advanced functions to process SQL error alerts

This topic describes advanced features and techniques that you can use to process SQL error alerts captured by Db2 Query Monitor. SQL errors are captured by Db2 Query Monitor. However, determining the reason for such SQL errors has required a user to log in to one of the user interfaces to determine the root cause of the error.

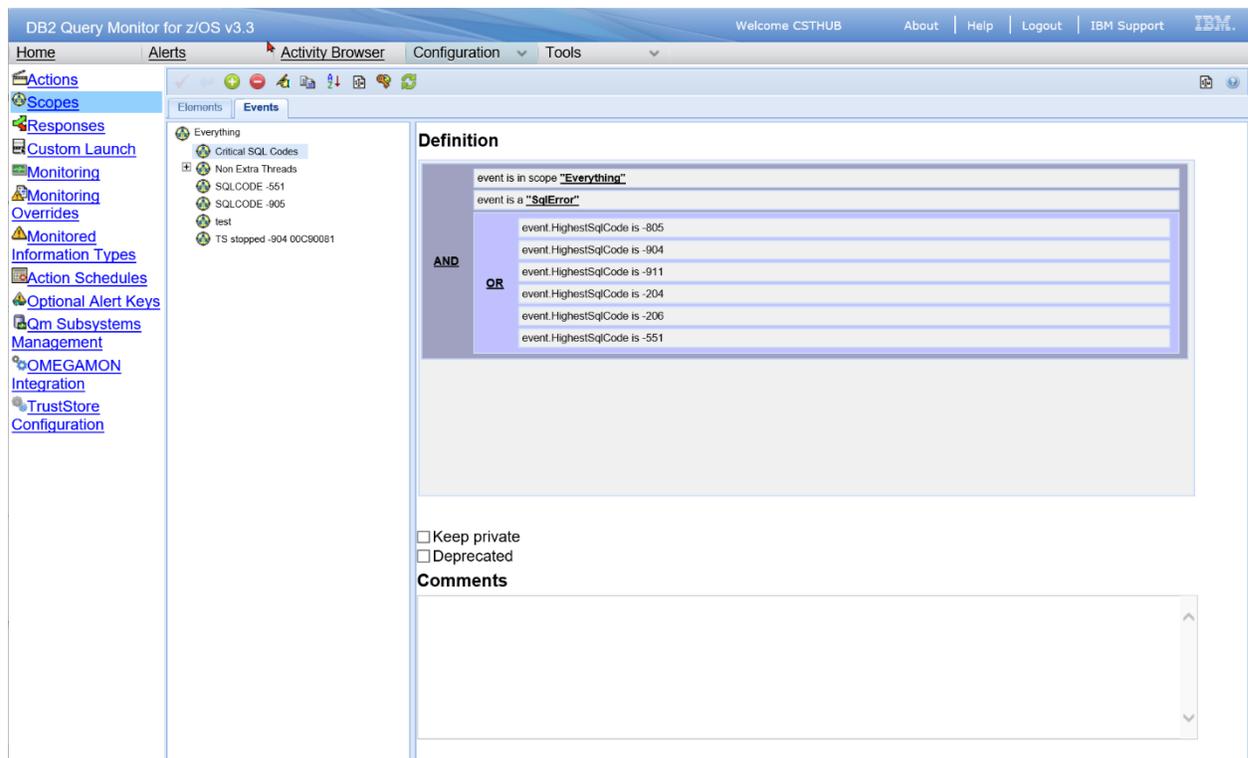
Not all SQL errors carry the same urgency. For example, a -904 caused by an object being stopped might be considered more severe than a -904 caused by for some other reason. Since Db2 Query Monitor includes the information from the SQLERRMC field of the SQLCA, it would be useful to use that information to filter alert responses, and even include that information in an email or WTO message.

The SQLERRMC from the SQLCA is passed in the MessageTokens field of Db2 Query Monitor alerts. This information provides examples of how this information can be used to enhance Db2 Query Monitor alert processing.

MessageTokens alert attribute in Scopes

Scopes are used to define groups of events based on specific criteria. Typical scope creation uses the Scopes Editor in the Configuration Browser to create and edit scopes. The MessageTokens attribute is not available in the basic Scopes Editor. However, using a couple of advanced Db2 Query Monitor features, you can access and use the MessageTokens attribute in Db2 Query Monitor scopes.

Let's look at a scope created using the scope editor. In the scope pictured below, we have focused on SQL Errors for which Db2 Query Monitor has generated alerts. The scope allows further fine tuning such that actions can be limited to a list of installation defined "Critical SQL Codes". Here is what the completed scope looks like.

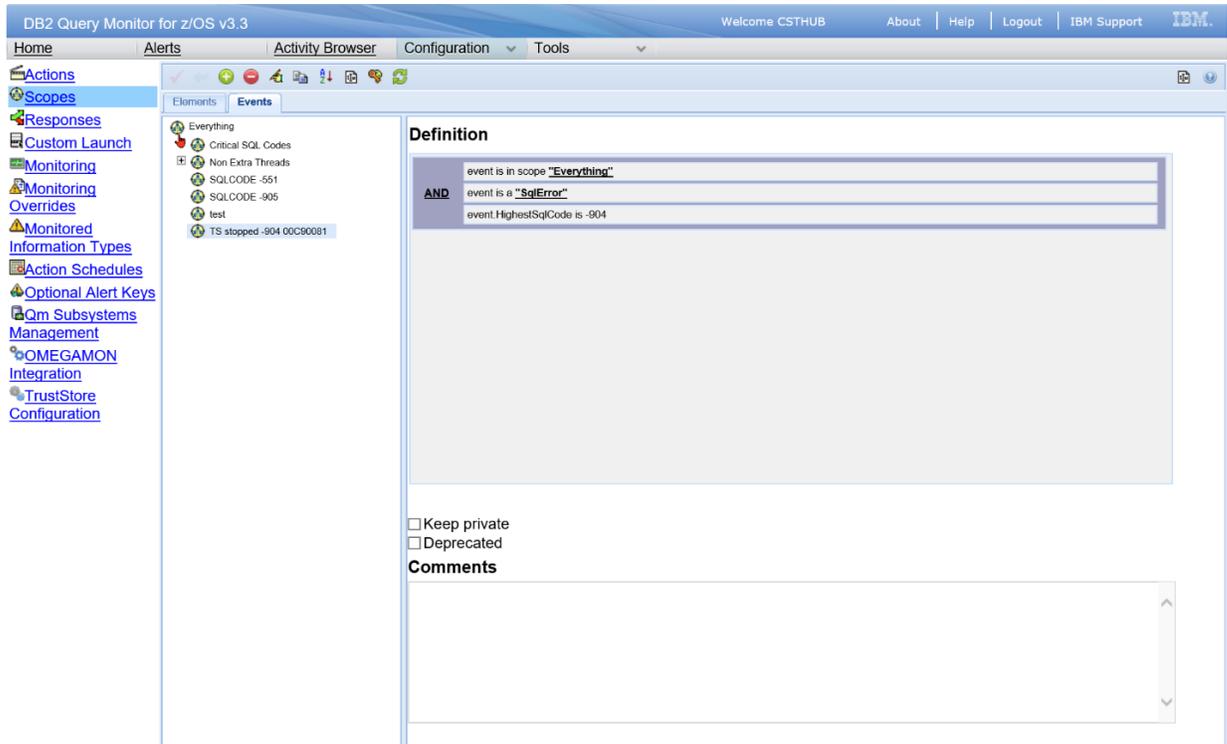


Now let's take the case where additional notifications need to happen if the reason for resource unavailable SQL Codes is that the resource is in a "stopped" status. In this case, Db2 issues a -904

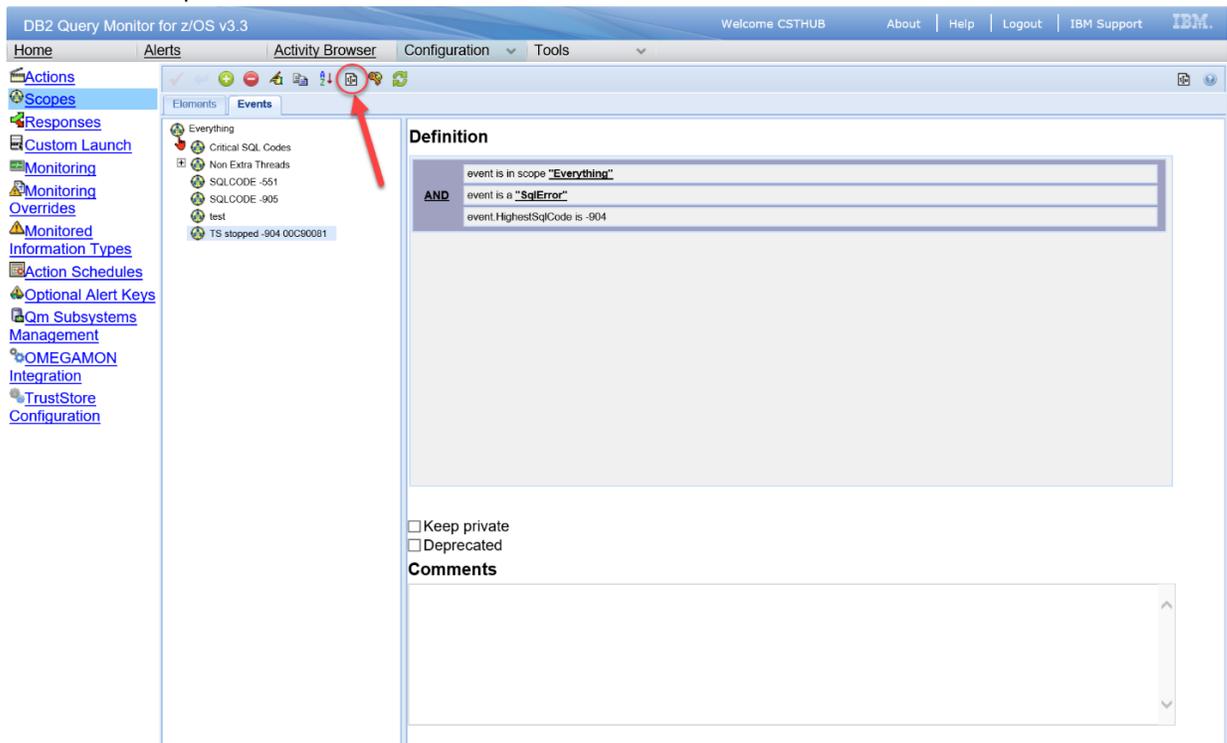
with a reason code of “00C90081”. For SqlError event types, the Db2 reason code is included in the MessageTokens field of the event record.

Here are the steps to create a scope which checks for a “stopped status reason code” in the “MessageToken” field of an SqlError with a -904 SQL Code.

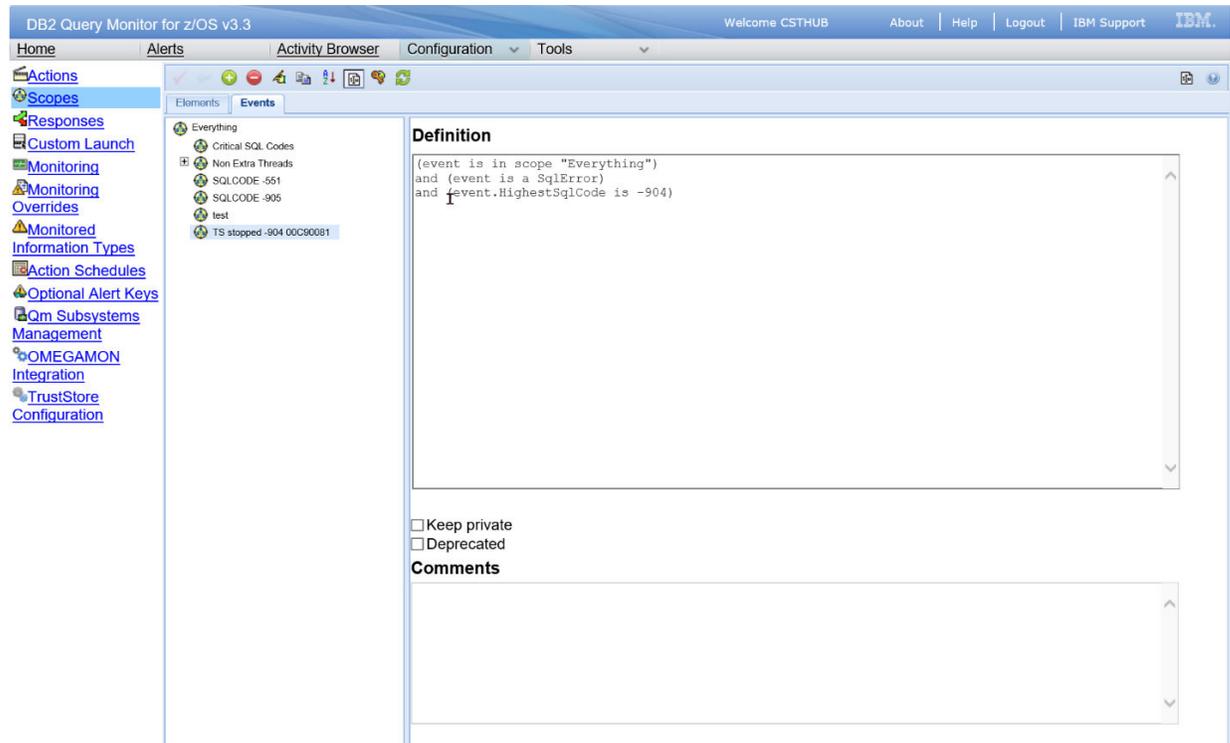
1. Create a new scope using the Scopes Editor of the Configuration Browser. This would be an event scope for -904 SQL Codes. The basic scope is shown here:



2. Once the basic scope is created, use the text view mode of the editor to access an editable textual view of the scope source as shown here:



Here is the text editor view:



- Now use the editor to add an “and” condition at the end of the scope to check for the Db2 reason code of “00C90081” that indicates a resource is in “stopped” status. The function you use to check the reason code is “regexMatches”. The syntax of the function is as follows:

```
regexMatches("search_string",event.getAttribute("MessageTokens").toString())
```

Where the search_string is the Db2 Reason Code and
The event.getAttribute function is used to get the MessageTokens from the SqlError event

Here is the scope after editing:

DB2 Query Monitor for z/OS v3.3

Welcome CSTHUB About Help Logout IBM Support

Home Alerts Activity Browser Configuration Tools

Actions
Scopes
Responses
Custom Launch
Monitoring
Monitoring Overrides
Monitored
Information Types
Action Schedules
Optional Alert Keys
Qm Subsystems Management
OMEGAMON Integration
TrustStore Configuration

Elements Events

Definition

```
(event is in scope "Everything")
and (event is a SqlError)
and (event.HighestSqlCode is -904)
and regexMatches("^00C90081", event.getAttribute("MessageTokens").toString())
```

Keep private
 Deprecated

Comments

Save the changes by clicking on the red check mark as shown below:

DB2 Query Monitor for z/OS v3.3

Welcome CSTHUB About Help Logout IBM Support

Home Alerts Activity Browser Configuration Tools

Actions
Scopes
Responses
Custom Launch
Monitoring
Monitoring Overrides
Monitored
Information Types
Action Schedules
Optional Alert Keys
Qm Subsystems Management
OMEGAMON Integration
TrustStore Configuration

Elements Events

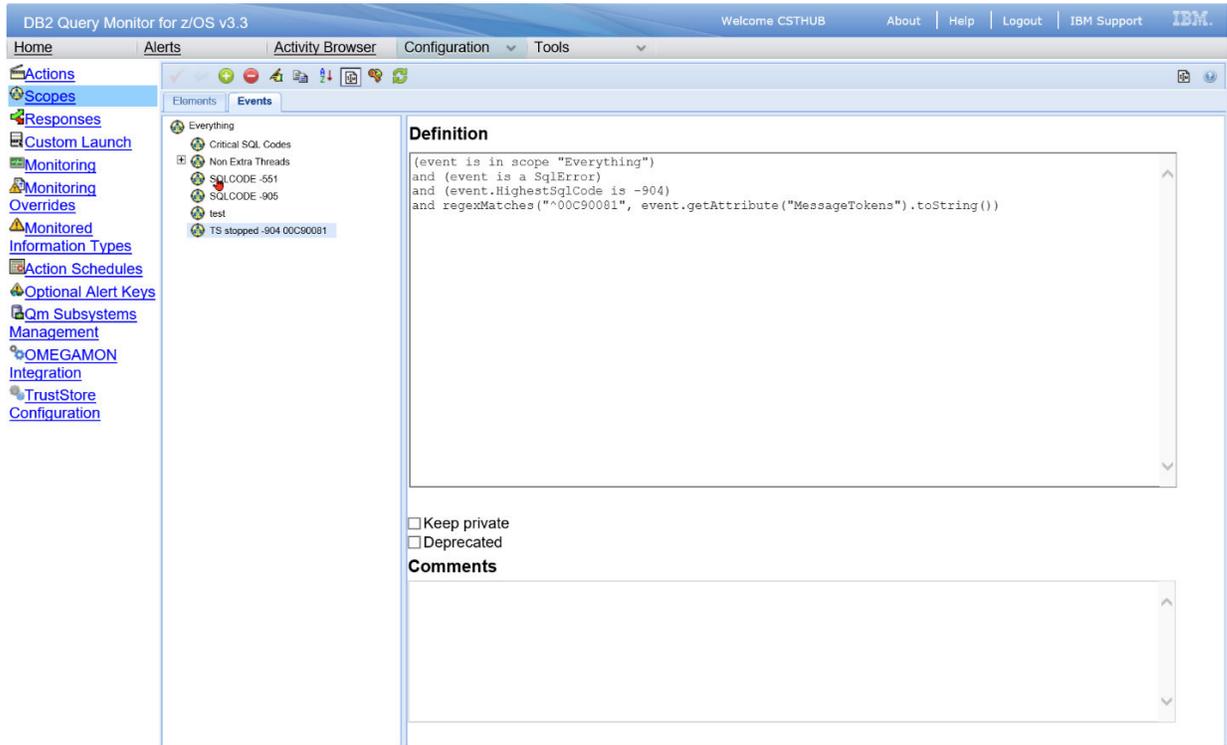
Definition

```
(event is in scope "Everything")
and (event is a SqlError)
and (event.HighestSqlCode is -904)
and regexMatches("^00C90081", event.getAttribute("MessageTokens").toString())
```

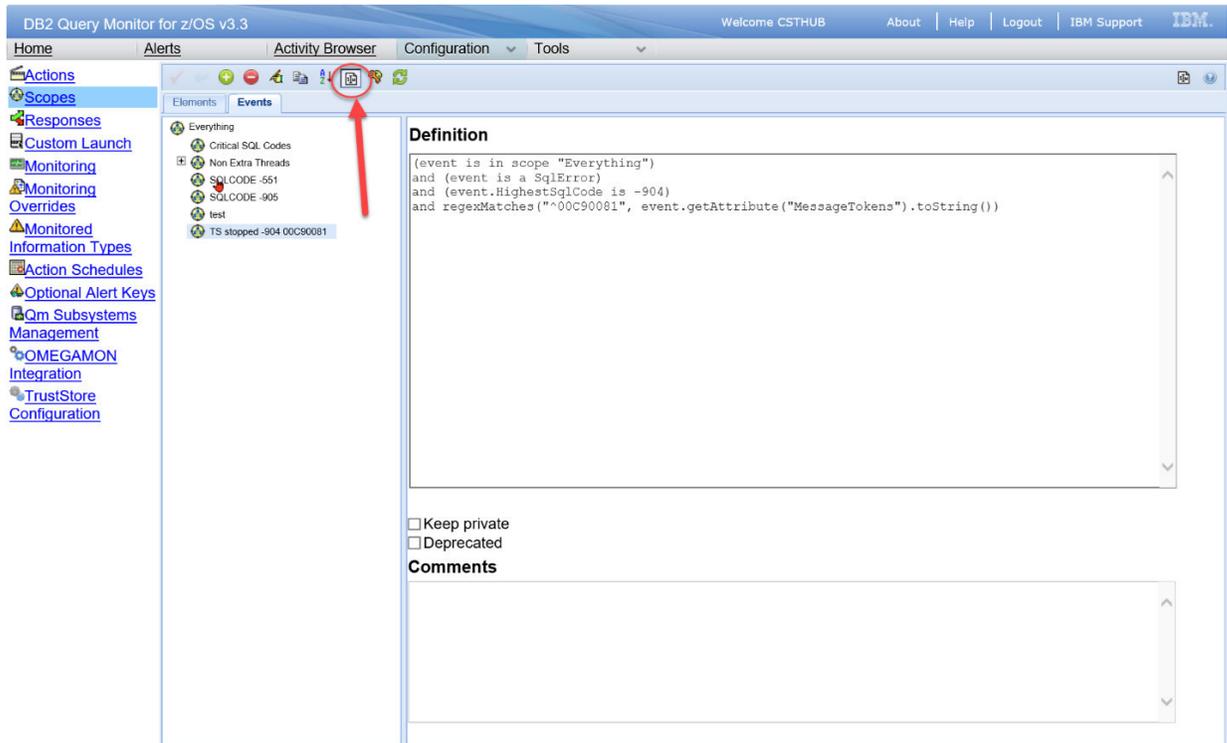
Keep private
 Deprecated

Comments

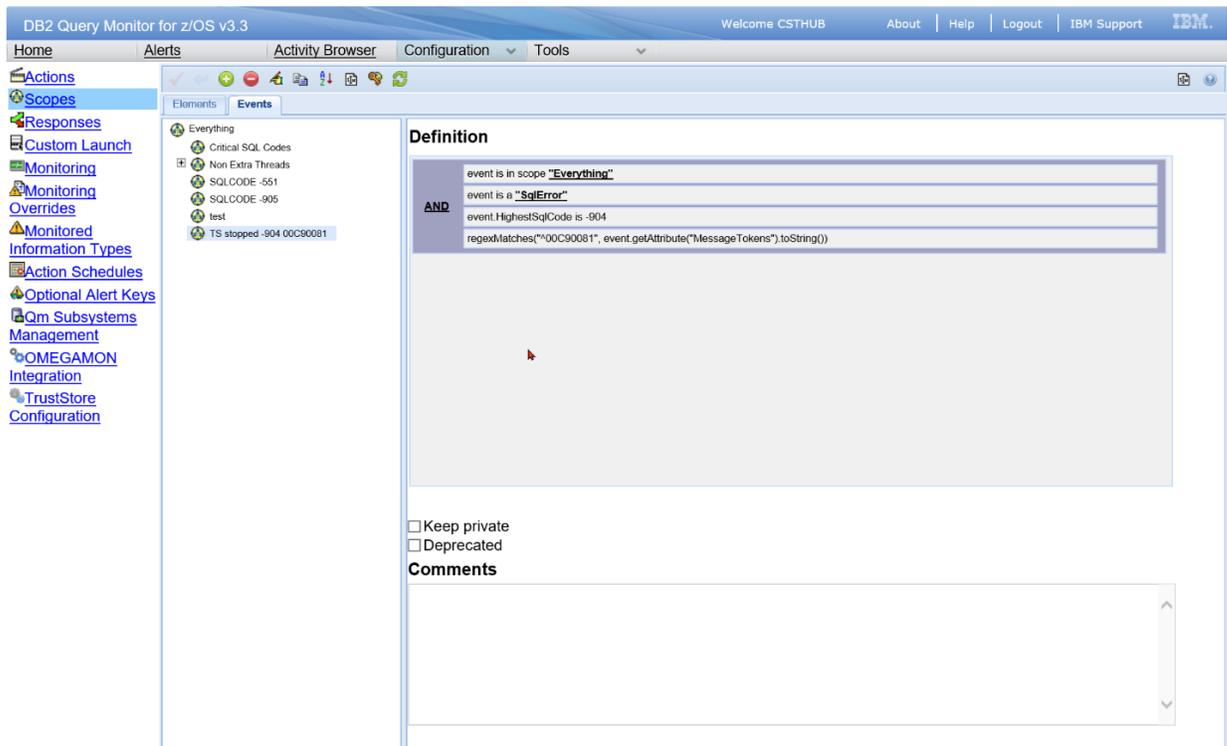
The completed scope is shown below.



Click the **Text Mode** button to exit the text mode view.



You have now returned to the default scope editor view:



MessageTokens alert attribute in Responses

In addition to the use of the MessageTokens field to provide advanced filtering in scopes, the field can also be used in Responses. It may be helpful and even desirable to include the information from the MessageTokens field in an email or WTO message in response to an alert.

The complete MessageTokens field can be accessed using the getAttribute function of QM. In addition, if there is more than one field included in MessageTokens you can extract the fields and compose a more usable message when an alert is triggered. For example, using the getAttribute and regexExtract functions, an email response to a -904 SQLCode can be coded as follows:

```
-904 SqlCode error.

Db2 subsystem: ${subject.db2Ssid}
Plan          : ${subject.plan}
Package       : ${subject.programName}
Auth ID       : ${subject.user}
Timestamp     : ${event.timestamp}
SQLCODE       : ${event.HighestSqlCode}
Current ts    : ${currentDatetime}
URL           : ${event.URI}
SQLCODE       : ${event.message}
MessageTokens: ${event.getAttribute("MessageTokens")}
SQLCA        : ${event.getAttribute("SQLSTATE")}
Db2 reason code : ${regexExtract("^.{8}").{8}.*(.*$",
event.getAttribute("MessageTokens").toString()).get(1)}
Type of resource: ${regexExtract("^.{8}").{8}.*(.*$",
event.getAttribute("MessageTokens").toString()).get(2)}
Resource name  : ${regexExtract("^.{8}").{8}.*(.*$",
event.getAttribute("MessageTokens").toString()).get(3)}
```

Using the example above, will cause Db2 Query Monitor to generate an email that looks like this:

-904 SqlCode error.

```
Db2 subsystem: IA1A
Plan          : DSNESPCS
Package       : DSNESM68
Auth ID       : CSTHUB
Timestamp     : 1641336134443
SQLCODE       : -904
Current ts    : Thu Jan 06 10:25:03 GMT-05:00 2022
URL           : Not specified
SQLCODE       : Query received code -904, indicating that a resource was unavailable (e.g., -904:
unsuccessful execution caused by an unavailable resource)
MessageTokens: 00C90081Y00000100YCQMTJHD
SQLCA        : 57011

Db2 reason code : 00C90081
Type of resource: 00000100
Resource name   : CQMTJHD
```

Chapter 9. Troubleshooting

Find information about how to diagnose and correct problems that you experience with Db2 Query Monitor.

Topics:

- [“Recovery procedures” on page 455](#)
- [“Messages” on page 458](#)
- [“Gathering diagnostic information” on page 458](#)
- [“NORUN parameter” on page 746](#)
- [“Tools Customizer troubleshooting” on page 652](#)

Recovery procedures

Recovery procedures have been developed for many common Db2 Query Monitor problems.

Topics:

- [“Recovering from disk failure” on page 455](#)
- [“Recovering from subsystem termination” on page 457](#)

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  0-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.
```

- 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.

- 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(volsesr)
```

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.

- Issue the following z/OS console command, where *yyy* is the new unit address:

```
VARY yyy, ONLINE
```

- To check disk status, issue the following command:

```
D U, DASD, ONLINE
```

The following console message is displayed:

UNIT	TYPE	STATUS	VOLSER	VOLSTATE
7D4	3390	0	XTRA02	PRIV/RSDNT

- 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)
```

- 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
```

- 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).
- 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.
- 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=XXXXXXXXX  
DSN3104I - DSN3EC00 -TERMINATION COMPLETE  
DSN3100I - DSN3EC00 - SUBSYSTEM ssnm READY FOR -START COMMAND
```

The following message might be issued to the IMS main 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.

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.

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 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.

CQM001E **Invalid value. Please enter a valid value.**

Explanation

The value you entered in the option line is not valid for this panel.

User response

Enter a valid value.

CQM002E **A valid Query Monitor subsystem ID is required. Please enter a valid Query Monitor subsystem ID or datasharing group.**

Explanation

A valid Query Monitor subsystem has not been specified.

User response

Enter a valid Query Monitor subsystem in the **Query Monitor Target** field. Enter **?** to select a Query Monitor subsystem from a list.

CQM003I **Please enter a command. Enter a ? for a list of valid commands.**

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 **?** in the command

line and press Enter to display a list of valid commands for the panel.

CQM004E **User is not authorized to enter Query Monitor.**

Explanation

The user ID under which you attempted to use Db2 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.

CQM005E **Query Monitor Subsystem not active. You must start the 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 .

CQM006E **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).

CQM007E	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).

CQM008E	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).

CQM009E	Option not allowed. You cannot select a summary line thread for SQL detail. Change detail/summary indicator to "D" and reselect.
----------------	---

Explanation

The option you selected is not valid for the summary level you are viewing.

User response

Change the detail/summary indicator to D and reselect a valid option.

CQM010E	Invalid target. The 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.

CQM011E	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.

CQM012I	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 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 **IBM* Rocket** Licensed materials
- Property of IBM 5697-I03
(c) Copyright IBM Corp. 1999,
2008 All Rights Reserved. (c)
Copyright Rocket Software, Inc.
1999, 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.

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.**

Explanation

The specified value was not within the valid range of numbers between 1 to 99,999,999.

User response

Enter a valid value. Valid values are numbers 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. This message might appear when sorting large amounts of data.

User response

Increase the REGION size for the 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 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 Software 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 Software 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 Software 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 **Invalid line command. Enter "1" for Plans, "2" for DB2, "3" for Pgm, "4" for Authid, "9" for Objs, "10" for Corr, "11" for Section, "12" for Call, "13" for WSUser, "14" for WSName, "15" for WSTran, "16" for SQL, "20" for Locks, "21" for Misc, "22" for Buffstat, "23" for Excp, or "24" for CurrAct.**

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.

CQM097E Invalid line command. Enter "2" for DB2, "P" for Plans, "R" for Programs, "U" for User ID, "I" for Correlation ID, "T" for Section, "C" for SQL Calls, "S" for SQL Text, "O" for Objects, "D" for Delay Detail, "B" for Buffer Detail, "L" for Lock Detail, "W" for Workstation user, "M" for Workstation name, "N" for Workstation transaction or "Q" for Misc Statistics.

Explanation

The specified line command was invalid.

User response

Specify the valid line command listed in the message.

CQM100E Invalid line command. Enter "A" to analyze SQL text, "B" for Buffers, "C" for SQL Calls, "D" for Delays, "E" for Cancel Thread, "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 specified line command was invalid.

User response

Specify one of the valid line commands 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:

- Db2 Query Monitor 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 using 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.

CQM113E Invalid command. Enter "C" to copy profile, "D" to delete profile, "U" to update profile, "R" to rename profile, "S" to select 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.

CQM114E Invalid -SQLCODE value. Enter a -SQLCODE value between -1 and -99,999.

Explanation

The SQLCODE you specified on the Exception, Alert, or Summary SQLCODE Exclusion or Inclusion List panel is not within the valid range of -1 to -99999.

User response

Specify an SQLCODE within the valid range of -1 to -99999. To specify positive SQLCODEs, set the **Collect Exception Positive SQLCODEs**, **Collect Alert Positive SQLCODEs**, or **Collect Summary Positive SQLCODEs** to Y. When specifying a negative SQLCODE, ensure that you use a - with the SQLCODE.

CQM115E Invalid number of excluded SQLCODES exceeds limit. Enter only up to 64 excluded SQLCODES.

Explanation

You can only specify up to 64 SQLCODES to exclude when using the SQLCODE exclusion list.

User response

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.

CQM116I Duplicates removed.

Explanation

The duplicates you requested for removal have now been removed.

User response

No action is required.

CQM117E Invalid value. Enter "E" to exclude or "I" to include.

Explanation

The value you specified is not valid.

User response

Specify E to exclude or I to include.

CQM118E Invalid value. Enter "Y" to exclude specific SQLCODEs or "N" not to exclude SQLCODEs.

Explanation

The specified value was invalid.

User response

Specify one of the valid values listed in the message.

CQM119E Invalid value. Enter "Y" to disable summary reporting or "N" to enable.

Explanation

The specified value was invalid.

User response

Specify one of the valid values listed in the message.

CQM120E Invalid value. Enter "Y" to gather host variables or "N" not to gather host variables.

Explanation

The value you specified is not valid.

User response

Specify Y to gather host variables or N to not gather host variables.

CQM121E Invalid value combination. Disable summary reporting is only valid with an exclude profile line.

Explanation

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.

User response

Either specify a value of N in the Disable Summary Reporting field or change your profile line to an EXCLUDE profile line.

CQM122E	Invalid value. Enter "Y" to exclude QM plans from monitoring or "N" to include them.
----------------	---

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.

CQM123E	Missing QM plan. At least one QM plan name must be specified when excluding QM plans from monitoring.
----------------	--

Explanation

If you specify the exclusion of QM plans, you must also specify at least one QM plan name for exclusion.

User response

Specify at least one QM plan name for exclusion.

CQM124E	Invalid pattern string. Enter a valid pattern string with no imbedded blanks.
----------------	--

Explanation

The pattern string you specified for use in matching a plan name was invalid.

User response

Specify a valid pattern string that has no imbedded blanks.

CQM125E	Invalid line command. Enter "V" to view profile line data.
----------------	---

Explanation

The line command you specified is not valid for the panel.

User response

Specify a valid line command. Valid line commands for the panel include "V" to view profile line data.

CQM126I	No SQLCODEs excluded.
----------------	------------------------------

Explanation

This informational message displays when you access the SQLCODE exclusion list (when inserting or updating a profile line) and no SQLCODES have yet been listed for exclusion.

User response

No action is required.

If you want to exclude SQLCODES from processing, type those SQLCODES in the fields provided.

CQM127E	Invalid command. Only ISPF system commands may be entered on this panel.
----------------	---

Explanation

The command you specified is not valid for this panel.

User response

Enter only ISPF system commands.

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

A recent request was not processed because another request is already being processed for the agent.

User response

Reissue your request at another time.

CQM129I	Enter new profile name. Enter a monitoring profile name to be activated on this monitoring agent.
----------------	--

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 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 <i>jobname</i> on <i>member</i>. 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 Db2 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

Db2 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

Db2 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 specified line command was not valid for the panel.

User response

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, Db2 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

Db2 Query Monitor must be monitoring the Db2 subsystem for the command you specified to be allowed.

User response

Start 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 <i>return_code</i> REASON CODE <i>reason_code</i> WAS ENCOUNTERED DURING DYNAMIC ALLOCATION OF <i>data_set</i>.
----------------	--

Explanation

A return code was produced during the dynamic allocation of the data set indicated in the message.

User response

If the data set name is not available, the message will display the text "The information in the interval file is bad" instead of the data set name.

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. For more information, see *z/OS Support for Unicode (TM) - Using Conversion Services (SA22-7649)*.

CQM154E **RETURN CODE** *return_code*
REASON CODE *reason_code* **WAS**
ENCOUNTERED DURING VSAM

PROCESSING OF *data_set*. ERROR SEQUENCE NUMBER *number*.

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. For more information, see *z/OS DFSMS Macro Instructions for Data Sets (z/OS 3.1 documentation)* and contact IBM Software Support.

CQM155E **ERROR OPENING** *data_set*.
RETURN CODE *return_code*
ACBERFLG=X"code".

Explanation

An error was encountered while attempting to open the data set indicated in the message.

User response

For more information, see *z/OS DFSMS Macro Instructions for Data Sets (z/OS 3.1 documentation)*.

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

For more information, see [Db2 for z/OS Messages](#) and [Db2 for z/OS Codes](#).

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. Db2 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. Db2 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 *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

For more information, see [Db2 for z/OS Messages](#) and [Db2 for z/OS Codes](#).

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 Db2 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

For more information, see [z/OS DFSMS Macro Instructions for Data Sets \(z/OS 3.1 documentation\)](#).

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

For more information, see [z/OS DFSMS Macro Instructions for Data Sets \(z/OS 3.1 documentation\)](#).

CQM167E	Filter not found. The requested operation failed because the filter no longer exists.
----------------	--

Explanation

Db2 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 for this panel 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 specified command is not valid for this panel. Valid commands are 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.**

Explanation

Interval processing is in progress. The current end of data has been reached.

User response

No action is required.

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.

CQM178E **Activation failed. Db2 subsystem
has not been defined in the control
file.**

Explanation

Db2 Query Monitor was unable to connect to the requested Db2 subsystem. The control file you specified does not contain a record for this Db2 subsystem. Agent activation failed.

User response

Ensure that the control file has a record for the Db2 subsystem you specified.

1. From the Db2 Query Monitor main menu, select option **7. Setup**.
2. Select option **1: ZPARM, BSDS, and Load Library Information**.
3. Verify that the correct values are specified in all of the fields on this panel. In particular, verify

that the values for the Db2 Loadlib1 through Db2 Loadlib5 fields correspond to the current load library concatenation for the correct version of Db2.

CQM179E **The requested data is not
available because was not enough
space in the *data_set* dataset
when it was generated. C_RBA =
X'yyyyyyyyyyyyyyyyyy' HI-U-RBA =
X'zzzzzzzzzzzzzzzzzz'**

Explanation

An attempt was made to read after the end of the data set. This situation can occur during the formation of interval data sets if there is no free space in the associated files to write details but there is still enough free space for the main file to write the summary. The message shows the C-RBA (the RBA of the read record) and the HI-U-RBA (the End-of-file RBA).

User response

In the CQMPARMS startup parameter file for your CQM subsystem, increase the space defined for the type of data sets that correspond to data set name shown in the message.

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.

CQM185E **The interval *interval_number* is out of date and has been removed.**

Explanation

One of the selected intervals is not available any more due to removing the oldest interval during interval switch. It is not possible to show the data from it.

User response

The interval is not available. Corresponding data can not be displayed.

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

Type only one line command at a time. Re-specify 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 Db2 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

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.

User response

Do not specify wildcards with the operator.

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 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

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 54.
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: ZPARM, 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.

CQM208E Invalid filter type. Valid types are "PLAN", "PROGRAM", "CURSOR", "COLLID", "AUTHID", "JOBNAME", "CONN", "CORRNAME", "CORRID", "SSID", "WSUSER", "WSNAME", "WSTRAN", "DBNAME",

**"BUFPOOL", "OBJNAME",
"CREATOR", "OBJTYPE",
"PAGESET", and "TABNAME".**

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), CORRID (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 OPTKEY S 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.

CQM222E 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 one of the valid commands listed in the message.

CQM223E 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

CQM224E Invalid command. Valid commands are "A" to select AUTHIDs, "D" to select DBRMs/Packages, or "S" to select SQLCODEs.

Explanation

The command you specified was invalid.

User response

Specify A to select AUTHIDs, D to select DBRMs/Packages, or S to select SQLCODES.

CQM225E 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.

Explanation

The command you specified was invalid.

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.

CQM226E	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.
----------------	--

Explanation

The command you specified is not valid. Valid commands for this panel include A to select AUTHIDs, D to select DBRMs/Packages or P to select plans, or S to select SQLCODE detail.

User response

Specify a valid command.

CQM227E	Invalid command. Valid commands are "P" to select plans, or "S" to select SQLCODEs.
----------------	--

Explanation

The command you specified is not valid. Valid commands for this panel include P to select plans and S to select SQLCODEs.

User response

Specify a valid command.

CQM228E	Invalid command. Valid commands are "A" to select AUTHIDs or "S" to select SQLCODEs.
----------------	---

Explanation

The command you specified is not valid. Valid commands for this panel include A to select AUTHIDs and S to select SQLCODEs.

User response

Specify a valid command.

CQM229E	Invalid command. Valid commands are "D" to select DBRMs/Packages, or "S" to select SQLCODEs.
----------------	---

Explanation

The command you specified is not valid. Valid commands for this panel include D to select DBRMs/Packages and S to select SQLCODEs.

User response

Specify a valid command.

CQM230E	Invalid command. Valid commands are "V" to view filter line.
----------------	---

Explanation

The specified line command was invalid.

User response

Specify one of the valid line commands listed in the message.

CQM231E	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.
----------------	--

Explanation

The specified line command was invalid.

User response

Specify one of the valid line commands listed in the message.

CQM232E	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.
----------------	--

Explanation

The specified line command was invalid.

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 : .thmiju, 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

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

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

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

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

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 initialization of the call attach facility.

Explanation:

Db2 Query Monitor cannot perform the requested call attach due to errors during the initialization of the call attach facility.

User response

For more information, see [Db2 for z/OS Messages](#) and [DB2 UDB for z/OS Codes](#).

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, 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

To start the collection of SQL text, specify OPTKEYS(TEXT) or OPTKEYS(PTEXT). Otherwise, no action is required.

Related reference

[“OPTKEYS” on page 699](#)

Use the OPTKEYS parameter in CQMPARMS to control the summary reporting behavior of your Query Monitor subsystem.

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.

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, 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 847.](#)

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 messages.

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.**

Explanation

The specified line command is not valid for the panel.

User response

Specify one of the valid line commands listed in the message.

CQM266E **Invalid command. Valid
commands are "1" for plans, "4"
for AUTHIDs or "S" to select
detail.**

Explanation

The specified line command is not valid for the panel.

User response

Specify one of the valid line commands listed in the message.

CQM267E **Invalid command. Valid
commands are "1" for plans, "3"
for DBRM/Packages or "S" to
select detail.**

Explanation

The specified line command is not valid for the panel.

User response

Specify one of the valid line commands listed in the message.

CQM268E **Invalid line command. Enter "O"
for Objs, "C" for Call, "S" for SQL,
"A" for Analyze, "D" for Delay, "L"
for Locks, "Q" for Misc, "B" for
Buffstat, "H" for Host Variables,
"P" for Parallel Activity or "E" 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.

CQM269E Invalid line command. Enter "O" for Objs, "C" for Call, "S" for SQL, "A" for Analyze, "D" for Delay, "L" for Locks, "Q" for Misc, "B" for Buffstat, "H" for Host Variables, or "P" for Parallel Activity

Explanation

The specified line command is not valid for the panel.

User response

Specify one of the valid line commands listed in the message.

CQM270E Invalid line command. Enter "S" for SQL, "D" for Delay, "L" for Locks, "Q" for Misc, "B" for Buffstat, "H" for Host Variables or "C" 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 is 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, "3" for DBRMs/Packages 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

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

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 <i>userid</i> or the <i>cqmssid</i> jobname <i>jobname</i>.
----------------	---

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. Ensure 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. Ensure to provide the version data displayed on the panel.

CQM288E	Program <i>program</i> does not verify at <i>disp</i> with the provided verify data <i>data</i>. 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. Ensure to provide the version data displayed on the panel.

CQM289E	Program abend verifying collector program <i>program</i>. 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. Ensure 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 messages.

CQM292E	Invalid command. Valid commands are "S" to view SQL text or "C" to view the SQLCA
----------------	--

Explanation

The command you specified is not valid for the panel. Valid commands are 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 lie 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 commands 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, "SS" to indicate start or end of a block of entries to select, "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.

for Delete, "6" for Copy, "10" for Before, or "11" for After.

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.

CQM303E **Invalid command. Valid commands are "1" to insert filter line, "2" to update filter line, "3" to view filter line, "4" to repeat filter line or "5" to delete 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.

CQM304E **Invalid line command. Enter "1" for Insert, "4" for Repeat, "5"**

Explanation

The specified line command was not valid for the panel.

User response

Specify one of the valid line commands listed in the message.

CQM305E **Invalid line command. Enter "C" for Copy, "D" for Delete, "R" for Rename, "S" for Select, "V" for View, or "N" 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.

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

User response

CQM313E Invalid command. Valid commands are "1" for plans, "3" for DBRM/Packages, "4" for AUTHIDs, or "S" to select detail.

Explanation

You entered an invalid command.

User response

Specify one of the valid commands indicated 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

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 <i>rc</i> REASON CODE <i>rsn</i> 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.

CQM349E **Invalid value. Enter "Y" to include specific Db2 objects for GETPAGE threshold filtering or "N" not to include Db2 objects.**

Explanation

The value you specified is not valid.

User response

Specify Y to include specific GETPAGE Objects or N not to include specific GETPAGE Objects.

CQM357I **No Db2 Objects included.**

Explanation

This informational message displays when you access the Alert GETPAGE Object inclusion list (when inserting or updating a profile line) and no GETPAGE Objects have yet been defined for inclusion.

User response

No action is required. If you want to include GETPAGE Objects in processing, type the GETPAGE object information in the fields provided.

CQM358I **Update cancelled.**

Explanation

This informational message displays to notify you that no updates were made.

User response

No action is required.

CQM359E **Invalid line command. Enter "I" for Insert, "D" for Delete, "R" for Repeat, or "U" for Update.**

Explanation

The specified line command was invalid.

User response

Specify one of the valid line commands listed in the message.

CQM366I **Insert cancelled.**

Explanation

This informational message displays to notify you that the insert operation was cancelled.

User response

No action is required.

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:

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:

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 Objjs, "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.**

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 54 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.

CQM837E	Dataset name including user prefix exceeds 44 characters. To avoid prefix, enclose DSN in single quotes.
----------------	---

Explanation

The data set name specified for the Export CQM ISPF Log DSN was not found.

User response

Create a new sequential or PDS file with a lrecl set to 4096.

CQM838E	Dataset <i>dsn</i> 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

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 <i>dsn</i>.
----------------	---

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.

User response

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.

CQM853E **Invalid value. Enter a valid non-zero numeric value for the GETPAGES threshold.**

Explanation

This alert occurs when the Alert GETPAGES threshold is non-numeric or less than 1.

User response

Enter a non-zero numeric value in the GETPAGES threshold field.

CQM860E **Command Conflict. Individual Commands invalid with Block Select Active.**

Explanation

A Block Select (SS) line command was entered, but before the block ending SS line command was found a different line command was entered.

User response

Enter an individual line command that is outside the scope of a block select.

CQM861I **Block command incomplete. Interval Block select end not specified.**

Explanation

The ENTER key was pressed after entering an SS command to indicate the start of block select, but the corresponding SS command to indicate the end of the block was not entered.

User response

Scroll to the interval line that identifies the end of the interval and enter the ending SS command.

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.

CQM920E 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.

CQM921E 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.

CQM922E 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.

CQM923E 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.

CQM924E 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.

CQM925E 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.

CQM926E 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.

CQM927E 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.

CQM928E 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.

CQM929E 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.

CQM930E 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.

CQM931E 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.

CQM932E 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 that there are no other tailoring sessions running concurrently.

CQM933E 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.

CQM934E **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.

CQM935E **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.

CQM936E **Allocation error - The ISPFDD is already allocated and cannot be deallocated. Process not completed.**

Explanation

The ISPFDD 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

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

A repeat FIND (RFIND) 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 unfix 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 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 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.

CQM967E **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 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

Refer to the *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.

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 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.**

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.

CQM1415E **MASTER STOP NOT ALLOWED IN A FOLLOWING STEP OF CURRENT CQM STC. REQUEST IGNORED.**

Explanation:

The request to stop the Query Monitor master address space cannot be done with the same started task number as the currently terminating Query Monitor. It must be done after the Query Monitor termination is complete, which is after CQM5011I is issued from the resource manager executing from z/OS ASID 1 *MASTER*.

User response:

Ensure the stop request is in a separate job from the CQM Collector address space.

WTO messages

These messages may appear as write-to-operator (WTO) messages in your SYSLOG or other appropriate output for your site.

CQM0001I **OFFLOAD_LEVEL:**
MEMBER=member VRM=version
APAR=apar_number DATE=date

Explanation

This information message shows the following:

member

The module name.

version

The product version.

apar_number

The number of the APAR that last changed this module.

date

The compilation date of this module in format dd/mm/yy hh.mm.

User response

No action is required.

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

Db2 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 Db2 Query Monitor and identifies the subsystem that is undergoing initialization.

User response

No action is required.

CQM1002I **DB2 QUERY MONITOR
INITIALIZATION COMPLETE FOR
SUBSYSTEM *ssid***

Explanation

This message appears during the normal initialization process of the Query Monitor subsystem and confirms that the initialization process has completed.

User response

No action is required.

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

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.

CQM1004I **DB2 QUERY MONITOR
TERMINATION IN PROGRESS FOR
SUBSYSTEM *subsystem***

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 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

A required DD statement is missing from your started task or offload job.

User response

Add the necessary DD statement to your JCL.

Related tasks

[“Configuring the offload to the performance history database” on page 435](#)

Before you load Db2 Query Monitor data to your performance history database for the first time, you must configure this offload process.

Related information

[“CQM2604E” on page 525](#)

VSAM LOGIC ERROR VASMRC= *rc* VSAMRS=*rc*

CQM1007E **INVALID USERID SPECIFIED FOR
AUTHID**

Explanation

The user ID entered in the AUTHID parm in the CQMPPARMS 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 CQMPPARMS 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 space or numeric, 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.

User response

Correct the command.

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.

CQM1025I **DB2 QUERY MONITOR VERSION *version***

Explanation

The version of the IBM Db2 Query Monitor that is running is displayed.

User response

No action is required.

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 that 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 master address space could not be created for the given reason.

additional_info

Additional information that explains why the master address space could not be created. Possible values are:

MISMATCHED MASTER CODE LEVELS

Db2 Query Monitor is not able to create the master address space due to mismatched master code levels.

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, as follows:

UNABLE TO CREATE MASTER ADDRESS SPACE, MISMATCHED MASTER CODE LEVELS

The master address space is unable to start or function properly.

- If this installation 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_PROCNAME parameters for each version.
- If message IEE296I is issued, the AUTHID for the master address space assigned from the started task table might 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 master address space. If the message is issued after applying Db2 Query Monitor maintenance, one of the fixes is likely to have affected the master address space. You must cycle the Db2 Query Monitor started task and master address space after applying maintenance. Refer to SAMPLIB member CQMMSTR for example on how to cycle the master address space. 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 54.

CQM1034I **MASTER ADDRESS SPACE HAS STARTED**

Explanation

The master address space has started.

User response

No action is required.

CQM1035E **UNABLE TO RESTART MASTER (RS=rc)**

Explanation

The master address space could not be restarted.

User response

Verify the master address space is available and restart.

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.

ssid

The subsystem ID.

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, contact IBM Software Support.

CQM1047I **WAITING FOR THE COMPLETION OF THE PROCESS OF INTERVALS SWITCHING FOR THE CQM SUBSYSTEM**

Explanation

The offload is waiting for the end of the interval switching process. After the interval switching process is complete, the file offload process will begin.

User response

No action is required.

CQM1048E **CURRENT INTERVAL FILES ARE INCOMPLETE AND CANNOT BE OFFLOADED**

Explanation

There was an attempt to offload the current (active) interval but current (active) intervals cannot be offloaded. The offload process is terminated with return code 4.

User response

Only initiate the offload for closed intervals. If data from the current interval is needed, run interval switch to close the current interval and start a new interval. Then the offload can be started for the closed interval.

CQM1049E *process* **FAILED FOR "INTERVAL PROCESSING " CQM SUBSYSTEM=ssss RETCD=X"return_code" REASON=X"reason_code"**

Explanation

This message displays diagnostic information about abnormal service ENQ/DEQ completion.

process

The process that the program tried to execute against the data set. Valid values are ENQ OBTAIN and DEQ RELEASE.

ssss

The Query Monitor subsystem name

return_code and reason_code

The return and reason codes from ISGENQ services.

User response

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.

User response

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*
RETURN=*code*, REASON=*code***

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.

CQM1060E **PROCESSING THREAD *thread* IN
DB2 *ssid* FROM PLAN *plan* IN
SECTION *sectoin* IN ASID *asid***

Explanation

The thread indicated in the message is being processed.

User response

No action is required.

CQM1060I **ZIIP SUPPORT IS NOT ACTIVE.
<*descr1*> RC=*xx* RS=*yyyyyyyy***

Explanation

The message displays the name of the IBM Workload Manager (WLM) service request that failed in place of the *descr1* 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 *ccsid* TARGET CCSID *ccsid* 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
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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, provide IBM Software Support with the text of messages CQM1203I, CQM1204I, and CQM1205I and any dumps that were produced.

CQM1204I	FUNC=func, SP=subpool, FLG2=flag, FLG3=flag
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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, 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
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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, 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
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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
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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.

CQM1211I	AN ABEND OCCURRED DURING ISM PROCESSING FOR SPACE – space
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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.

CQM1212E **AN ERROR OCCURRED IN THE
EXTENT EXIT ROUTINE FOR
SPACE – *space***

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

Provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Software Support.

CQM1213W **SPACE IS FULL AND NO MORE
EXTENTS CAN BE OBTAINED FOR
SPACE – *space***

Explanation

A Query Monitor Integrated Storage Manager operation has failed because no more 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, provide the text of this message and messages CQM1203I and CQM1204I to IBM Technical Support.

CQM1214W **OWNER LIMIT EXCEEDED 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

Provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.

CQM1215W **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 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, 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

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 storage allocation specified in the MAXIMUM_ALLOCATIONS parm in CQMPARMS. At the time of the error, Query Monitor was attempting to allocate additional storage 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, 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 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, provide the text of this message and messages CQM1203I and CQM1204I to IBM Technical Support.

**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, contact IBM Technical Support.

CQM1250E GQSCAN ERROR RC=rc,RSN=rsn

Explanation

The GQSCAN service returned an unexpected error.

User response

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, 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

No action is required. However, if you would like to prevent this message from being issued in the future, you can change the INTERVAL value in the CQMPARMS dataset for this CQM started task to match the INTERVAL value in the message.

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, 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

Db2 Query Monitor is unable to monitor Db2 V7.1 or earlier releases in any mode.

User response

Refer to the Operational Requisites section of the Program Directory for Query Monitor release that you are installing or the [Operating system and environment](#) section to determine the Db2 version supported by this release.

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 **IN-COLLECTOR ELAPSED TIME
LIMIT EXCEEDED FOR THREAD
*thread_id ssid plan_name*****Explanation**

The monitoring agent has been detected to be consuming CPU for a time period greater than specified in the HM_TIME_LIMIT parameter in CQMPARMS.

The thread ID is the Db2 thread token for the thread consuming the CPU, the ssid is the Db2 subsystem running the thread, and plan is the plan name the thread was executing.

User response

Review the CQMPARMS parameters, HM_DUMPS and HM_TIME_LIMIT (these parameters set the thresholds for in-collector health monitoring).

In environments with high CPU contention, the HM_TIME_LIMIT parameter value might need to be increased to avoid false positives. An SVCDUMP will be taken if the HM_DUMPS limit has not been met.

If you encounter this message and receive a dump, contact IBM Software Support.

CQM2059E **CALLRTM ISSUED FOR SRB
*srb_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 HM_DUMPS and HM_TIME_LIMIT (these parameters set the thresholds for in-collector health monitoring). In environments with high CPU contention, the HM_TIME_LIMIT parameter value might need to be increased to avoid false positives. A SVCDUMP will be taken if the HM_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**

Query Monitor has issued a CALLRTM service for the TCB or SRB identified by tcbaddr or srbid in the address space identified by ASID asidnum. This message is issued in conjunction with CQM2058E message.

User response

Review the CQMPARMS parameters HM_DUMPS and HM_TIME_LIMIT (these parameters set the thresholds for in-collector health monitoring). In environments with high CPU contention, the HM_TIME_LIMIT parameter value might need to be increased to avoid false positives. An SVCDUMP will be taken if the HM_DUMPS limit has not been met.

If you encounter this message and receive a dump, contact IBM Software Support.

CQM2061E **MONITORING OF THREADS
DISABLED FOR SSID *ssid*****Explanation**

Query Monitor will no longer monitor SQL from threads that are from the named Db2, as it detects high CPU conditions more than those that are specified in the HM_DISABLE_AGENT parameter in CQMPARMS.

User response

Review the SYSLOG for prior instances of CQM2058E and CQM2060E messages, which document units of work that were identified as consuming excessive in-collector elapsed time and were canceled as a result. SVCDUMPs associated with these entries would have been captured, provided the HM_DUMPS parameter setting, in effect, permitted dumps to be captured. Monitoring will not be reactivated until the monitoring task is restarted.

If you encounter this message and receive a dump, contact IBM Software Support.

CQM2062I **SQL CALLS FOR THREAD *thread-*
token ON db2-ssid WILL NO
LONGER BE MONITORED****Explanation**

Query Monitor will no longer monitor SQL activity for the thread identified by thread-token on Db2 subsystem (*db2-ssid*) because it previously detected a high CPU condition within the thread in Query Monitor. This message is issued in conjunction with CQM2058E message.

User response

Restart Query Monitor once the problem is identified. If you encounter this message and receive a dump, contact IBM Software Support.

CQM2100E **UNRECOGNIZED PARAMETER**

Explanation

Db2 Query Monitor has encountered an unrecognized parameter.

User response

Check the startup parameters to ensure that the parameters specified are all valid.

CQM2101E **PARAMETER ERROR DETECTED FOR *parameter***

Explanation

Db2 Query Monitor has encountered an error in one of the startup parameters.

Note: Message CQM2101E may be issued when the QM data collector is started if the CQMPARMS file specifies primary space allocations for back store data sets that are lower than the default.

User response

Check the startup parameters to ensure that all are specified properly. Check that primary space 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.

CQM2194I **SWITCHED TO APPLIANCE *x***

Explanation

Either Hot-Failover to the appliance indicated by *x* has occurred, or the connection to primary appliance has been re-established. The message is usually accompanied by CQM2195E. See the appropriate message description for details.

User response

No action is required.

CQM2195E **CONNECTION TO *x* FAILED. DATA MIRRORING TO APPLIANCE DISABLED.**

Explanation

The connection to the Guardium system indicated by *x* has unexpectedly terminated. The audit data cannot be sent to this appliance.

User response

Determine the cause of the network interruption and correct the problem so that the connection can be re-established.

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

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 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.

CQM2451E **INVALID PARAMETER. VALID VALUES ARE "COPY" OR "DELETE"**

Explanation

The parameter you entered is not valid.

User response

Valid values are COPY and DELETE.

CQM2502E **CAE Agent: AUTHORIZATION FAILED. Error from ssid at address. Function code nn. Return Code = nn. Reason Code = n**

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 https://www.ibm.com/docs/en/SSAURY_3.4.0/pdf/iea2a860.pdf *MVS Programming Authorized Assembler Services Guide* (SA22-7608).

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, see [DFSMSdfp Diagnosis Guide \(z/OS 3.1 documentation\)](#).

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).

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). For information about special considerations for CQM2604E when loading data to the performance history database, see “Special considerations for CQMERROR DD” on page 439.

Related tasks

“[Configuring the offload to the performance history database](#)” on page 435

Before you load Db2 Query Monitor data to your performance history database for the first time, you must configure this offload process.

Related information

“[CQM1006E](#)” on page 509
statement DD STATEMENT MISSING

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
xxxxxxx 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.

CQM2625I **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.

CQM2626E **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.

CQM2627E **SEQUENCE OF SEGMENTS IN
SPANNED RECORD IS WRONG.
RBA=*rba* DSN=*dsn*
PREVIOUS_SEGMENT:NUMBER=*segment_number* F=*segment_type*
TIMESTAMP=*timestamp*
CURRENT_SEGMENT:NUMBER=*segment_number1* F=*segment_type1*
TIMESTAMP=*timestamp1*
*information***

Explanation

Long records are divided into segments when written to data sets. This message displays diagnostic

information about any problem found during the reading of records from data sets and as segments are found in wrong order.

rba

The Relative Byte Address of the beginning of the record in data set.

dsn

The data set name where the problem with written records was found.

segment_number

The number of the previously-processed part of the spanned record.

segment_number1

The number of the currently-processing part of the spanned record.

The parts of spanned records can be:

FRST

First.

LAST

Last.

INTR

Between first and last. In case of INTR, the exact order of parts is checked using the segment number.

NOSPAN

The record is not spanned (it has only one part).

segment_type

The type (FRST, LAST, INTR) of the previously processed segment.

segment_type1

The type (FRST, LAST, INTR, NOSPAN) of the currently processed segment.

timestamp

The hexadecimal value of time when the previous record was written.

timestamp1

The hexadecimal value of time when the current record was written.

information

This value can be either blank or UNEXP_CONTIN_WITHOUT_FIRST_SEGM.

UNEXP_CONTIN_WITHOUT_FIRST_SEGM

This value is shown when there the first segment of the current record is lost (the first read part of the spanned record is not the first segment of this record).

User response

Contact IBM Software Support.

CQM2628E CHAIN_ERROR. PARENT_DSN=*dsn*
CHILD_DSN=*dsn1*
PARENT_RBA=*rba*
CHILD_RBA_type1=*rba1*
COUNT=*number_of_child_records*
RECTYPE IN CHILD DSN MUST BE
type BUT IT IS *type1*

Explanation

This message displays diagnostic information about problems found when going from the parent exception record to the child record in objs, call, hstv, and etext data sets. When such problems arise, the located child record was not of the expected type. The most likely cause is that the RBA (Relative Byte Address) was formed incorrectly.

dsn

The parent data set name. The parent data set contains the records with addresses which link the record to depended records in child data sets.

dsn1

The dependent data set name. This data set can be any of four types (objs, call, hstv, etext) and contains the records which are linked the records in parent data set.

rba

The Relative Byte Address of the beginning of the exception record in the parent data set.

rba1

The Relative Byte Address of the beginning of the record in the dependent (child) data set.

type

The expected type of child record (objs, call, hstv, etext).

type1

The type of child record found by RBA (objs, call, hstv, etext).

number_of_child_records

The number records that have problems with linking child and parent records.

User response

Contact IBM Software Support.

CQM3001I 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.

CQM3002I **MONITORING AGENT STARTED FOR SUBSYSTEM *ssid* USING PROFILE *profile***

Explanation

This message informs you that Db2 Query Monitor has initiated monitoring using the named Db2 subsystem.

User response

No action is required.

CQM3003I **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. The monitoring agent will reinstall within the Db2 subsystem when the Db2 starts up again.

CQM3005I **MONITORING AGENT DEACTIVATED FOR *ssid***

Explanation

The monitoring agent has been deactivated for the indicated Query Monitor subsystem. This message is issued in the started task when monitoring has been deactivated from Db2 Query Monitor 's **Monitoring** panel.

User response

No action is required.

CQM3006I **MONITORING AGENT ACTIVATED FOR *ssid* USING PROFILE *profile***

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.

CQM3007I **MONITORING AGENT REACTIVATED FOR *ssid***

Explanation

Db2 Query Monitor has been re-activated for the Db2 subsystem.

User response

No action is required.

CQM3008I **MONITORING AGENT ALREADY ACTIVE FOR *ssss***

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 SUBSYSTEM 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.

CQM3206I **DIAGNOSTIC DATA FOR ABEND AT PSW psw**

Explanation

The message displays diagnostic data for the abend.

User response

No action is required.

CQM3207I **SYSTEM COMPLETION CODE Scode**

Explanation

The message indicates the system completion code.

User response

No action is required.

CQM3208I **OCCURRENCES n DATE date TIME time**

Explanation

Indicates the number of occurrences and the date and time at which it took place.

User response

No action is required.

CQM3209I **GPR 0-3 info CHAR interpretation**

Explanation

This message displays diagnostic information about the current contents of the register.

User response

Contact IBM Technical Support.

CQM3210I **GPR 4-7 info CHAR interpretation**

Explanation

This message displays diagnostic information about the current contents of the register.

User response

Contact IBM Technical Support.

CQM3211I **GPR 8-11 info CHAR interpretation**

Explanation

This message displays diagnostic information about the current contents of the register.

User response

Contact IBM Technical Support.

CQM3212I **GPR 12-15 info CHAR interpretation**

Explanation

This message displays diagnostic information about the current contents of the register.

User response

Contact IBM Technical Support.

CQM3213I **AR 0-3 info CHAR interpretation**

Explanation

This message displays diagnostic information about the current contents of the register.

User response

Contact IBM Technical Support.

CQM3214I **AR 4-7 info CHAR interpretation**

Explanation

This message displays diagnostic information about the current contents of the register.

User response

Contact IBM Technical Support.

CQM3215I **AR 8-11 info CHAR interpretation**

Explanation

This message displays diagnostic information about the current contents of the register.

User response

Contact IBM Technical Support.

CQM3216I **AR 12-15 info CHAR interpretation**

Explanation

This message displays diagnostic information about the current contents of the register.

User response

Contact IBM Technical Support.

CQM3240I **DB2 QM DATASPACE USAGE DISPLAY:**

Explanation

This message appears in conjunction with other messages as a result of the MVS Modify command DISPLAY DATASPACE.

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 DATASPACE.

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 to inform you that the interval processor has been started through an MVS Modify INTERVAL command.

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 NOT INSTALLED AT STARTUP**

Explanation

The ENABLE_PARALLEL or ENABLE_OBJECTS command you issued was ignored because your CQMPARMS file includes PARALLEL(N) or OBJECTS(N).

User response

No action is required.

CQM3288I **BREAKING EVENT ADDRESS**
nnnnnnnn

Explanation

This is an informational message that is put out as a result of the DDX modify command.

User response

No action is required.

CQM3289I **TRANSLATION EXCEPTION**
ADDRESS nnnnnnnn

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, specify a valid monitoring profile for use with the monitoring agent.

CQM3303I **PROFILE CHANGE COMPLETE ON**
ssid* NOW USING PROFILE *profile

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* PROFILE *profile*

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 Security Guardium S-TAP for Db2 on z/OS.

User response

Db2 Query Monitor and Security Guardium S-TAP for Db2 on z/OS 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.

CQM3312E UNABLE TO LINK DB2 QUERY MONITOR TO DB2 SYSTEM xxxx

Explanation

An error or timeout was detected when Query Monitor was trying to attach a shared memory object to Db2 xxxx for monitoring purposes.

User response

If you encounter this message, the Query Monitor started task will issue user abend 3312. Send the dump to 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 Security 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 Security 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 Security Guardium S-TAP for Db2 on z/OS is already installed.

User response

Verify that the MASTER_PROCNAME is the same for the Security 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.

User response

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.

CQM4401I **DIAG THRESHOLD EXCEEDED ON DB2 SUBSYSTEM *ssid* FOR *info***

Explanation

An internal diagnostic trap has crossed the threshold on Db2 subsystem *ssid*. The dumps can be generated based on the DIAG_THRESHOLD_DUMPS parameter value. The dump number for the diagnostic trap is shown in the message (*info*).

User response

Provide IBM Software Support with the collected dump and the Db2 Query Monitor job log.

CQM4402I **DIAGNOSTIC DUMP TAKEN ON *dataset_name***

Explanation

After reaching the DIAG_THRESHOLD threshold for an internal diagnostic, a dump is taken and is output to *dataset_name*.

User response

Provide IBM Software Support with the collected dump and the Db2 Query Monitor job log.

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 **REQUIRESTING 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 for the indicated Db2 subsystem 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.**

Explanation

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.**

Explanation

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 an 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**

Explanation

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.

CQM6002I **OUT OF SPACE CONDITION
DETECTED ON DATASET *dataset***

Explanation

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**

Explanation

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
ZPARAM MEMBER WAS SPECIFIED
IN SETUP**

Explanation

Indicates the catalog load did not complete successfully.

User response

Verify that the correct ZPARAM member was specified in set up.

CQM6101E **LOCATE FAILED FOR *dataset*
RO=*code* RC=*rc***

Explanation

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***

Explanation

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 might 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 3.3 begins with the prefix CQM_ whereas the default table name for Db2 Query Monitor 3.2 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. This message might occur if the maintenance level is upgraded, but the new or updated SAMPLIB scripts were not run to update the offload tables accordingly.

User response

Ensure that the data length is correct for the column.

Make sure that the offload tables have the same format as the supplied DDL. Db2 Query Monitor does not support changing the specifications of the supplied DDL for the offload tables (column types and sizes).

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 QM SUBSYSTEM *ssid* NOT VALID OR HAS NOT BEEN STARTED SINCE IPL

Explanation

The Query Monitor subsystem shown in the message is not valid.

User response

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.

CQM8001E **ERRORS DETECTED IN *filename***
PARAMETERS:

Explanation

Errors have been detected in the indicated file.

User response

Verify that the parameters you specified in the indicated file are correct and modify any syntax errors before proceeding.

CQM8002E **UNIDENTIFIED KEYWORD**
DETECTED AT LINE *line* COLUMN
column

Explanation

An unknown keyword has been found.

User response

Verify the correct syntax and modify the keyword as needed.

CQM8003E **INVALID SYNTAX SPECIFIED**
FOR *parameter* NEAR LINE *line*
COLUMN *column*

Explanation

The syntax specified for the parameter indicated in the message is not valid.

User response

Correct the syntax and resubmit the job.

CQM8004E **PARAMETER LENGTH EXCEEDED
FOR *value* NEAR LINE *line* COLUMN
*column***

Explanation

This message displays information that will help you to locate an incorrectly specified value for a parameter. The incorrect value is shown in the message. The line and column are also shown in the message and indicate the line and column where the incorrect value is located.

User response

Correct the value you specified and resubmit the job.

CQM8005E **PARAMETER MISSING FOR
parameter NEAR LINE *line*
COLUMN *column***

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.

User response

Correct the specified STARTING_INTERVAL and/or ENDING_INTERVAL parameter value. Valid values are:

- Not zero
- Both positive or both negative
- If INTERVAL_UNITS(DAYS) is specified, then both interval values must be negative
- ENDING_INTERVAL value must be less than or equal to the STARTING_INTERVAL value

CQM8026E **SYNTAX ERROR IN PARAMETER
FILTER_DB2_SUBSYSTEM**

CAE messages

CAE messages begin with CQMC.

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.

Explanation

The list of Db2 ssids is not valid.

User response

Correct the syntax. For more information, see [“Offload parameters”](#) on page 734.

CQM9899I *cqm modify command*

Explanation

This message is used to display the text of a modify command that was issued to Query Monitor.

User response

None.

**CQM9000-
CQM9999** *(messages in this range are
diagnostic messages)*

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.

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 **Query Monitor Target** field on the IBM Db2 Query Monitor main menu and press Enter. Select a CAE server for use with the current session of the ISPF Client 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 153.

CQMC0093E Failed to register agent, reason: wrong params

Explanation:

You have not specified the ISPF_LISTENER_PORT parameter for the CAE agent. The ISPF_LISTENER_PORT is the port that is used to listen for incoming connections from ISPF. 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.

User response:

For information about how to specify ISPF_LISTENER_PORT, see [“CAE agent parameters”](#) on page 713.

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.

CQMC0107E **WRONG AGENT KEY ON SOCKET #**

Explanation

An attempt was made to start a CAE server when another CAE server was already running. This situation often arises when using a backup CAE server and attempting to restart the primary CAE server without first stopping the backup CAE server.

User response

Before you start a CAE server, stop all other CAE servers that are actively running.

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:

Return code	Explanation
16	QM SUBSYSTEM NOT DEFINED. The Query Monitor subsystem indicated in the message (<i>cqmssid</i>) is not defined or it is not currently active.
20	AUTHORIZATION FAILED. The authid of the CAE Agent address space lacked sufficient authorization to collect alerts from the QM subsystem.
36	ABEND OCCURRED. An abend occurred in the CAE Agent during the

Table 56. Return codes (continued)

Return code	Explanation
	attempt to initialize an environment to collected data from the QM Subsystem <i>cqmssid</i> .
40	QM SUBSYSTEM NOT ACTIVE. The QM subsystem named <i>cqmssid</i> is not currently active.

User response

Refer to the return code in the message and the table below for more user response information:

Return code	User response
16	QM SUBSYSTEM NOT DEFINED. Check that the Query Monitor subsystem indicated in the message (<i>cqmssid</i>) is active and that it initialized fully. If the Query Monitor subsystem initialized properly and this message persists, contact IBM Software Support.
20	AUTHORIZATION FAILED: Ensure that the authid of the CAE Agent address space has access to all the necessary facility classes (e.g. CQM.ACCESS.**)
36	ABEND OCCURRED: Contact customer support
40	QM SUBSYSTEM NOT ACTIVE: Check that the QM Subsystem, <i>cqmssid</i> , is active, and that it initialized fully. If the QM Subsystem is initialized properly and this message persists, contact IBM Software Support.

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

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.

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.

CQMC0417E **UNABLE TO READ RESPONSE FROM SERVER**

Explanation

The ISPF client was unable to read all the response from the CAE Server.

User response

Check to see if there were any network problems. 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. Also include a screenshot of the ISPF client.

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 is 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 due to some error. The return and reason codes are as documented for the MCSOPMSG macro in the *MVS Programming Authorized Assembler Services Reference, Volume 3*.

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.

CQMC0911I 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

Call customer support, and supply the CAE Agent JES output and the CAE Server logs that include the time when the error occurred.

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. 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 CQMCPXCF 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.

CQMC1032W **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.

CQMC1036W **reuseWebserver option is not compatible with RACF keystore. Skipping.**

Explanation

You are using a RACF keystore, which does not support CQM_REUSE_WEBSERVER_KS parameter in the cqmimportcerts script to rename the certificate alias in the RACF keystores to WEBSERVER.

User response

If you want to reuse the certificate alias for RACF keystores, you must rename the certificate alias manually.

CQMC2005E **CAE SERVER ERROR**

Explanation

An internal error has occurred on the CAE server.

User response

Contact IBM Software Support. If possible, provide the following:

- 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 SOC4-00000004 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. 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.

CQMC2507E **Protocol version mismatch. Agent version: *agent-version*. Server version: *server-version***

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 cannot 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 *message*

Explanation

This *message* can take either of the following forms:

An SQL error occurred while scheduling host variable collection

The request to the containing the staging tables failed to complete due to an unexpected SQL error. The message provides details about the error.

Can not verify CAE Agent authority - returned in case of ISPF Client DSG discovery process failed

Possible mismatch between CAE Agent connection info and CAE Server discovered info has occurred. ISPF Client discovery process failed for this CAE Agent instance.

User response

An SQL error occurred while scheduling host variable collection

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.

Can not verify CAE Agent authority - returned in case of ISPF Client DSG discovery process failed

Verify that only one CAE Agent instance is running on particular system (LPAR). Verify that maintenance of the CAE Server is on the same level as CAE Agent maintenance or the CAE Server maintenance is more fresh than CAE Agent maintenance. If the CAE Server installed on USS, verify that only one OMVS instance of the CAE Server is running on the particular system (LPAR).

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:

CQMC2520W: INCOMPLETE RESULTS. SUCCESSFUL DB2S: DB2A, DB2B, DB2C, DB2D, DB2E. FAILED DB2S: DB2F. REASON: 44,595 records required 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 SOC4-00000011 during query for datasource 0 (Unknown code); access type 0

(Unknown Access Type); Effective User ID: userid. QM
Subsystem name: qmssid 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.com
mitInterval parameter. If you are running the CAE
Server on USS, decrease the value of the
CQM_OQWT_COMMIT_INTERVAL parameter.

CQMC2550W **CAE server KeyStore does not
contain alias WEBSERVER_ALIAS.
Since PTF PH13428 we
recommend to include private
certificate for HTTPS webserver
with alias WEBSERVER_ALIAS.**

Explanation

The CAE server cannot find the alias
WEBSERVER_ALIAS in the keystore.

User response

Import the private certificate alias WEBSERVER_ALIAS
into the CAE server keystore using the
cqm_import_certs.bat script (for the CAE server on
Windows) or the CQMICERT job (for the CAE server
on USS), or reuse the existing private certificate alias
using reuseWebserver option.

CQMC2551W **Alias CAE_AGENT_PORTAL_ALIAS
is not found in CAE server
KeyStore. Default TLS socket
implementation will be used for
listening CAE agents.**

Explanation

The CAE server cannot find the alias
CAE_AGENT_PORTAL_ALIAS in the keystore.

User response

Import the private certificate alias
CAE_AGENT_PORTAL_ALIAS into the CAE server
keystore using the cqm_import_certs.bat (for
Windows) or the CQMICERT job (for USS).

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.

User response

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.

CQMC3403E **User not authorized for this application**

Explanation

You are not authorized to use the application in RACF.

User response

The AGENT_NAME parameter is sent with RACF login calls. You must be on the access list of matching profiles under the APPLID class.

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.

FEC messages

These messages may appear as FEC messages in your SYSLOG or other appropriate output for your site.

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**

User response

Verify that the correct version of Java is installed and that the CQM_JAVA parameter defined for the CAE server STDENV DD statement specifies the correct version. For more information, see [“CAE prerequisites” on page 30](#) and [“CAE server parameters \(USS\)” on page 718](#).

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 STDENV DD statement specifies the correct version. For more information, see [“CAE prerequisites” on page 30](#) and [“CAE server parameters \(USS\)” on page 718](#).

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

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

No action is required.

FECA915E **FORM PF keys set; NROW = nrow
PROW = prow**

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

No action is required.

FECA921I **Chars chars not found on any lines**

Explanation:

Indicates that the specified characters were not found on any of the lines.

User response

No action is required.

FECA922I **Search for CHARS chars was
successful.**

Explanation:

Indicates the search for the indicated characters produced matches.

User response

No action is required.

FECA923E **Check for misspelled keywords or
embedded blanks in search string.**

Explanation:

Indicates there may be invalid keywords or blanks embedded within the search string.

User response:

Verify and correct the search string to remove embedded blanks or to correct keywords.

FECA924E **string and string cannot both be
specified for FIND command.**

Explanation:

You specified two strings for the FIND command.

User response:

You must specify one FIND string at a time.

FECA925E **Put quotes (" ") around the string
of characters to be displayed.**

Explanation:

The string of characters is not enclosed in quotes.

User response:

Place the string of characters inside quotes.

FECA926E **Maximum parameter length is 80**

Explanation:

The parameter you specified is too long.

User response:

Specify a parameter that is 80 characters or less.

FECA927E **Invalid COLS parm. Valid parms
are ON, OFF, or blank**

Explanation:

COLS was issued with an invalid parameter. Issuing COLS with no parameters acts as an ON/OFF toggle. ON and OFF are the only parameters accepted.

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 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. See the information about Db2 messages and codes at [Db2 messages](#) and [Db2 codes](#).

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. For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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:

Check ISPTLIB allocation. Verify the data sets in ISPTLIB. Verify it is a valid PDS. See ISPF manuals for ISPTLIB requirements.

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:

See the information about Db2 messages and codes at [Db2 messages](#) and [Db2 codes](#).

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 History output display. A command listed in the History display can be selected for execution either by selecting it with an "S" selection character, or by placing the cursor anywhere on a line within the command and pressing Enter.

When selecting by cursor placement, the cursor can be on the line selection input line, which also has a command number, or on a line with some command text.

User response:

Clear the invalid character.

FECA957E Only one row selection allowed**Explanation:**

More than one command was selected from the History display. Only one History command can be selected.

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.

User response:

Refer to <https://www.ibm.com/support/knowledgecenter/en/SSEPEK> for information about Db2 SQL for your version of Db2.

FEC802E **An invalid return code of *code* was encountered on *function* function. The error message text follows:**
text

Explanation:

An invalid return code was encountered for the specified function. The supporting diagnostic data are returned in the error message.

User response

No action is required.

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:

See the information about Db2 messages and codes at [Db2 messages](#) and [Db2 codes](#).

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:

See the information about Db2 messages and codes at Db2 messages and Db2 codes.

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.

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.

User response

No action is required.

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.

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 that there are no other tailoring sessions running concurrently.

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 ISPF DD is already allocated and cannot be deallocated - Process not completed**

Explanation:

The ISPF 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:

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:

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 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 valid parameter 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:

For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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:

For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

FEC986E TBCREATE failed. RC=rc**Explanation:**

TBCREATE was issued to create a view. It failed with a (hex) return cod as indicated in the message.

User response:

Review ISPTLIB allocation and data set characteristics. For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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. For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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. For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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. For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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. For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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. For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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. For information about ISPF messages and codes, see [ISPF Messages and Codes](#).

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.

Tools Customizer messages

Use the information in these messages to help you diagnose and solve Tools Customizer problems.

CCQB000I The product data was saved in the data store.

Explanation:

Changes that were made to the product were saved in the data store.

System action:

None.

User response:

No action is required.

CCQB001I The DB2parameter 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.

User response:
No action is required.

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:
None.

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 Tools Customizer diagnostic information" on page 652. 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 Tools Customizer diagnostic information" on page 652. 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 Tools Customizer diagnostic information" on page 652. 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 Tools Customizer diagnostic information" on page 652. 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 Tools Customizer diagnostic information" on page 652. 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 Tools Customizer diagnostic information" on page 652. 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:

Processing stops.

User response:

See “[Gathering Tools Customizer diagnostic information](#)” on page 652. 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.

System action:

Processing stops.

User response:

See “[Gathering Tools Customizer diagnostic information](#)” on page 652. Contact IBM Software Support.

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.

User response:

See “[Gathering Tools Customizer diagnostic information](#)” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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 ISPFTRC command, and press Enter.
3. Issue the Tools Customizer command that issues the error.
4. Specify the ISPFTRC command, and press Enter. The ISPF file tailoring trace data set is created. It adheres the following naming convention: *TSO_ID*.ISPFTRC.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:

See ["Gathering Tools Customizer diagnostic information" on page 652](#). Contact IBM Software Support.

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:

See ["Gathering Tools Customizer diagnostic information" on page 652](#). Contact IBM Software Support.

CCQC028S **The *library_name* customization library was not found.**

Explanation:

The customization library does not exist.

System action:

Processing stops.

User response:

See ["Gathering Tools Customizer diagnostic information" on page 652](#). Contact IBM Software Support.

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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 stops.

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 stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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.**

Explanation:

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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.**

Explanation:

The specified pack ID could not be found in the metadata library.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQD121I **The specified pack contains the *component_name*, which was previously specified as a stand-alone product.**

Explanation:

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*.**

Explanation:

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.**

Explanation:

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.**

Explanation:

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*.**

Explanation:

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*.**

Explanation:

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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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:

Ensure that the Db2 group attach name is specified correctly. If the problem persists, contact IBM Software Support.

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.

CCQD360S **The *library_name* metadata library is not associated with the specified Db2 subsystem *subsystem_ID*.**

Explanation:

The specified Db2 subsystem and metadata library are not associated with each other.

System action:

None.

User response:

Ensure that the Db2 subsystem and the metadata library are associated. If the problem persists, contact IBM Software Support.

CCQD361S **The *library_name* metadata library is not associated with the specified DB2 data sharing group member *member_name* for the *group_attach_name* Db2 group attach name.**

Explanation:

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.

CCQD362S **The *library_name* metadata library is not associated with the specified *group_attach_name* Db2 group attach name.**

Explanation:

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.

CCQD400W **The customization parser issued the *code_number* warning code while it parsed the product customization member *member_name*. See the PL/I programming guide for more information about this XML parser continuable exception code.**

Explanation:

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.

CCQD401S **The customization parser issued the *code_number* error code while it parsed the product customization member *member_name*. See the PL/I programming guide for more information about this XML parser terminating exception code.**

Explanation:

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.

CCQD500W **The *data_set_name* data store data set was not found.**

Explanation:

Tools Customizer could not find the specified data store data set.

System action:

None.

User response:

No action is required.

CCQD501W **The *data_set_name* data store data set was not found, so it was created.**

Explanation:

Tools Customizer created the specified data set because it could not be found.

System action:

None.

User response:

No action is required.

CCQD502E **The *data_set_name* data store data set is not writable.**

Explanation:

Tools Customizer cannot write to the specified data set.

System action:

None.

User response:

Ensure that the data set is writable.

CCQD503E **The *data_set_name* data store data set could not be opened with the *disposition_type* disposition.**

Explanation:

Tools Customizer could not open the data set with the specified disposition.

System action:

Processing stops.

User response:

Ensure that you have WRITE authority access to this data set.

CCQD504E **The *data_set_name* data store data set could not be opened with the *option_name* option.**

Explanation:

Tools Customizer could not open the data set with the specified option.

System action:

Processing stops.

User response:

Ensure that you have WRITE authority access to this data set.

CCQD505E **The data store data set *data_set_name* already exists in a different volume.**

Explanation:

Tools Customizer could not create the specified data set because the specified data set already exists in a different volume. Data store data set names must be unique.

System action:

Processing stops.

User response:

Specify a different data store data set name.

CCQD510I **The DB2 SSID and Db2 group attach name were created.**

Explanation:

The Db2 SSID and Db2 group attach name were created and saved in the data store.

System action:

None.

User response:

No action is required.

CCQD511E **The DB2 entry already exists in the list of Db2 entries to be associated.**

Explanation:

The Db2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

System action:

None.

User response:

Specify a different Db2 entry.

CCQD512S **An error occurred while a DB2 entry was being created.**

Explanation:

A severe error occurred while a Db2 entry was being created.

System action:

Processing stops.

User response:

See [“Gathering Tools Customizer diagnostic information” on page 652](#). Contact IBM Software Support.

CCQD513E **The specified DB2 entry already exists and is associated with the current product on the Customizer Workplace panel.**

Explanation:

The Db2 entry cannot be added because it already exists, and it is already associated with the product to be customized.

System action:
None.

User response:
Press F3 to go to the **Customizer Workplace** panel to see the Db2 entry, or specify a different Db2 entry.

CCQD514E **A value is required for a DB2 subsystem, a Db2 group attach name, or both before they can be created.**

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.

CCQD515E **The specified DB2 entry already exists in the list of Db2 entries and is already associated with the current product.**

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.

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:
On the **Customizer Workplace** panel, issue the ASSOCIATE command to associate the Db2 entry with the product.

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 Tools Customizer diagnostic information](#)” on page 652. 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:

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 namer 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.**

Explanation:

The specified Db2 member was copied.

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 .

CCQD589W **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 .

CCQD593I **The *subsystem_ID* Db2 subsystem was deleted.**

User response:

No action is required.

CCQD594I **The *member_name* Db2 for the *group_attach_name* Db2 group attach name was deleted.**

User response:

No action is required.

CCQD595I **The *group_attach_name* Db2 group attach name was deleted.**

User response:

No action is required.

CCQD596E **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 Tools Customizer diagnostic information](#)” on [page 652](#). Contact IBM Software Support.

CCQD597E **The *member_name* Db2 member for the *group_attach_name* Db2 group attach name was not deleted.**

Explanation:

An internal error occurred while the specified Db2 member was being deleted.

System action:

Processing stops.

User response:

See “[Gathering Tools Customizer diagnostic information](#)” on [page 652](#). Contact IBM Software Support.

CCQD598E **The *group_attach_name* Db2 group attach name was not deleted.**

Explanation:

An internal error occurred while the specified Db2 group attach name was being deleted.

System action:

Processing stops.

User response:

See “[Gathering Tools Customizer diagnostic information](#)” on [page 652](#). Contact IBM Software Support.

CCQD600W **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.

CCQD601S **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.

CCQD602S **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQD603S **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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQD611S **The XML structure of the *member_name* product customization 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQD612S **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQD613S **The XML structure of the *member_name* product customization member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute in the data store member is unknown.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQD614S **The content of the *member_name* product customization member is not valid. The value of the *element_name* element is not valid. The value is *value_name*.**

Explanation:

The specified value is not valid.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQD700W **The *member_name* Db2 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 Db2 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.

CCQD701S **The member_name Db2 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 Db2 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.

CCQD750W **The value_number value in the Db2 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 Db2 parameter.

System action:

Processing continues.

User response:

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 warning code.

CCQD950W **The *value_number* value in the product 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 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 Tools Customizer diagnostic information" on page 652. 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 only on the Customizer Workplace panel.**

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:

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.

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.

CCQH009E **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.

CCQI000W **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.

CCQI001S **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 warning code.

CCQI002S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *element_name* element is unknown.**

Explanation:
The specified element in the Db2 parameter metadata member is unknown.

System action:
Processing stops.

User response:
See “[Gathering Tools Customizer diagnostic information](#)” on page 652. Contact IBM Software Support.

CCQI003S **The XML structure of the *member_name* Db2 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 Tools Customizer diagnostic information](#)” on page 652. Contact IBM Software Support.

CCQI004S **The XML structure of the *member_name* Db2 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI005S **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 “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI006S **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 does not contain enough characters.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI007S **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.**

Explanation:

The specified element does not occur enough times.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI008S **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.**

Explanation:

The specified attribute occurs too many times.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI009S **The XML structure of the *member_name* Db2 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 did not occur enough times.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI010S **The XML structure of the *member_name* Db2 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI011S **The XML structure of the *member_name* Db2 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI012S **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 “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI013S **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.**

Explanation:
The specified attribute in the Db2 parameter metadata member is unknown.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI017S **The content of the DB2 parameter 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI053E **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.

CCQI054E **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.

CCQI055S **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI056S **The CCQ\$\$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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI057S **The *member_name* product parameter metadata member was**

not found in the *data_set_name* data set.

Explanation:

The product parameter metadata member was not found in the specified data set.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI058I *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.

CCQI059I *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.

CCQI060S *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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI061S *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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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* 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI075S **The XML structure of the *member_name* product 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI076S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *parameter_name* parameter refers to the *section-name* section. This section was not found in the Db2 parameter metadata member.**

Explanation:
The specified value already exists for an attribute.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI077S The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *parameter_name* parameter refers to the *section-name* section. This section was not found in the LPAR parameter metadata member.

Explanation:

The specified parameter refers to a section that is not in the LPAR parameter metadata member.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI078S The XML structure of the *member_name* product parameter metadata member is not valid. The *parameter_name* parameter refers to the *section-name* section. This section was not found in the product parameter metadata member.

Explanation:

The specified parameter refers to a section that is not in the product parameter metadata member.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI080S The content of the *member_name* 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 for an attribute in the Db2 parameter metadata member is not valid.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI081S 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI082S The content of the *member_name* product 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 product parameter metadata member is not valid.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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 referenced by the specified Db2 parameter.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI091S **The product-defined LPAR parameter 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI108S **The XML structure of the *member_name* LPAR 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI109S **The XML structure of the *member_name* LPAR 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 did not occur enough times.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI110S **The XML structure of the *member_name* LPAR 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI111S **The XML structure of the *member_name* LPAR 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI112S **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI113S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute in the LPAR parameter metadata member is unknown.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI114S **The content of the *member_name* LPAR 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 LPAR parameter metadata member is not valid.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI124S The XML structure of the *member_name* product customization 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI200W The XML structure of the *member_name* information metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.

Explanation:

While determining if the information 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.

CCQI201S The XML structure of the *member_name* information metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.

Explanation:

While determining if the information 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.

CCQI202S The XML structure of the *member_name* 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI203S 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI204S 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI205S 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI218S **The content of the *member_name* information metadata member is not valid. The length of the *value_name* value that 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 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.

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.

CCQI250S **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.

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 “[Gathering Tools Customizer diagnostic information](#)” on page 652. 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 Tools Customizer diagnostic information](#)” on page 652. 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 Tools Customizer diagnostic information](#)” on page 652. 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 Tools Customizer diagnostic information](#)” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI315S **The content 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:

The specified value for an attribute in the sequence metadata member is not valid.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI404S **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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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:
The specified element name is unknown for the overridden Db2 parameter.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. 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:
The specified element name is unknown for the overridden LPAR parameter.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. 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:
The specified attribute name is unknown for the overridden Db2 parameter.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. 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:

The specified attribute name is unknown for the overridden LPAR parameter.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI450S The *member_name* product parameter metadata member was not found in the *data_set_name* data set.

Explanation:

Tools Customizer could not find the specified product parameter metadata member.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI510W The *data_set_name* data store data set does not exist.

Explanation:

The specified data store data set does not exist.

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:

The specified data store data set could not be opened with the specified disposition.

System action:

Processing continues.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI512S The *data_set_name* data store data set cannot be opened by using the *option-type* option.

Explanation:

The specified data store data set was unable to be opened with the specified option.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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 stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 product customization parameter metadata member contains an unknown attribute.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 the attribute is not a valid value.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI650S The XML structure of the *member_name* product customization 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 for an attribute already exists.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI651S The XML structure of the *member_name* product customization parameter metadata member is not valid. The *parameter_name* parameter refers to the following section, which was not found in the *member_name* product customization parameter metadata member: *section-name*.

Explanation:
The specified section is not in the product customization parameter metadata member.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI652S The *member_name* product customization metadata member not valid. 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 specified length cannot be shorter than the default length.

System action:
Processing stops.

User response:
See “Gathering Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI700W **The XML structure of the *member_name* solution pack metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the specified solution pack 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.

CCQI701S **The XML structure of the *member_name* solution pack metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI705S **The XML structure of the *member_name* solution pack 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI706S **The XML structure of the *member_name* solution pack 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI707S **The XML structure of the *member_name* solution pack 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI708S **The XML structure of the *member_name* solution pack 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI709S **The XML structure of the *member_name* solution pack 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI710S **The XML structure of the *member_name* solution pack 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI711S **The XML structure of the *member_name* solution pack 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 content.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI712S **The XML structure of the *member_name* solution pack 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQI720S **The XML structure of the *member_name* solution pack metadata member is not valid. The *msg* element is required for the *component_name* component that is not customizable.**

Explanation:

The *msg* element is required for the specified component, which cannot be customized by using Tools Customizer.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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:
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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. 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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQ0016S **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQ0017S **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQ0050S **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 Discover REXX EXEC is specified correctly.

CCQ0051W **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.

CCQ0052S **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 Discover data set was specified correctly.

CCQ0053W **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.

CCQ0054W **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.

CCQ0055W **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.

CCQ0056W **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.

CCQ0057W **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.

CCQ0058W **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 Tools Customizer diagnostic information](#)” on page 652. Contact IBM Software Support.

CCQ0059W **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.

CCQ0060W **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 Tools Customizer diagnostic information](#)” on page 652. Contact IBM Software Support.

CCQ0061I **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 error 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.

CCQ0062W **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.

CCQ0064W **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQ0065W **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQ0066W **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.

CCQ0067W **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.

CCQ0068W **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.

CCQ0069W **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.

CCQ0070W **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.

CCQ0071W **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.

CCQ0072S **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 Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQ0073E **The *member_name* discover metadata member is 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.

CCQ0074S **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:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQ0075W **The *configuration_ID* configuration ID in the *record_name* Discover record is incorrect. The record was not processed.**

Explanation:

The specified configuration ID is not correct.

System action:

Processing continues.

User response:

No action is required.

CCQ0076W **The *configuration_ID* configuration ID cannot contain more than *maximum_number* characters. The record was not processed.**

Explanation:

The specified configuration ID contains too many characters.

System action:

Processing continues.

User response:

No action is required.

CCQ0077S **The discover metadata member was not found in the *data_set_name* component data set that is part of the *data_set_name* pack.**

Explanation:

The discover metadata member was not found in the specified component data set.

System action:

Processing stops.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

CCQ0078I **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.

CCQP0080I ***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.

CCQP000E **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 value for the Db2 level.

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.

CCQP004S **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.

User response:

See “Gathering Tools Customizer diagnostic information” on page 652. Contact IBM Software Support.

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.

CCQP000E **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.SCCQDENU*.

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:

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.

CCQQ003E **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.

CCQQ004E **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.

CCQQ009E **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.

CCQQ011E **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:

None.

User response:

Specify another metadata library.

CCQQ012E **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.

CCQS000I **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.

CCQS001E **The following command is not valid: *command_name*.**

Explanation:
The specified command is not a valid command on the panel.

System action:
Processing stops.

User response:
Specify a valid command.

CCQS002W **The *data_set_name* Discover data set could not be found.**

Explanation:
Tools Customizer could not find the specified data set.

System action:
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.

CCQS003W **The *data_set_name* Discover data set was not found so it was created.**

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.

CCQS004I **The settings were saved.**

Explanation:
The settings that you changed were saved.

System action:
Processing continues.

User response:
No action is required.

CCQS006W **The length of a qualifier for the *data_set_name* customization library data set exceeds 26 characters.**

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.

CCQS007E **The discover data set *data_set_name* could not be opened with the *option-type* option.**

Explanation:
The specified option could not open the Discover data set.

System action:
None.

User response:
Specify a data set to which you have WRITE access.

CCQS008E **The Discover data set *data_set_name* exists on a different volume.**

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.

CCQS010E **The customization library qualifier is not valid.**

Explanation:
The customization library qualifier that was specified is not valid.

System action:
None.

User response:
Specify a valid qualifier for the customization library.

CCQS011E **The group attach option is not valid.**

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.

CCQS012E **The Tools Customizer metadata library is not valid.**

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.

CCQS013E The Discover data set is not valid.

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.

CCQS014E The data store data set is not valid.

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.

System action:

None.

User response:

Specify a valid value.

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 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 (Formatted 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.

CCQT003I **The product configuration ID *configuration_ID* was created.**

Explanation:

The specified configuration ID was created.

System action:

None.

User response:

No action is required.

CCQT004I **The product configuration ID *configuration_ID* was removed.**

Explanation:

The specified configuration ID was removed.

System action:

None.

User response:

No action is required.

CCQT005E **The product configuration ID *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.

CCQT006E **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.

CCQT007E **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.

CCQT008E **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.

CCQT010I **Create request for *configuration_ID* configuration was cancelled by user.**

Explanation:

The request to create the specified configuration was canceled.

System action:

Processing stops.

User response:

No action is required.

CCQT011I **The *configuration_ID* configuration was not copied.**

Explanation:

The specified configuration was not copied.

System action:

Processing stops.

User response:

No action is required.

CCQT012I **The *configuration_ID* configuration was not removed.**

Explanation:

The specified configuration was not removed.

System action:

Processing stops.

User response:

No action is required.

CCQT013I **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.

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.

Tools Customizer troubleshooting

Use this information to diagnose and correct problems that you experience with Tools Customizer.

Related information

[IBM Tools Customizer for z/OS 1.1.0](#)

Gathering Tools Customizer 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 Tools Customizer 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 10. Reference

Reference information supports the tasks that you must complete to install, customize, and use Db2 Query Monitor.

Topics:

- [“Parameters” on page 655](#)
- [“Sample library members” on page 750](#)
- [“Tools Customizer reference” on page 763](#)
- [“Other reference topics” on page 767](#)
- [“Viewing Db2 command activity” on page 263](#)

Parameters

Db2 Query Monitor uses a variety of parameters to control the behavior of mainframe and CAE components.

Requirements and guidelines

Review the following requirements and guidelines when specifying Query Monitor subsystem parameters.

Requirements for the CQMPARMS DD

Db2 Query Monitor 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) -
```

Guidelines for CQMPARMS data set names

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 performance history files (using parameters such as DB2CDATA_DSN, EXCPDATA_DSN, EXCPINDX_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(RSTEST.X61.EDATA.D&LYMMDD..T&LHR.&LMIN..&INTV.) -
```

The resulting data set name resolves to:

```
RSTEST.X61.EDATA.D040823.T1049.I00583
```

where:

- .D&LYMMDD. 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 RSTEST.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 (&LYMMDD) for data set naming conventions.

Considerations for interval data set names

For the AVAIL column in the Interval List from the INTV command to reflect the correct status, the data set names need to contain a mid-level qualifier that identifies the type of data sets as follows:

- EXCPDATA_DSN must contain EDATA
- EXCPINDX_DSN must contain EINDX
- EXCPHSTV_DSN must contain EHSTV
- EXCPTEXT_DSN must contain ETEXT
- METRDATA_DATA must contain METRD
- OBJSDATA_DSN must contain OBJSD
- TEXTDATA_DSN must contain TEXTD
- SQLCDATA_DSN must contain SQLCD
- DB2CDATA_DSN must contain DB2CD

If this requirement is not met, the data set AVAIL column for that interval will be N/A.

Related reference

[“DB2CDATA_DSN” on page 669](#)

Use the DB2CDATA_DSN parameter in CQMPARMS to control the data set naming convention of the DB2CDATA performance history file.

[“EXCPDATA_DSN” on page 675](#)

Use the EXCPDATA_DSN parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

[“EXCPINDX_DSN” on page 681](#)

Use the EXCPINDX_DSN parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

[“EXCPHSTV_DSN” on page 678](#)

Use the EXCPHSTV_DSN parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

[“EXCPTEXT_DSN” on page 683](#)

Use the EXCPTEXT_DSN parameter in CQMPARMS to control the allocation of the EXCPTEXT performance history file.

[“METRDATA_DSN” on page 693](#)

Use the METRDATA_DSN parameter in CQMPARMS to control the allocation of the METRDATA performance history file.

[“OBJSDATA_DSN” on page 697](#)

Use the OBJSDATA_DSN parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

[“SQLCDATA_DSN” on page 704](#)

Use the SQLCDATA_DSN parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

[“TEXTDATA_DSN” on page 709](#)

Use the TEXTDATA_DSN parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Guidelines for the non-SMS allocation of performance history files

Db2 Query Monitor STORCLASS, DATACLAS, MGMTCLAS, and VOLUME parameters (including DB2CDATA_VOLUME, EXCPDATA_VOLUME, EXCPINDX_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 performance history files.

The specification of values for the parameters listed above (as well as the data set naming parameters, DB2CDATA_DSN, EXCPDATA_DSN, EXCPINDX_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.

- When using these new parameters, the STORCLAS, MGMTCLAS, and DATACLAS parameters must be commented out or they will override the volume specifications for the individual performance history files.
- Db2 Query Monitor does not attempt to look anywhere else for storage other than the specified volume in the volume parameters.
- No informational message is generated if the DATACLAS, STORCLAS, MGMTCLAS parameters are not commented out.
- In the absence of SMS-management of the performance history files 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.

Common errors for invalid parameters values

These IKJ type messages can occur when an invalid value is specified in any of the parameters (including DB2CDATA_VOLUME, EXCPDATA_VOLUME, EXCPINDX_VOLUME, METRDATA_VOLUME, OBJSDATA_VOLUME, SQLCDATA_VOLUME, TEXTDATA_VOLUME, and VOLUME).

If any of these messages 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)

One possible reason that these messages might occur is due to 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>
RETCD=<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.

Reducing dataspace storage consumption using CATALOG_OBJECTS

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 object-related data for SQL PREPARE calls, resulting in lower CPU consumption and memory savings when you specify a value of N for the CATALOG_OBJECTS startup parameter.

Query Monitor subsystem parameters

The CQMPARMS file contains the parameters that control the behavior of the Query Monitor subsystem.

- Use a unique CQMPARMS file for each Query Monitor subsystem.
- CQMPARMS must be an 80-byte sequential or partitioned data set that you allocate to the CQMPARMS DD.
- The CQMPARMS file can be created using Tools Customizer or by tailoring SCQMSAMP member CQMPARMS.

ADETECT_ALPHA_SMOOTHING

Use the ADETECT_ALPHA_SMOOTHING parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

Description

Specifies a constant smoothing factor (n) that is used as a degree of weighting decrease to calculate the new rolling mean each time an SQL statement is captured.

Syntax

```
ADETECT_ALPHA_SMOOTHING( $n$ )
```

Range

0 - 1

A higher value within this range discounts older observations faster.

Default

.1

Example

ADETECT_ALPHA_SMOOTHING(1)

Related reference

[“ADETECT_ENABLED” on page 659](#)

Use the ADETECT_ENABLED parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_LIMIT” on page 660](#)

Use the ADETECT_MEMORY_LIMIT parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_PERSIST” on page 660](#)

Use the ADETECT_MEMORY_PERSIST parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_COUNT_FOR_ANOMALY” on page 661](#)

Use the ADETECT_MIN_COUNT_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY” on page 662](#)

Use the ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

ADETECT_ENABLED

Use the ADETECT_ENABLED parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

Description

Specifies whether or not to collect anomaly detection data.

Syntax

ADETECT_ENABLED(Y|N)

Valid values

Y

Collect anomaly detection data.

N

(Default) Do not collect anomaly detection data.

Example

ADETECT_ENABLED(Y)

Related reference

[“ADETECT_ALPHA_SMOOTHING” on page 658](#)

Use the ADETECT_ALPHA_SMOOTHING parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_LIMIT” on page 660](#)

Use the ADETECT_MEMORY_LIMIT parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_PERSIST” on page 660](#)

Use the ADETECT_MEMORY_PERSIST parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_COUNT_FOR_ANOMALY” on page 661](#)

Use the ADETECT_MIN_COUNT_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY” on page 662](#)

Use the ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

ADETECT_MEMORY_LIMIT

Use the ADETECT_MEMORY_LIMIT parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

Description

The number of megabytes allowed for anomaly detection.

Syntax

ADETECT_MEMORY_LIMIT(*n*)

Default

2048

Range

Integers in the range 512 - 32768

Example

ADETECT_MEMORY_LIMIT(1024)

Related reference

[“ADETECT_ALPHA_SMOOTHING” on page 658](#)

Use the ADETECT_ALPHA_SMOOTHING parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_ENABLED” on page 659](#)

Use the ADETECT_ENABLED parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_PERSIST” on page 660](#)

Use the ADETECT_MEMORY_PERSIST parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_COUNT_FOR_ANOMALY” on page 661](#)

Use the ADETECT_MIN_COUNT_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY” on page 662](#)

Use the ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

ADETECT_MEMORY_PERSIST

Use the ADETECT_MEMORY_PERSIST parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

Description

Specifies whether or not to retain memory allocated for anomaly detection across restarts of the Db2 Query Monitor task. Memory allocation will not persist across an IPL.

Syntax

ADETECT_MEMORY_PERSIST(Y|N)

Valid values

Y

Retain the memory allocated for anomaly detection after restart.

N

(Default) Do not retain the memory allocated for anomaly detection after restart.

Example

ADETECT_MEMORY_PERSIST(Y)

Related reference

[“ADETECT_ALPHA_SMOOTHING” on page 658](#)

Use the ADETECT_ALPHA_SMOOTHING parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_ENABLED” on page 659](#)

Use the ADETECT_ENABLED parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_LIMIT” on page 660](#)

Use the ADETECT_MEMORY_LIMIT parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_COUNT_FOR_ANOMALY” on page 661](#)

Use the ADETECT_MIN_COUNT_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY” on page 662](#)

Use the ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

ADETECT_MIN_COUNT_FOR_ANOMALY

Use the ADETECT_MIN_COUNT_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

Description

The minimum number of SQL statements (*n*) allowed for a given workload after which anomaly exceptions or alerts are recorded for the workload.

Syntax

ADETECT_MIN_COUNT_FOR_ANOMALY(*n*)

Default

100

Range

Integers in the range 1 - 99999999

Example

ADETECT_MIN_COUNT_FOR_ANOMALY(1000)

Related reference

[“ADETECT_ALPHA_SMOOTHING” on page 658](#)

Use the ADETECT_ALPHA_SMOOTHING parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_ENABLED” on page 659](#)

Use the ADETECT_ENABLED parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_LIMIT” on page 660](#)

Use the ADETECT_MEMORY_LIMIT parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_PERSIST” on page 660](#)

Use the ADETECT_MEMORY_PERSIST parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY” on page 662](#)

Use the ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY

Use the ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

Description

Specifies the minimum deviation (n) from the rolling mean that can be categorized as an anomaly.

Syntax

ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY(n)

Range

1 - 9999999

Default

50

Example

ADETECT_MIN_GETPAGES_DELTA_FOR_ANOMALY(100)

Related reference

[“ADETECT_ALPHA_SMOOTHING” on page 658](#)

Use the ADETECT_ALPHA_SMOOTHING parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_ENABLED” on page 659](#)

Use the ADETECT_ENABLED parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_LIMIT” on page 660](#)

Use the ADETECT_MEMORY_LIMIT parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MEMORY_PERSIST” on page 660](#)

Use the ADETECT_MEMORY_PERSIST parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

[“ADETECT_MIN_COUNT_FOR_ANOMALY” on page 661](#)

Use the ADETECT_MIN_COUNT_FOR_ANOMALY parameter in CQMPARMS to control the anomaly detection behavior of your Query Monitor subsystem .

ALERT_LIMIT

Use the ALERT_LIMIT parameter in CQMPARMS to control the alerts behavior of your Query Monitor subsystem.

Description

The maximum number of alerts (n) 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.

Tip:

- 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, contact IBM Software Support.

Syntax

ALERT_LIMIT(n)

Default

10

Range

Integers in the range 1 - 99999

Example

ALERT_LIMIT(350)

ALERT_OBJECTS_PER_ALERT

Use the ALERT_OBJECTS_PER_ALERT parameter in CQMPARMS to control the amount of storage used for alerts.

Description

The maximum number of objects per alert (*nnnnn*) that are collected. This parameter enables you to control the amount of storage that is used when collecting alerts.

SyntaxALERT_OBJECTS_PER_ALERT(*nnnnn*)**Default**

8

Note: Under normal circumstances, the default value is appropriate. However, if your workloads average more than 8 objects per alert, this parameter can be adjusted as needed.

Range

Integers in the range 1 - 99999

Example

ALERT_OBJECTS_PER_ALERT(10)

ALERT_HOSTV_PER_ALERT

Use the ALERT_HOSTV_PER_ALERT parameter in CQMPARMS to control the amount of storage used for alerts.

Description

The maximum number of host variables per alert (*nnnnn*) that are collected. This parameter enables you to control the amount of storage that is used when collecting alerts.

SyntaxALERT_HOSTV_PER_ALERT(*nnnnn*)**Default**

16

Note: Under normal circumstances, the default value is appropriate. However, if your workloads average more than 16 host variables per alert, this parameter can be adjusted as needed.

Example

ALERT_HOSTV_PER_ALERT(18)

APPLIANCE_SERVER_LIST

Use the APPLIANCE_SERVER_LIST parameter in CQMPARMS to control the mode that is used for streaming event data to connected appliances.

Description

The mode (*mode*) that is used for streaming event data to connected appliances.

SyntaxAPPLIANCE_SERVER_LIST(*mode*)**Default**

FAILOVER

Valid values

Valid values for *mode* include:

FAILOVER

(Default) One appliance connection is active at a time.

If the connection to the primary appliance is lost, a failover action occurs resulting in an attempt to connect to the next available server.

HOT_FAILOVER

Maintains the activity of the appliance policy in the event that the primary appliance becomes unavailable and failover occurs.

MULTI_STREAM

MIRROR

All event data is mirrored across all connected appliances. Mirroring mode supports ports 16022 and 16023.

Example

```
APPLIANCE_SERVER_LIST(MIRROR)
```

ATTLS_ENABLED

Use the ATTLS_ENABLED parameter in CQMPARMS to control the security behavior of your Query Monitor subsystem .

Description

Enables the use of AT-TLS so that all communications between the CAE Server, CAE Agent, and ISPF client are encrypted using AT-TLS instead of application-based encryption.

Syntax

```
ATTLS_ENABLED(Y|N)
```

Valid values

Y

Use AT-TLS.

N

(Default) Do not use AT-TLS.

Example

```
ATTLS_ENABLED(Y)
```

AUTHID

Use the AUTHID parameter in CQMPARMS to establish a connection to Db2.

Description

The Db2 authorization ID (*db2authid*) that Db2 Query Monitor uses when establishing a connection to Db2 during interval processing.

Tip:

- If you use RACF on your Db2 subsystem, 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.

Syntax

AUTHID(*db2authid*)

Default

Defaults to the user ID under which the started task will run.

Example

AUTHID(DB2USER)

CATALOG_OBJECTS

Use the CATALOG_OBJECTS parameter in CQMPARMS to control the collection of object-related data for SQL PREPARE calls, resulting in lower CPU consumption and memory savings.

Description

Specifies whether or not to collect object-related data for SQL PREPARE calls.

Syntax

CATALOG_OBJECTS(Y|N)

Valid values

Y

Collect object statistics for catalog objects.

N

(Default) Do not collect object statistics for catalog objects (resulting in lower CPU consumption and memory savings).

Example

CATALOG_OBJECTS(N)

COLLECT_DYNAMIC_SQL

Use the COLLECT_DYNAMIC_SQL parameter in CQMPARMS to control the statistics collection behavior of your Query Monitor subsystem.

Description

Indicates whether or not statistics for dynamic SQL statements are collected by Db2 Query Monitor.

Syntax

COLLECT_DYNAMIC_SQL(Y|N)

Valid values

Y

(Default) Collects statistics for dynamic SQL statements.

N

Does not collect statistics for dynamic SQL statements.

Example

COLLECT_DYNAMIC_SQL(N)

COLLECT_STATIC_SQL

Use the COLLECT_STATIC_SQL parameter in CQMPARMS to control the metrics collection behavior of your Query Monitor subsystem with respect to static SQL statements.

Description

Specifies whether or not to collect statistics for static SQL statements.

Syntax

COLLECT_STATIC_SQL(Y|N)

Valid values

Y

(Default) Collect statistics for static SQL statements.

N

Do not collect statistics for static SQL statements.

Example

```
COLLECT_STATIC_SQL(N)
```

CORRID_TRANSLATION

Use the CORRID_TRANSLATION parameter in CQMPARMS to control CORRID translation.

Description

Defines how the CORRNAME and CORRNUM values are parsed from the CORRID.

- Multiple specifications are allowed for the different connection types.
- Multiple specifications for the same Db2 subsystem and connection type use the last specification.
- DEFAULT connection type is 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).

Syntax

```
CORRID_TRANSLATION(db2_ssid, conntype_name, corrname_offset, corrname_length,  
corrnum_offset, corrnum_length)
```

db2_ssid

The Db2 subsystem ID.

conntype_name

The connection type. Valid values are TSO, DB2CALL, DB2PRIVATE, RRSAF, CICS, IMS, DRDA, UTILITY, or DEFAULT. If a connection type is not specified, the default translation is used.

corrname_offset

The CORRNAME offset. Valid values are between 01 and 12. 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. 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. 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. 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).

Default

Refer to OMEGAMON documentation for the default parsing.

Example

```
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

Use the DATACLAS parameter in CQMPARMS to control the allocation of performance history files for your Query Monitor subsystem.

Description

The SMS data class (*dataclass*) that is used for allocation of performance history files. This startup parameter might be overridden by the data class specifications for the individual performance history files.

Note: Performance history files must be defined with VSAM SHAREOPTIONS(3,3) to avoid the overhead of SHAREOPTIONS(2,x).

Syntax

```
DATACLAS(dataclass)
```

Default

Null

Example

```
DATACLAS(VSHAR33)
```

DATASET_FULL

Use the DATASET_FULL parameter in CQMPARMS to control the performance history file behavior of your Query Monitor subsystem.

Description

Controls what action Db2 Query Monitor takes when a performance history file cannot be extended.

Syntax

```
DATASET_FULL(IGNORE|ABORT)
```

Valid values**IGNORE**

(Default) Ignore the error and record no additional data to the performance history file until the next interval.

ABORT

Abort monitoring.

Example

```
DATASET_FULL(ABORT)
```

DB2_SQLCODE_DUPLICATES

Use the DB2_SQLCODE_DUPLICATES parameter in CQMPARMS to control the SQLCODE detail record collection behavior of your Query Monitor subsystem.

Description

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. 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.

Syntax

```
DB2_SQLCODE_DUPLICATES(n)
```

Default

0

Range

Integers in the range 0 - 99999

Example

```
DB2_SQLCODE_DUPLICATES(200)
```

Report the first 200 occurrences of a unique SQLCODE detail record.

Related tasks

[“Detecting a loop in an application” on page 445](#)

You can use Db2 Query Monitor to detect a loop within an application that is running on a thread or a Db2 subsystem.

Related reference

[“THREAD_SQLCODE_DUPLICATES” on page 711](#)

Use the THREAD_SQLCODE_DUPLICATES parameter in CQMPARMS to control the SQLCODE collection behavior of the Query Monitor subsystem.

[“THREAD_SQLCODE_DUPLICATES_TIME” on page 712](#)

Use the THREAD_SQLCODE_DUPLICATES_TIME parameter in CQMPARMS to control the SQLCODE collection behavior of the Query Monitor subsystem.

[“DB2_SQLCODE_DUPLICATES_TIME” on page 668](#)

Use the DB2_SQLCODE_DUPLICATES_TIME parameter in CQMPARMS to control the SQLCODE collection behavior of your Query Monitor subsystem.

DB2_SQLCODE_DUPLICATES_TIME

Use the DB2_SQLCODE_DUPLICATES_TIME parameter in CQMPARMS to control the SQLCODE collection behavior of your Query Monitor subsystem.

Description

The time in minutes (*n*) after which Db2 Query Monitor resumes SQLCODE collection for a Db2 subsystem after being suspended when the DB2_SQLCODE_DUPLICATES limit is reached. When the DB2_SQLCODE_DUPLICATES_TIME is reached, SQLCODE collection resumes when the next SQLCODE is encountered.

Syntax

```
DB2_SQLCODE_DUPLICATES_TIME(n)
```

Default

0

Range

Integers in the range 0-99999

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.

Related tasks

[“Detecting a loop in an application” on page 445](#)

You can use Db2 Query Monitor to detect a loop within an application that is running on a thread or a Db2 subsystem.

Related reference

[“THREAD_SQLCODE_DUPLICATES” on page 711](#)

Use the THREAD_SQLCODE_DUPLICATES parameter in CQMPARMS to control the SQLCODE collection behavior of the Query Monitor subsystem.

[“THREAD_SQLCODE_DUPLICATES_TIME” on page 712](#)

Use the `THREAD_SQLCODE_DUPLICATES_TIME` parameter in `CQMPARMS` to control the `SQLCODE` collection behavior of the Query Monitor subsystem.

[“DB2_SQLCODE_DUPLICATES” on page 667](#)

Use the `DB2_SQLCODE_DUPLICATES` parameter in `CQMPARMS` to control the `SQLCODE` detail record collection behavior of your Query Monitor subsystem.

DB2CDATA_DATACLAS

Use the `DB2CDATA_DATACLAS` parameter in `CQMPARMS` to control the allocation of the `DB2CDATA` performance history file.

Description

The SMS data class (*dataclass*) that is used for the allocation of the `DB2CDATA` performance history file.

Syntax

```
DB2CDATA_DATACLAS(dataclass)
```

Default

Defaults to the value specified by the `DATACLAS` parameter.

Example

```
DB2CDATA_DATACLAS(DATACLAS)
```

DB2CDATA_DSN

Use the `DB2CDATA_DSN` parameter in `CQMPARMS` to control the data set naming convention of the `DB2CDATA` performance history file.

Description

Important: This parameter is required.

The data set name (*dsn*) 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).

Tip:

- Use the `&INTV` symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends `".DATA"` and `".INDEX"` to the VSAM data and index components.

Syntax

```
DB2CDATA_DSN(dsn)
```

Default

None

Example

```
DB2CDATA_DSN(CQM.TEST.DB2CD.D&LYMMDD..T&LHR.&LMIN..&INTV.)
```

DB2CDATA_MGMTCLAS

Use the `DB2CDATA_MGMTCLAS` parameter in `CQMPARMS` to control the data set naming convention of the `DB2CDATA` performance history file.

Description

The SMS management class (*mgclass*) that is used for the `DB2CDATA` performance history file.

Syntax

DB2CDATA_MGMTCLAS(*mgclass*)

Default

Defaults to the value specified by the MGMTCLAS parameter.

Example

DB2CDATA_MGMTCLAS(MGMTCLAS)

DB2CDATA_PRIMARY

Use the DB2CDATA_PRIMARY parameter in CQMPARMS to control the allocation of the DB2CDATA performance history files.

Description

The primary space quantity (*n*) that is used for the DB2CDATA performance history files.

Syntax

DB2CDATA_PRIMARY(*n*)

Default

5

Range

Integers greater than or equal to 1

Example

DB2CDATA_PRIMARY(1)

DB2CDATA_SECONDARY

Use the DB2CDATA_SECONDARY parameter in CQMPARMS to control the allocation of the DB2CDATA performance history files.

Description

The secondary space quantity (*n*) that is used for the DB2CDATA performance history files.

Syntax

DB2CDATA_SECONDARY(*n*)

Default

2

Range

Integers greater than or equal to 1

Example

DB2CDATA_SECONDARY(1)

DB2CDATA_SPACE_UNITS

Use the DB2CDATA_SPACE_UNITS parameter in CQMPARMS to control the allocation of the DB2CDATA performance history files.

Description

The space units used for the allocation of the DB2CDATA performance history files.

Syntax

DB2CDATA_SPACE_UNITS(TRKS|CYLS)

Default

CYLS

Valid values**CYLS**

(Default) Cylinders

TRKS

Tracks

Example

```
DB2CDATA_SPACE_UNITS(TRKS)
```

DB2CDATA_STORCLAS

Use the DB2CDATA_STORCLAS parameter in CQMPARMS to control the allocation of the DB2CDATA performance history file.

Description

The SMS storage class (*storclass*) that is used for the DB2CDATA performance history file.

Syntax

```
DB2CDATA_STORCLAS(storclass)
```

Default

Defaults to the value specified by the STORCLAS parameter.

Example

```
DB2CDATA_STORCLAS(STORCLAS)
```

DB2CDATA_UNITNAME

Use the DB2CDATA_UNITNAME parameter in CQMPARMS to control the allocation of the DB2CDATA performance history files.

Description

The unit name, generic device type or a device address (*unitname*) for the DB2CDATA performance history files.

Syntax

```
DB2CDATA_UNITNAME(unitname)
```

Default

Defaults to the value specified by the UNITNAME parameter.

Example

```
DB2CDATA_UNITNAME(CQMDB2CDATA)
```

DB2CDATA_VOLUME

Use the DB2CDATA_VOLUME parameter in CQMPARMS to control the allocation of the DB2CDATA performance history file.

Description

The volume (*volume*) for the DB2CDATA performance history file.

Syntax

```
DB2CDATA_VOLUME(volume)
```

Default

Defaults to the value specified by the VOLUME parameter.

Example

```
DB2CDATA_VOLUME(CQMDBV)
```

DEBUG

Use the DEBUG parameter in CQMPARMS to control the behavior of diagnostic messages.

Description

Specifies whether or not debug mode is enabled.

Syntax

```
DEBUG(Y|N)
```

Valid values

Y

Enable diagnostic messages. Diagnostic messages are messages in the range CQM9000-CQM-9999 and are intended for use by IBM Software Support.

N

(Default) Disable diagnostic messages.

Example

```
DEBUG(Y)
```

DIAG_THRESHOLD

Use the DIAG_THRESHOLD parameter in CQMPARMS to specify the diagnostic threshold for internal abends. Change the value for this parameter only under the direction of IBM Software Support.

Description

Specifies the number of the occurrences (*nnnnnnnn*) of an internal abend that, when exceeded, causes message CQM4401I to be issued.

Syntax

```
DIAG_THRESHOLD(nnnnnnnn)
```

Default

```
1000000
```

Range

Integers in the range 0 - 99999999.

If 0 is specified for this parameter, then the internal diagnostic threshold checker is not activated and message CQM4401I is not issued. Additionally, regardless of the DIAG_THRESHOLD_DUMPS specification, no dumps are produced for internal abends.

If > 0 is specified for this parameter, message CQM4401I will be issued if that value is exceeded.

Example

```
DIAG_THRESHOLD(1000000)
```

DIAG_THRESHOLD_DUMPS

Use the DIAG_THRESHOLD_DUMPS parameter in CQMPARMS to control the dump behavior when the threshold for an internal abend has been exceeded. Change the value for this parameter only under the direction of IBM Software Support.

Description

Specifies the number of times a dump is taken after the DIAG_THRESHOLD limit for an internal abend is exceeded for a particular diagnostic event.

Note: It is possible that not all dumps will be produced if the Db2 thread encounters the internal abend and an asynchronous dump is still in progress for that thread. In such cases, a return code might be reported that indicates another dump from an abend event is still in progress.

This parameter works with the DIAG_THRESHOLD parameter to produce dumps at particular intervals. If, for example, the following is specified:

```
DIAG_THRESHOLD_DUMPS(3)
DIAG_THRESHOLD(1000000)
```

A dump is generated for the 3 next occurrences after 999999 (1000000,1000001,1000002)

And if the following is specified:

```
DIAG_THRESHOLD_DUMPS(0)
DIAG_THRESHOLD(1000000)
```

Then message CQM4401I is issued only once after 1000000 and no dumps are produced.

To turn off the feature, you can specify a DIAG_THRESHOLD of 0, for example:

```
DIAG_THRESHOLD_DUMPS(3)
DIAG_THRESHOLD(0)
```

Syntax

```
DIAG_THRESHOLD_DUMPS(n)
```

Default

1

Range

Integers in the range 0 - 5. When zero is specified for this parameter, then no dumps are taken and message CQM4402I is not issued when the diagnostic threshold is exceeded.

Example

```
DIAG_THRESHOLD_DUMPS(1)
```

EMPTY_INTERVALS

Use the EMPTY_INTERVALS parameter in CQMPARMS to control the interval retention behavior of your Query Monitor subsystem.

Description

Indicates whether Db2 Query Monitor keeps or removes empty interval performance history files and their corresponding interval records from CQMINTER data set.

Syntax

```
EMPTY_INTERVALS(KEEP|REMOVE)
```

Valid values**KEEP**

(Default) Keeps empty interval performance history files and their corresponding interval records.

REMOVE

Removes the empty interval performance history files and their corresponding interval records from the CQMINTER data set.

Note: When EMPTY_INTERVALS(REMOVE) and the RETAIN parameter are specified together, Db2 Query Monitor retains *n* intervals as instructed to by the RETAIN parameter. If any of the retained intervals are empty, they are then deleted.

Example

```
EMPTY_INTERVALS(REMOVE)
```

EXCEPTION_CALLS_PER_EXCEPT_AVG

Use the EXCEPTION_CALLS_PER_EXCEPT_AVG parameter in CQMPARMS to control the exception behavior of Query Monitor subsystem.

Description

The average number of calls (*n*) per exception that are to be expected.

Syntax

```
EXCEPTION_CALLS_PER_EXCEPT_AVG(n)
```

Default

64

Range

Integers between 2 - 64

Example

```
EXCEPTION_CALLS_PER_EXCEPT_AVG(2)
```

EXCEPTION_CALLS_PER_EXCEPT_MAX

Use the EXCEPTION_CALLS_PER_EXCEPT_MAX parameter in CQMPARMS to control the exception behavior of Query Monitor subsystem.

Description

The maximum count (*n*) for exception calls during the interval.

Syntax

```
EXCEPTION_CALLS_PER_EXCEPT_MAX(n)
```

Default

64

Range

Integers in the range 16 - 64

Example

```
EXCEPTION_CALLS_PER_EXCEPT_MAX(16)
```

EXCEPTION_OBJECTS_PER_EXCEPT_AVG

Use the EXCEPTION_OBJECTS_PER_EXCEPT_AVG parameter in CQMPARMS to control the exception behavior of Query Monitor subsystem.

Description

The average number of objects (*n*) per exception that are to be expected.

Syntax

```
EXCEPTION_OBJECTS_PER_EXCEPT_AVG(n)
```

Default

17

Range

Integers in the range 8 - 1024

Example

```
EXCEPTION_OBJECTS_PER_EXCEPT_AVG(8)
```

EXCEPTION_OBJECTS_PER_EXCEPT_MAX

Use the EXCEPTION_OBJECTS_PER_EXCEPT_MAX parameter in CQMPARMS to control the exception behavior of Query Monitor subsystem.

Description

The maximum count (*n*) for exception objects during an interval.

Syntax

```
EXCEPTION_OBJECTS_PER_EXCEPT_MAX(n)
```

Default

768

Range

Integers in the range 256 - 8192

Example

```
EXCEPTION_OBJECTS_PER_EXCEPT_MAX(256)
```

EXCEPTION_SPACE_SIZE

Use the EXCEPTION_SPACE_SIZE parameter in CQMPARMS to control the exception behavior of Query Monitor subsystem.

Description

The maximum amount of storage in megabytes (*n*) available for storing exceptions during an interval.

Syntax

EXCEPTION_SPACE_SIZE(*n*)

Default

128

Range

Integers in the range 64 - 1024

Example

EXCEPTION_SPACE_SIZE(1024)

EXCPDATA_DATACLAS

Use the EXCPDATA_DATACLAS parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

The SMS data class (*dataclass*) for the EXCPDATA performance history file.

Syntax

EXCPDATA_DATACLAS(*dataclass*)

Default

Defaults to the value specified by the DATACLAS parameter.

Example

EXCPDATA_DATACLAS(DATACLAS)

EXCPDATA_DSN

Use the EXCPDATA_DSN parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

Important: This parameter is required.

The data set name (*dsn*) 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).

Tip:

- Use the &INTV symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends ".DATA" and ".INDEX" to the VSAM data and index components.

Syntax

EXCPDATA_DSN(*dsn*)

Default

None

Example

EXCPDATA_DSN(CQM.TEST.EDATA.D&LYMMDD..T&LHR.&LMIN..&INTV.)

EXCPDATA_MGMTCLAS

Use the EXCPDATA_MGMTCLAS parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

The SMS management class (*managementclass*) for the EXCPDATA performance history file.

Syntax

EXCPDATA_MGMTCLAS(*managementclass*)

Default

Defaults to the value specified by the MGMTCLAS parameter.

Example

EXCPDATA_MGMTCLAS(MGMTCLAS)

EXCPDATA_PRIMARY

Use the EXCPDATA_PRIMARY parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

The primary space quantity (*n*) for the EXCPDATA performance history file.

Syntax

EXCPDATA_PRIMARY(*n*)

Default

5

Range

Integers greater than or equal to 1

Example

EXCPDATA_PRIMARY(1)

EXCPDATA_SECONDARY

Use the EXCPDATA_SECONDARY parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

The secondary space quantity (*n*) for the EXCPDATA performance history file.

Syntax

EXCPDATA_SECONDARY(*n*)

Default

2

Range

Integers greater than or equal to 1

Example

EXCPDATA_SECONDARY(1)

EXCPDATA_SPACE_UNITS

Use the EXCPDATA_SPACE_UNITS parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

The space units used for the allocation of the EXCPDATA performance history file.

Syntax

EXCPDATA_SPACE_UNITS(TRKS|CYLS)

Default

CYLS

Valid values**CYLS**

(Default) Cylinders

TRKS

Tracks

Example

EXCPDATA_SPACE_UNITS(TRKS)

EXCPDATA_STORCLAS

Use the EXCPDATA_STORCLAS parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

The SMS storage class (*storageclass*) for the EXCPDATA performance history file.

SyntaxEXCPDATA_STORCLAS(*storageclass*)**Default**

Defaults to the value specified by the STORCLAS parameter.

Example

EXCPDATA_STORCLAS(STORCLAS)

EXCPDATA_UNITNAME

Use the EXCPDATA_UNITNAME parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

The unit name, generic device type, or device address (*unitname*) for the EXCPDATA performance history files.

SyntaxEXCPDATA_UNITNAME(*unitname*)**Default**

Defaults to the value specified by the UNITNAME parameter.

Example

EXCPDATA_UNITNAME(CQMEXCPDATA)

EXCPDATA_VOLUME

Use the EXCPDATA_VOLUME parameter in CQMPARMS to control the allocation of the EXCPDATA performance history file.

Description

The volume (*volume*) for the EXCPDATA performance history file.

SyntaxEXCPDATA_VOLUME(*volume*)**Default**

Defaults to the value specified by the VOLUME parameter.

Example

EXCPDATA_VOLUME(CQMEDV)

EXCPHSTV_DATACLAS

Use the EXCPHSTV_DATACLAS parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history files.

Description

The SMS data class (*dataclass*) for the EXCPHSTV performance history files.

Syntax

EXCPHSTV_DATACLAS(*dataclass*)

Default

Defaults to the value specified by the DATACLAS parameter.

Example

EXCPHSTV_DATACLAS(DATACLAS)

EXCPHSTV_DSN

Use the EXCPHSTV_DSN parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

Description

Important: This parameter is 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 include the Db2 Query Monitor symbol &INTV (the &INTV symbolic resolves to the current interval number).

Tip:

- Use the &INTV symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends ".DATA" and ".INDEX" to the VSAM data and index components.

Syntax

EXCPHSTV_DSN(*dsn*)

Default

None

Example

EXCPHSTV_DSN(CQM.TEST.EDATA.D&LYMMDD..T&LHR.&LMIN..&INTV.)

EXCPHSTV_MGMTCLAS

Use the EXCPHSTV_MGMTCLAS parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

Description

The SMS management class (*managementclass*) for the EXCPHSTV performance history files.

Syntax

EXCPHSTV_MGMTCLAS(*managementclass*)

Default

Defaults to the value specified by the MGMTCLAS parameter.

Example

EXCPHSTV_MGMTCLAS(MGMTCLAS)

EXCPHSTV_PRIMARY

Use the EXCPHSTV_PRIMARY parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

Description

The primary space quantity (*n*) for the EXCPHSTV performance history file.

Syntax

EXCPHSTV_PRIMARY(*n*)

Default

5

Range

Integers greater than or equal to 1

Example

EXCPHSTV_PRIMARY(1)

EXCPHSTV_SECONDARY

Use the EXCPHSTV_SECONDARY parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

Description

The secondary space quantity (*n*) for the EXCPHSTV performance history file.

Syntax

EXCPHSTV_SECONDARY(*n*)

Default

2

Range

Integers greater than or equal to 1

Example

EXCPHSTV_SECONDARY(1)

EXCPHSTV_SPACE_UNITS

Use the EXCPHSTV_SPACE_UNITS parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

Description

The space units used for the allocation of the EXCPHSTV performance history file.

Syntax

EXCPHSTV_SPACE_UNITS(TRKS|CYLS)

Default

CYLS

Valid values

CYLS

(Default) Cylinders

TRKS

Tracks

Example

EXCPHSTV_SPACE_UNITS(TRKS)

EXCPHSTV_STORCLAS

Use the EXCPHSTV_STORCLAS parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

Description

The SMS storage class (*storageclass*) for the EXCPHSTV performance history file.

Syntax

```
EXCPHSTV_STORCLAS(storageclass)
```

Default

Defaults to the value specified by the STORCLAS parameter.

Example

```
EXCPHSTV_STORCLAS(STORCLAS)
```

EXCPHSTV_UNITNAME

Use the EXCPHSTV_UNITNAME parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

Description

The unit name, generic device type or a device address (*unitname*) for the EXCPHSTV performance history file.

Syntax

```
EXCPHSTV_UNITNAME(unitname)
```

Default

Defaults to the value specified by the UNITNAME parameter.

Example

```
EXCPHSTV_UNITNAME(CQMEXCPDATA)
```

EXCPHSTV_VOLUME

Use the EXCPHSTV_VOLUME parameter in CQMPARMS to control the allocation of the EXCPHSTV performance history file.

Description

The volume (*volume*) for the EXCPHSTV performance history file.

Syntax

```
EXCPHSTV_VOLUME(volume)
```

Default

Defaults to the value specified by the VOLUME parameter.

Example

```
EXCPHSTV_VOLUME(CQMVOLUM)
```

EXCPINDX_DATACLAS

Use the EXCPINDX_DATACLAS parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

The SMS data class (*dataclass*) for the EXCPINDX performance history file.

Syntax

```
EXCPINDX_DATACLAS(dataclass)
```

Default

Defaults to the value specified by the DATACLAS parameter.

Example

```
EXCPINDX_DATACLAS(DATACLAS)
```

EXCPINDX_DSN

Use the EXCPINDX_DSN parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

Important: This parameter is required.

The data set name (*dsn*) 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).

Tip:

- Use the &INTV symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends ".DATA" and ".INDEX" to the VSAM data and index components.

Syntax

```
EXCPINDX_DSN(dsn)
```

Default

None

Example

```
EXCPINDX_DSN(CQM.TEST.EINDEX.D&LYYMMDD..T&LHR.&LMIN..&INTV.)
```

EXCPINDX_MGMTCLAS

Use the EXCPINDX_MGMTCLAS parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

The SMS management class (*managementclass*) for the EXCPINDX performance history files.

Syntax

```
EXCPINDX_MGMTCLAS(managementclass)
```

Default

Defaults to the value specified by the MGMTCLAS parameter.

Example

```
EXCPINDX_MGMTCLAS(MGMTCLAS)
```

EXCPINDX_PRIMARY

Use the EXCPINDX_PRIMARY parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

The primary space quantity (*n*) for the EXCPINDX performance history file.

Syntax

```
EXCPINDX_PRIMARY(n)
```

Default

5

Range

Integers greater than or equal to 1

Example

```
EXCPINDX_PRIMARY(1)
```

EXCPINDX_SECONDARY

Use the EXCPINDX_SECONDARY parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

The secondary space quantity (*n*) for the EXCPINDX performance history file.

Syntax

```
EXCPINDX_SECONDARY(n)
```

Default

2

Range

Integers greater than or equal to 1

Example

```
EXCPINDX_SECONDARY(1)
```

EXCPINDX_SPACE_UNITS

Use the EXCPINDX_SPACE_UNITS parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

The space units used for the allocation of the EXCPINDX performance history file.

Syntax

```
EXCPINDX_SPACE_UNITS(TRKS|CYLS)
```

Default

CYLS

Valid values**CYLS**

(Default) Cylinders

TRKS

Tracks

Example

```
EXCPINDX_SPACE_UNITS(TRKS)
```

EXCPINDX_STORCLAS

Use the EXCPINDX_STORCLAS parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

The SMS storage class (*storageclass*) for the EXCPINDX performance history file.

Syntax

```
EXCPINDX_STORCLAS(storageclass)
```

Default

Defaults to the value specified by the STORCLAS parameter.

Example

```
EXCPINDX_STORCLAS(STORCLAS)
```

EXCPINDX_UNITNAME

Use the EXCPINDX_UNITNAME parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

The unit name, generic device type or a device address (*unitname*) for the EXCPINDX performance history file.

Syntax

```
EXCPINDX_UNITNAME(unitname)
```

Default

Defaults to the value specified by the UNITNAME parameter.

Example

```
EXCPINDX_UNITNAME(CQMEXCPINDX)
```

EXCPINDX_VOLUME

Use the EXCPINDX_VOLUME parameter in CQMPARMS to control the allocation of the EXCPINDX performance history file.

Description

The volume (*volume*) for the EXCPINDX performance history file.

Syntax

```
EXCPINDX_VOLUME(volume)
```

Default

Defaults to the value specified by the VOLUME parameter.

Example

```
EXCPINDX_VOLUME(CQMEXV)
```

EXCPTTEXT_DATACLAS

Use the EXCPTTEXT_DATACLAS parameter in CQMPARMS to control the allocation of the EXCPTTEXT performance history file.

Description

The SMS data class (*dataclass*) for the EXCPTTEXT performance history files.

Syntax

```
EXCPTTEXT_DATACLAS(dataclass)
```

Default

Defaults to the value specified by the DATACLAS parameter.

Example

```
EXCPTTEXT_DATACLAS(DATACLAS)
```

EXCPTTEXT_DSN

Use the EXCPTTEXT_DSN parameter in CQMPARMS to control the allocation of the EXCPTTEXT performance history file.

Description

Important: This parameter is required.

The data set name (*dsn*) for the EXCPTTEXT performance history file. The EXCPTTEXT 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).

Tip:

- Use the &INTV symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends ".DATA" and ".INDEX" to the VSAM data and index components.

Syntax

EXCPTEXT_DSN(*dsn*)

Default

None

Example

EXCPTEXT_DSN(CQM.TEST.EDATA.D&LYMMDD..T&LHR.&LMIN..&INTV.)

EXCPTEXT_MGMTCLAS

Use the EXCPTEXT_MGMTCLAS parameter in CQMPARMS to control the allocation of the EXCPTEXT performance history file.

Description

The SMS management class (*managementclass*) for the EXCPTEXT performance history file.

Syntax

EXCPTEXT_MGMTCLAS(*managementclass*)

Default

Defaults to the value specified by the MGMTCLAS parameter.

Example

EXCPTEXT_MGMTCLAS(MGMTCLAS)

EXCPTEXT_PRIMARY

Use the EXCPTEXT_PRIMARY parameter in CQMPARMS to control the allocation of the EXCPTEXT performance history file.

Description

The primary space quantity (*n*) for the EXCPTEXT performance history file.

Syntax

EXCPTEXT_PRIMARY(*n*)

Default

5

Range

Integers greater than or equal to 1

Example

EXCPTEXT_PRIMARY(1)

EXCPTEXT_SECONDARY

Use the EXCPTEXT_SECONDARY parameter in CQMPARMS to control the allocation of the EXCPTEXT performance history file.

Description

The secondary space quantity (*n*) for the EXCPTEXT performance history file.

Syntax

EXCPTEXT_SECONDARY(*n*)

Default

2

Range

Integers greater than or equal to 1

Example

```
EXCPTEXT_SECONDARY(3)
```

EXCPTEXT_SPACE_UNITS

Use the EXCPTEXT_SPACE_UNITS parameter in CQMPARMS to control the allocation of the EXCPTEXT performance history file.

Description

The space units used for the allocation of the EXCPTEXT performance history file.

Syntax

```
EXCPTEXT_SPACE_UNITS(TRKS|CYLS)
```

Default

CYLS

Valid values**CYLS**

(Default) Cylinders

TRKS

Tracks

Example

```
EXCPTEXT_SPACE_UNITS(TRKS)
```

EXCPTEXT_STORCLAS

Use the EXCPTEXT_STORCLAS parameter in CQMPARMS to control the allocation of the EXCPTEXT performance history file.

Description

The SMS storage class (*storageclass*) for the EXCPTEXT performance history file.

Syntax

```
EXCPTEXT_STORCLAS(storageclass)
```

Default

Defaults to the value specified by the STORCLAS parameter.

Example

```
EXCPTEXT_STORCLAS(STORCLAS)
```

EXCPTEXT_UNITNAME

Use the EXCPTEXT_UNITNAME parameter in CQMPARMS to control the allocation of the EXCPTEXT performance history file.

Description

The unit name, generic device type or a device address (*unitname*) for the EXCPTEXT performance history file.

Syntax

```
EXCPHSTV_UNITNAME(unitname)
```

Default

Defaults to the value specified by the UNITNAME parameter.

Example

```
EXCPTEXT_UNITNAME(CQMEXCPDATA)
```

EXCPTTEXT_VOLUME

Use the EXCPTTEXT_VOLUME parameter in CQMPARMS to control the allocation of the EXCPTTEXT performance history file.

Description

The volume (*volume*) for the EXCPTTEXT performance history file.

Syntax

EXCPTTEXT_VOLUME(*volume*)

Default

Defaults to the value specified by the VOLUME parameter.

Example

EXCPTTEXT_VOLUME(CQMTVOLU)

FORCE

Use the FORCE parameter in CQMPARMS to control the monitoring agent installation behavior of your Query Monitor subsystem.

Description

Forces the installation of a monitoring agent. If you use this parameter, return codes from failures reported in message CQM2002E are overridden.

Syntax

FORCE(Y|N)

Default

N

Valid values

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)

HM_DISABLE_AGENT

Use the HM_DISABLE_AGENT parameter in CQMPARMS to specify the number of threads that the health monitoring feature interrupts before QM disables the monitoring of the Db2 subsystem altogether.

Description

Specifies the number of threads that the health monitoring feature interrupts before QM disables the monitoring of the Db2 subsystem altogether.

Syntax

HM_DISABLE_AGENT(*n*)

Default

5

Range

Integers in the range 0-99999999

Example

HM_DISABLE_AGENT(5)

HM_DUMPS

Use the HM_DUMPS parameter in CQMPARMS to specify the number of dumps to be taken when QM processes are interrupted by the health monitoring process.

Description

Specifies the number of dumps to be taken when QM processes are interrupted by the health monitoring process.

Syntax

HM_DUMPS(*n*)

Default

3

Range

Integers in the range 0-99999999

0 - This disables the parameter.

Example

HM_DUMPS(3)

HM_TIME_LIMIT

Use the HM_TIME_LIMIT parameter in CQMPARMS to specify the amount of time (in seconds) that QM will allow an individual QM process to run before it is interrupted.

Description

Specifies the amount of time (in seconds) that the health monitoring feature of QM allows an individual QM process to run before it is interrupted.

Syntax

HM_TIME_LIMIT(*n*)

Default

0

Range

Integers in the range 0-99999999

0 - This disables the parameter.

Example

HM_TIME_LIMIT(0)

HOSTVAR_LIMIT

Use the HOSTVAR_LIMIT parameter in CQMPARMS to control the amount of storage allocated for host variables.

Description

The maximum amount of storage (*n*) to be allocated for host variable collection per event.

Note:

- If you are using Security Guardium S-TAP for 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.

Syntax

HOSTVAR_LIMIT(*n*)

Default

1500

Range

Integers in the range 1 - 99999

Example

HOSTVAR_LIMIT(1000)

INFLIGHT

Use the INFLIGHT parameter in CQMPARMS to control the processing behavior used for inflight SQL calls.

Description

Specifies whether or not long running SQL calls that execute in Db2 are displayed before they complete.

Syntax

INFLIGHT(Y|N)

Default

Y

Valid values

Y

(Default) Long running SQL calls that execute 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.

N

Long running SQL calls that execute 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

Use the INTERVAL parameter in CQMPARMS to control the interval recording behavior of your Query Monitor subsystem.

Description

The length of time in minutes (*n*) that Db2 Query Monitor holds SQL performance data in memory before writing it to performance history files.

Syntax

INTERVAL(*n*)

Default

720

Range

Integers in the range 1 - 99999

Example

INTERVAL(20)

INTERVAL_MIDNIGHT

Use the INTERVAL_MIDNIGHT parameter in CQMPARMS to control the interval processing behavior of your Query Monitor subsystem.

Description

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.

Syntax

INTERVAL_MIDNIGHT(Y|N)

Default

N

Valid values

Y

Aligns interval start times to midnight.

N

(Default) Does not align interval start times to midnight.

Example

INTERVAL_MIDNIGHT(Y)

ISM_CONSTRAINT_AGE

Use the ISM_CONSTRAINT_AGE parameter in CQMPARMS to control the storage constraint behavior of your Query Monitor subsystem.

Description

Specifies the amount of time in hundredths of seconds (*n*) that must pass after a storage constraint occurrence before the constraint event is considered to be relieved.

Syntax

ISM_CONSTRAINT_AGE(*n*)

Default

300

Range

Integers in the range 1 - 60000

Example

ISM_CONSTRAINT_AGE(600)

ISM_ERROR_BLOCKS

Use the ISM_ERROR_BLOCKS parameter in CQMPARMS to control the ISM messaging behavior of your Query Monitor subsystem.

Description

The number of ISM error blocks (*n*) 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.

Syntax

ISM_ERROR_BLOCKS(*n*)

Default

256

Range

Integers in the range 16 - 8192

Example

ISM_ERROR_BLOCKS(16)

ISM_ERROR_DETAIL

Use the ISM_ERROR_DETAIL parameter in CQMPARMS to control the ISM messaging behavior of your Query Monitor subsystem.

Description

Controls whether CQM1203I and CQM1204I messages are issued to provide detailed information for ISM storage constraints. You can override this setting at runtime using the /f cqmstc, ISMERROR_DETAIL command.

Syntax

ISM_ERROR_DETAIL(Y|N)

Default

Y

Valid values

Y

(Default) 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

Use the ISM_ERROR_MSG_BLOCKS parameter in CQMPARMS to control the ISM messaging behavior of your Query Monitor subsystem.

Description

The number of ISM error message blocks (*n*) 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.

Syntax

ISM_ERROR_MSG_BLOCKS(*n*)

Default

256

Range

Integers in the range 16 - 8192

Example

ISM_ERROR_MSG_BLOCKS(16)

MASTER_PROCNAME

Use the MASTER_PROCNAME parameter in CQMPARMS to define the master address space procedure name.

Description

The master address space that is used by an installation of Db2 Query Monitor and Security Guardium S-TAP for Db2 on z/OS.

MASTER_PROCNAME (*procname*) must be specified for each product that uses Db2 Data Access Common Collector . When the same MASTER_PROCNAME value is specified among product installations, these product installations use the same master 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.

Important: The MASTER_PROCNAME must differ from the Db2 Query Monitor procedure name.

Syntax

MASTER_PROCNAME(*procname*)

Default

None. You must provide a value for MASTER_PROCNAME; it may not be omitted.

Example

MASTER_PROCNAME (CQMMASTR)

MAX_SQLCODES

Use the MAX_SQLCODES parameter in CQMPARMS to control the SQLCODE collection behavior of your Query Monitor subsystem.

Description

The maximum number of unique SQLCODES (*n*) for which performance data is collected. The limit defined by the MAX_SQLCODES parameter applies to a given interval, not the entire time the Db2 Data Access Common Collector is running. If MAX_SQLCODES is set to 0 (the default), SQLCODE collection and display is disabled.

Syntax

MAX_SQLCODES(*n*)

Default

0

Range

Integers in the range 0 - 99999

Example

MAX_SQLCODES(100)

MAX_SQLCODE_DETAIL

Use the MAX_SQLCODE_DETAIL parameter in CQMPARMS to control the SQLCODE collection behavior of your Query Monitor subsystem.

Description

The maximum number of times (*n*) 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 that Db2 Data Access Common Collector is running.

Syntax

MAX_SQLCODE_DETAIL(*n*)

Default

0

Range

Integers in the range 0 - 99999

Example

```
MAX_SQLCODE_DETAIL(10)
```

MAX_VOLUME_COUNT

Use the MAX_VOLUME_COUNT parameter in CQMPARMS to control the global shared memory allocation behavior of your Query Monitor subsystem .

Description

The maximum amount of volumes to be used to allocate extents for each VSAM data set in the interval. You can view the actual number of volumes allocated for a data set on the Interval Datasets panel (CQM\$INTD).

Syntax

```
MAX_VOLUME_COUNT(n)
```

Default

```
1
```

Range

Integers in the range 1 - 255

Example

```
MAX_VOLUME_COUNT(3)
```

MAXIMUM_ALLOCATIONS

Use the MAXIMUM_ALLOCATIONS parameter in CQMPARMS to control the global shared memory allocation behavior of your Query Monitor subsystem .

Description

The maximum amount of global shared memory in megabytes (*n*) that can be allocated by Db2 Query Monitor for internal Integrated Storage Manager spaces.

Note: The value you specified for the SMEM_SIZE parameter must be 4 times greater than that specified for the MAXIMUM_ALLOCATIONS parameter. If you specify a value less than this, then Db2 Query Monitor will automatically adjust the SMEM_SIZE value to be equal to 4 times the MAXIMUM_ALLOCATIONS value.

Syntax

```
MAXIMUM_ALLOCATIONS(n)
```

Default

```
2048
```

Range

Integers in the range 512 - 32768

Example

```
MAXIMUM_ALLOCATIONS(4096)
```

METRDATA_DATACLAS

Use the METRDATA_DATACLAS parameter in CQMPARMS to control the allocation of the METRDATA performance history files.

Description

The SMS data class (*dataclass*) for the METRDATA performance history files.

Syntax

```
METRDATA_DATACLAS(dataclass)
```

Default

Defaults to the value specified by the DATACLAS parameter.

Example

```
METRDATA_DATACLAS(DATACLAS)
```

METADATA_DSN

Use the METADATA_DSN parameter in CQMPARMS to control the allocation of the METADATA performance history file.

Description

Important: This parameter is required.

The data set name (*dsn*) for the METADATA performance history file. The METADATA data set contains summary level information related to SQL call execution. The METADATA 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).

Tip:

- Use the &INTV symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends ".DATA" and ".INDEX" to the VSAM data and index components.

Syntax

METADATA_DSN(*dsn*)

Default

None

Example

METADATA_DSN(CQM.TEST.METRD.D&LYMMDD..T&LHR.&LMIN..&INTV.)

METADATA_MGMTCLAS

Use the METADATA_MGMTCLAS parameter in CQMPARMS to control the allocation of the METADATA performance history file.

Description

The SMS management class (*managementclass*) for the METADATA performance history file.

Syntax

METADATA_MGMTCLAS(*managementclass*)

Default

Defaults to the value specified by the MGMTCLAS parameter.

Example

METADATA_MGMTCLAS(MGMTCLAS)

METADATA_PRIMARY

Use the METADATA_PRIMARY parameter in CQMPARMS to control the allocation of the METADATA performance history file.

Description

The primary space quantity (*n*) for the METADATA performance history file.

Syntax

METADATA_PRIMARY(*n*)

Default

5

Range

Integers greater than or equal to 1

Example

```
METRDATA_PRIMARY(5)
```

METRDATA_SECONDARY

Use the METRDATA_SECONDARY parameter in CQMPARMS to control the allocation of the METRDATA performance history file.

Description

The secondary space quantity (*n*) for the METRDATA performance history file.

Syntax

```
METRDATA_SECONDARY(n)
```

Default

2

Range

Integers greater than or equal to 1

Example

```
METRDATA_SECONDARY(3)
```

METRDATA_SPACE_UNITS

Use the METRDATA_SPACE_UNITS parameter in CQMPARMS to control the allocation of the METRDATA performance history file.

Description

The space units that are used for the allocation of the METRDATA performance history file.

Syntax

```
METRDATA_SPACE_UNITS(TRKS|CYLS)
```

Default

CYLS

Valid values**CYLS**

(Default) Cylinders

TRKS

Tracks

Example

```
METRDATA_SPACE_UNITS(TRKS)
```

METRDATA_STORCLAS

Use the METRDATA_STORCLAS parameter in CQMPARMS to control the allocation of the METRDATA performance history file.

Description

The SMS storage class (*storageclass*) for the METRDATA performance history file.

Syntax

```
METRDATA_STORCLAS(storageclass)
```

Default

Defaults to the value specified by the STORCLAS parameter.

Example

```
METRDATA_STORCLAS(STORCLAS)
```

METRDATA_UNITNAME

Use the METRDATA_UNITNAME parameter in CQMPARMS to control the allocation of the METRDATA performance history file.

Description

The unit name, generic device type or a device address (*unitname*) for the METRDATA performance history files.

Syntax

```
METRDATA_UNITNAME(unitname)
```

Default

Defaults to the value specified by the UNITNAME parameter.

Example

```
METRDATA_UNITNAME(CQMMTRDATA)
```

METRDATA_VOLUME

Use the METRDATA_VOLUME parameter in CQMPARMS to control the allocation of the METRDATA performance history file.

Description

The volume (*volume*) for the METRDATA performance history file.

Syntax

```
METRDATA_VOLUME(volume)
```

Default

Defaults to the value specified by the VOLUME parameter.

Example

```
METRDATA_VOLUME(CQMMEV)
```

MGMTCLAS

Use the MGMTCLAS parameter in CQMPARMS to control the CQMPARMS to control the allocation of performance history files.

Description

Specifies the SMS management class (*mgmtclass*) for allocation of Db2 Query Monitor performance history files. This parameter might be overridden by the management class specifications for the individual performance history files.

Syntax

```
MGMTCLAS(mgmtclass)
```

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.

Example

```
MGMTCLAS(DB2)
```

MONITOR

Use the MONITOR parameter in CQMPARMS to control the monitoring behavior of your Query Monitor subsystem.

Description

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.

If more than one Db2 subsystem is being monitored, and one or more of those subsystems do not have a monitoring profile associated with them, the absence of the profile must be denoted by a comma, unless the Db2 SSID (Db2 subsystem ID) is the last one specified in the list.

Syntax

```
MONITOR(ss01,profilea,ss02profileb, ... 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!").

Default

None

Example

```
MONITOR(SS01,SS01PROF,SS02,SS02PROF)
```

```
MONITOR (SS01,,SS02,PROF,SS03)
```

Db2 Query Monitor will, at invocation of the started task, monitor Db2 SSIDs:SS01, SS02, and SS03. Only subsystem SS02 will have a monitoring profile associated with it when Db2 Query Monitor starts.

OBJECTS

Use the OBJECTS parameter in CQMPARMS to control the collection of statistics for all objects.

Description

Controls the collection of statistics for all objects and, in doing so, the size of Db2 Query Monitor data spaces. This parameter affects all DB2 subsystems monitored by Db2 Data Access Common Collector.

Syntax

```
OBJECTS(Y|N)
```

Default

Y

Valid values

Y

(Default) Gather statistics for objects. If you specify OBJECTS(Y), you can use the DISABLE_OBJECTS dynamic configuration change commands to disable object statistics collection.

N

Do not gather statistics 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

Use the OBJSDATA_DATACLAS parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

Specifies an SMS data class (*dataclass*) for the OBJSDATA performance history files.

Syntax

```
OBJSDATA_DATACLAS(dataclass)
```

Default

Defaults to the value specified by the DATACLAS parameter.

Example

```
OBJSDATA_DATACLAS(DATACLAS)
```

OBJSDATA_DSN

Use the OBJSDATA_DSN parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

Important: This parameter is required.

The data set name (*dsn*) 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).

Tip:

- Use the &INTV symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends ".DATA" and ".INDEX" to the VSAM data and index components.

Syntax

```
OBJSDATA_DSN(dsn)
```

Default

None

Example

```
OBJSDATA_DSN(CQM.TEST.OBJSD.D&LYMMDD..T&LHR.&LMIN..&INTV.)
```

OBJSDATA_MGMTCLAS

Use the OBJSDATA_MGMTCLAS parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

The SMS management class (*managementclass*) for the OBJSDATA performance history files.

Syntax

```
OBJSDATA_MGMTCLAS(managementclass)
```

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.

Example

```
OBJSDATA_MGMTCLAS(MGMTCLAS)
```

OBJSDATA_PRIMARY

Use the OBJSDATA_PRIMARY parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

The primary space quantity for the OBJSDATA performance history file.

Syntax**Default**

5

Range

Integers greater than or equal to 1

Example

OBJSDATA_PRIMARY(5)

OBJSDATA_SECONDARY

Use the OBJSDATA_SECONDARY parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

The secondary space quantity (*n*) for the OBJSDATA performance history file.

SyntaxOBJSDATA_SECONDARY(*n*)**Default**

2

Range

Integers greater than or equal to 1

Example

OBJSDATA_SECONDARY(3)

OBJSDATA_SPACE_UNITS

Use the OBJSDATA_SPACE_UNITS parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

The space units that are used for the allocation of the OBJSDATA performance history file.

Syntax

OBJSDATA_SPACE_UNITS(TRKS|CYLS)

Default

CYLS

Valid values**CYLS**

(Default) Cylinders

TRKS

Tracks

Example

OBJSDATA_SPACE_UNITS(TRKS)

OBJSDATA_STORCLAS

Use the OBJSDATA_STORCLAS parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

The SMS storage class (*storageclass*) for the OBJSDATA performance history file.

SyntaxOBJSDATA_STORCLAS(*storageclass*)**Default**

Defaults to the value specified by the STORCLAS parameter.

Example

```
OBJSDATA_STORCLAS(STORCLAS)
```

OBJSDATA_UNITNAME

Use the OBJSDATA_UNITNAME parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

The unit name, generic device type or a device address (*unitname*) for Db2 Query Monitor OBJSDATA performance history files.

Syntax

```
OBJSDATA_UNITNAME(unitname)
```

Default

Defaults to the value specified by the UNITNAME parameter.

Example

```
OBJSDATA_UNITNAME(CQMMTRDATA)
```

OBJSDATA_VOLUME

Use the OBJSDATA_VOLUME parameter in CQMPARMS to control the allocation of the OBJSDATA performance history file.

Description

The volume (*volume*) for the OBJSDATA performance history file.

Syntax

```
OBJSDATA_VOLUME(volume)
```

Default

Defaults to the value specified by the VOLUME parameter.

Example

```
OBJSDATA_VOLUME(CQMOBV)
```

OPTKEYS

Use the OPTKEYS parameter in CQMPARMS to control the summary reporting behavior of your Query Monitor subsystem.

Description

The level of granularity for summary buckets.

Note:

- Specifying OPTKEYS values enables the collection of additional information about query activity to help determine the origin of query activity and problems.
- You can override OPTKEYS settings in CQMPARMS using monitoring profile lines for individual OPTKEYS.
- As you specify more OPTKEYS values, Db2 Query Monitor requires greater amounts of storage for the additional bucketing.

Syntax

```
OPTKEYS(optkey1,optkey2,...)
```

Default

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

Valid values

The following values specify the level of granularity for which Db2 Query Monitor collects information:

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 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, RRSAP, 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, RRSAP** - 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)

Db2 Query Monitor collects information down to the level of the individual SQL text statement.

OPTKEYS(TEXT,AUTHIDS)

Db2 Query Monitor collects information down to the level of the individual SQL text statement and to the level of the individual Db2 authorization ID.

PARALLEL

Use the PARALLEL parameter in CQMPARMS to control the statistics collection behavior of your Query Monitor subsystem.

Description

Controls the collection of statistics for parallel activity.

Syntax

PARALLEL(Y|N)

Default

N

Valid values

Y

Gathers statistics 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

(Default) Does not gather statistics 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(Y)

QM_GROUP

Use the QM_GROUP parameter in CQMPARMS to control the interval processing behavior of your Query Monitor subsystem.

Description

The name of group (*groupname*) 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.

Note:

- When QM_GROUP is specified, INTERVAL_MIDNIGHT(Y) is the default and a warning message will be issued if INTERVAL_MIDNIGHT(N) is specified.
- 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.

Syntax

QM_GROUP(*groupname*)

Default

None

Valid values

Valid values for *groupname* are 8-byte, character

Example

QM_GROUP(QMGRP001)

RETAIN

Use the RETAIN parameter in CQMPARMS to control the interval retention behavior of your Query Monitor subsystem.

Description

The number of prior intervals (*n*) that are to be retained on DASD after interval processing is complete.

Note:

- 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.
- The RETAIN parameter indicates the number of completed intervals to retain on DASD.
- You can use the Db2 offload process to keep data that has been collected beyond the retention period specified by the RETAIN parameter.
- When EMPTY_INTERVALS(REMOVE) and the RETAIN parameter are specified together, Db2 Query Monitor retains *n* intervals as instructed to by the RETAIN parameter. If any of the retained intervals are empty, they are then deleted.

Syntax

RETAIN(*n*)

Default

6

Range

Integers in the range 2 - 99999

Example

RETAIN(12)

SHUTDOWN_DIAGNOSTICS

Use the SHUTDOWN_DIAGNOSTICS parameter in CQMPARMS to control the diagnostics messaging behavior of your Query Monitor subsystem.

Description

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.

Syntax

SHUTDOWN_DIAGNOSTICS(Y|N)

Default

N

Valid values**Y**

Issues diagnostic WTO messages at shutdown.

N

(Default) Does not issue diagnostic WTO messages at shutdown.

Example

SHUTDOWN_DIAGNOSTICS(Y)

SMEM_SIZE

Use the SMEM_SIZE parameter in CQMPARMS to control the global shared memory allocation behavior of Db2 Query Monitor.

Description

The maximum amount global shared memory in gigabytes (*n*) that will be allocated by Db2 Query Monitor for all purposes.

Note: The value you specified for the SMEM_SIZE parameter must be 4 times greater than that specified for the MAXIMUM_ALLOCATIONS parameter. If you specify a value less than this, then Db2 Query Monitor will automatically adjust the SMEM_SIZE value to be equal to 4 times the MAXIMUM_ALLOCATIONS value.

SyntaxSMEM_SIZE(*n*)**Default**

16

Range

Integers in the range 10 - 128

Example

SMEM_SIZE(32)

SQLCDATA_DATACLAS

Use the SQLCDATA_DATACLAS parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

The SMS data class (*dataclass*) for the SQLCDATA performance history files.

Syntax

SQLCDATA_DATACLAS(*dataclass*)

Default

Defaults to the value specified by the DATACLAS parameter.

Example

SQLCDATA_DATACLAS(DATACLAS)

SQLCDATA_DSN

Use the SQLCDATA_DSN parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

Important: This parameter is required.

The data set name (*dsn*) 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).

Tip:

- Use the &INTV symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends ".DATA" and ".INDEX" to the VSAM data and index components.

Syntax

SQLCDATA_DSN(*dsn*)

Default

None

Example

SQLCDATA_DSN(CQM.TEST.SQLCD.D&LYMMDD..T&LHR.&LMIN..&INTV.)

SQLCDATA_MGMTCLAS

Use the SQLCDATA_MGMTCLAS parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

The SMS management class (*managementclass*) for the SQLCDATA performance history files.

Syntax

SQLCDATA_MGMTCLAS(*managementclass*)

Default

Defaults to the value specified by the MGMTCLAS parameter.

Example

SQLCDATA_MGMTCLAS(MGMTCLAS)

SQLCDATA_PRIMARY

Use the SQLCDATA_PRIMARY parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

The primary space quantity (*n*) for the SQLCDATA performance history file.

Syntax

SQLCDATA_PRIMARY(*n*)

Default

5

Range

Integers greater than or equal to 1

Example

SQLCDATA_PRIMARY(5)

SQLCDATA_SECONDARY

Use the SQLCDATA_SECONDARY parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

The secondary space quantity (*n*) for the SQLCDATA performance history file.

Syntax

SQLCDATA_SECONDARY(*n*)

Default

2

Range

Integers greater than or equal to 1

Example

SQLCDATA_SECONDARY(3)

SQLCDATA_SPACE_UNITS

Use the SQLCDATA_SPACE_UNITS parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

The space units that are used for the allocation of the SQLCDATA performance history file.

Syntax

SQLCDATA_SPACE_UNITS(TRKS|CYLS)

Default

CYLS

Valid values

CYLS

(Default) Cylinders

TRKS

Tracks

Example

SQLCDATA_SPACE_UNITS(TRKS)

SQLCDATA_STORCLAS

Use the SQLCDATA_STORCLAS parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

The SMS storage class (*storageclass*) for the SQLCDATA performance history file.

Syntax

SQLCDATA_STORCLAS(*storageclass*)

Default

Defaults to the value specified by the STORCLAS parameter.

Example

SQLCDATA_STORCLAS(STORCLAS)

SQLCDATA_UNITNAME

Use the SQLCDATA_UNITNAME parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

The unit name, generic device type or a device address (*unitname*) for the SQLCDATA performance history files.

Syntax

SQLCDATA_UNITNAME(*unitname*)

Default

Defaults to the value specified by the UNITNAME parameter.

Example

SQLCDATA_UNITNAME(CQMSQLCDATA)

SQLCDATA_VOLUME

Use the SQLCDATA_VOLUME parameter in CQMPARMS to control the allocation of the SQLCDATA performance history file.

Description

The volume (*volume*) for the SQLCDATA performance history file.

Syntax

SQLCDATA_VOLUME(*volume*)

Default

Defaults to the value specified by the VOLUME parameter.

Example

SQLCDATA_VOLUME(CQMSQV)

STARTUP_DIAGNOSTICS

Use the STARTUP_DIAGNOSTICS parameter in CQMPARMS to control the diagnostics messaging behavior of your Query Monitor subsystem.

Description

Writes diagnostics information as WTO messages at startup. The diagnostics information contains maintenance levels and additional information used by IBM Software Support for diagnostics purposes.

Syntax

STARTUP_DIAGNOSTICS(Y|N)

Default

N

Valid values

Y

Issues diagnostic WTO messages at startup.

N

(Default) Does not issue diagnostic WTO messages at startup.

Example

```
STARTUP_DIAGNOSTICS(Y)
```

STORCLAS

Use the STORCLAS parameter in CQMPARMS to control the allocation of performance history files.

Description

The SMS storage class (*storageclass*) for allocation of performance history files. This startup parameter might be overridden by the storage class specifications for the individual performance history files.

Syntax

```
STORCLAS
```

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.

Example

```
STORCLAS(DB2TEMP)
```

SUBSYS

Use the SUBSYS parameter in CQMPARMS to specify the name of your Query Monitor subsystem.

Description

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.

Syntax

```
SUBSYS(qmid)
```

Default

```
DBQM
```

Valid values

The value you specify for *qmid* must be a 1 - 4 character Query Monitor subsystem name. The *qmid* you specify must be unique across the sysplex. A Query Monitor subsystem must be running on each LPAR that has a Db2 subsystem to be monitored.

Important: When specifying a Query Monitor subsystem name, be sure it does not conflict with another Query Monitor subsystem on the sysplex.

Example

```
SUBSYS(DBQM)
```

SUMMARY_VARIATION

Use the SUMMARY_VARIATION parameter in CQMPARMS to control the summary metrics collection behavior of your Query Monitor subsystem.

Description

Collects standard deviation data in its summary metrics for workloads. To collect standard deviation data, the Db2 subsystem of interest must be monitored with a monitoring profile.

Important: If you are using Db2 Query Monitor in a data sharing environment, you must specify a consistent value for the SUMMARY_VARIATION parameter across all of the Query Monitor subsystems that belong to the same data sharing group. If the Query Monitor subsystems in a data sharing group

do not use the same SUMMARY_VARIATION values, the StdDev values reported on the Summaries panel for the data sharing group will be inaccurate.

Syntax

SUMMARY_VARIATION(Y|N)

Default

N

Valid values

Y

Collect standard deviation data in summary metrics for workloads.

N

(Default) Do not collect standard deviation data in summary metrics for workloads.

Example

SUMMARY_VARIATION(Y)

TEMP_UNITNAME

Use the TEMP_UNITNAME parameter in CQMPARMS to control the allocation of the temporary work files for your Query Monitor subsystem.

Description

The unit name, generic device type, or device address (*unitname*) for the allocation of Db2 Query Monitor temporary work files.

Syntax

TEMP_UNITNAME(*unitname*)

Default

SYSALLDA

Example

TEMP_UNITNAME(TMPUNIT)

TEMP_VOLUME

Use the TEMP_VOLUME parameter in CQMPARMS to control the allocation of the temporary work files for your Query Monitor subsystem.

Description

The volume (*volume*) that is used for the allocation of temporary work files.

Syntax

TEMP_VOLUME(*volume*)

Default

If no value is specified for TEMP_VOLUME, Db2 Query Monitor allocates work files to the unit defined by TEMP_UNITNAME.

Example

TEMP_VOLUME(TMPVOL)

TEXTDATA_DATACLAS

Use the TEXTDATA_DATACLAS parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

The SMS data class (*dataclass*) for the TEXTDATA performance history file.

Syntax

TEXTDATA_DATACLAS(*dataclass*)

Default

Defaults to the value specified by the DATACLAS parameter.

Example

```
TEXTDATA_DATACLAS(DATACLAS)
```

TEXTDATA_DSN

Use the TEXTDATA_DSN parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

Important: This parameter is required.

The data set name (*dsn*) 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).

Tip:

- Use the &INTV symbolic when you define this parameter to ensure that the performance history file names that are generated by Db2 Query Monitor are unique.
- Use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are generated. This avoids the allocation of duplicate data set names during interval switch processing.
- Data set names must not resolve to more than 38 bytes because the system appends ".DATA" and ".INDEX" to the VSAM data and index components.

Syntax

```
TEXTDATA_DSN(dsn)
```

Default

None

Example

```
TEXTDATA_DSN(CQM.TEST.TEXTD.D&LYMMDD..T&LHR.&LMIN..&INTV.)
```

TEXTDATA_MGMTCLAS

Use the TEXTDATA_MGMTCLAS parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

The SMS management class (*managementclass*) for the TEXTDATA performance history file.

Syntax

```
TEXTDATA_MGMTCLAS(managementclass)
```

Default

Defaults to the value specified by the MGMTCLAS parameter.

Example

```
TEXTDATA_MGMTCLAS(MGMTCLAS)
```

TEXTDATA_PRIMARY

Use the TEXTDATA_PRIMARY parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

The primary space quantity (*n*) for the TEXTDATA performance history file.

Syntax

```
TEXTDATA_PRIMARY(n)
```

Default

5

Range

Integers greater than or equal to 1

Example

TEXTDATA_PRIMARY(5)

TEXTDATA_SECONDARY

Use the TEXTDATA_SECONDARY parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

The secondary space quantity (*n*) for the TEXTDATA performance history file.

Syntax

TEXTDATA_SECONDARY(*n*)

Default

2

Range

Integers greater than or equal to 1

Example

TEXTDATA_SECONDARY(3)

TEXTDATA_SPACE_UNITS

Use the TEXTDATA_SPACE_UNITS parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

The space units used for the allocation of the TEXTDATA performance history file.

Syntax

TEXTDATA_SPACE_UNITS(TRKS|CYLS)

Default

CYLS

Valid values**CYLS**

(Default) Cylinders

TRKS

Tracks

Example

TEXTDATA_SPACE_UNITS(TRKS)

TEXTDATA_STORCLAS

Use the TEXTDATA_STORCLAS parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

The SMS storage class (*storageclass*) for the TEXTDATA performance history file.

Syntax

TEXTDATA_STORCLAS(*storageclass*)

Default

Defaults to the value specified by the STORCLAS parameter.

Example

TEXTDATA_STORCLAS(STORCLAS)

TEXTDATA_UNITNAME

Use the TEXTDATA_UNITNAME parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

The unit name, generic device type or a device address (*unitname*) for the TEXTDATA performance history file.

Syntax

```
TEXTDATA_UNITNAME(unitname)
```

Default

Defaults to the value specified by the UNITNAME parameter.

Example

```
TEXTDATA_UNITNAME(CQMTEXTDATA)
```

TEXTDATA_VOLUME

Use the TEXTDATA_VOLUME parameter in CQMPARMS to control the allocation of the TEXTDATA performance history file.

Description

The volume (*volume*) for the TEXTDATA performance history file.

Syntax

```
TEXTDATA_VOLUME(volume)
```

Default

Defaults to the value specified by the VOLUME parameter.

Example

```
TEXTDATA_VOLUME(CQMTEV)
```

THREAD_SQLCODE_DUPLICATES

Use the THREAD_SQLCODE_DUPLICATES parameter in CQMPARMS to control the SQLCODE collection behavior of the Query Monitor subsystem.

Description

Limits the number of unique SQLCODE detail records (*n*) 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.

Syntax

```
THREAD_SQLCODE_DUPLICATES(n)
```

Default

0

Range

Integers in the range 0 - 99999

Example

```
THREAD_SQLCODE_DUPLICATES(20)
```

Collects and reports the first 20 occurrences of a unique SQLCODE detail record.

Related tasks

[“Detecting a loop in an application” on page 445](#)

You can use Db2 Query Monitor to detect a loop within an application that is running on a thread or a Db2 subsystem.

Related reference

[“THREAD_SQLCODE_DUPLICATES_TIME” on page 712](#)

Use the THREAD_SQLCODE_DUPLICATES_TIME parameter in CQMPARMS to control the SQLCODE collection behavior of the Query Monitor subsystem.

[“DB2_SQLCODE_DUPLICATES” on page 667](#)

Use the DB2_SQLCODE_DUPLICATES parameter in CQMPARMS to control the SQLCODE detail record collection behavior of your Query Monitor subsystem.

[“DB2_SQLCODE_DUPLICATES_TIME” on page 668](#)

Use the DB2_SQLCODE_DUPLICATES_TIME parameter in CQMPARMS to control the SQLCODE collection behavior of your Query Monitor subsystem.

THREAD_SQLCODE_DUPLICATES_TIME

Use the THREAD_SQLCODE_DUPLICATES_TIME parameter in CQMPARMS to control the SQLCODE collection behavior of the Query Monitor subsystem.

Description

The time in minutes (*n*) 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.

Syntax

THREAD_SQLCODE_DUPLICATES_TIME(*n*)

Default

1440

Range

Integers in the range 0 - 99999

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.

Related tasks

[“Detecting a loop in an application” on page 445](#)

You can use Db2 Query Monitor to detect a loop within an application that is running on a thread or a Db2 subsystem.

Related reference

[“THREAD_SQLCODE_DUPLICATES” on page 711](#)

Use the THREAD_SQLCODE_DUPLICATES parameter in CQMPARMS to control the SQLCODE collection behavior of the Query Monitor subsystem.

[“DB2_SQLCODE_DUPLICATES” on page 667](#)

Use the DB2_SQLCODE_DUPLICATES parameter in CQMPARMS to control the SQLCODE detail record collection behavior of your Query Monitor subsystem.

[“DB2_SQLCODE_DUPLICATES_TIME” on page 668](#)

Use the DB2_SQLCODE_DUPLICATES_TIME parameter in CQMPARMS to control the SQLCODE collection behavior of your Query Monitor subsystem.

UNITNAME

Use the UNITNAME parameter in CQMPARMS to control the allocation of performance history files.

Description

An esoteric name, generic device type or a device address (*unitname*) for the performance history files.

Syntax

UNITNAME(*unitname*)

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.

Example

UNITNAME(SYSALLDA)

VOLUME

Use the VOLUME parameter in CQMPARMS to control the allocation of performance history files.

Description

The volume (*volume*) for the performance history files.

Syntax

VOLUME(*volume*)

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.

Example

VOLUME(CQMVOL)

WPSIZE

Change the WPSIZE parameter in CQMPARMS only at the direction of IBM Software Support.

Description

The WPSIZE parameter is for limiting the size of the internal Db2 Query Monitor memory associated with tracking of Db2 threads. This number may need to be increased from the default if your system has a large number of concurrent threads. Change this value only at the direction of IBM Software Support.

Syntax

WPSIZE(*n*)

Example

WPSIZE(16000)

CAE agent parameters

The parameters defined in CQMCPRMS can be used to control the behavior of the CAE agent.

The CAE agent started task JCL, *highlevel*.SCQMSAMP 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

Use the AGENT_NAME parameter in CQMCPRMS to control APPL value in authentication calls.

Description

Specifies the application identifier for all authentication calls such as RACINIT or RACROUT REQUEST=VERIFY

Syntax

AGENT_NAME(*name*)

Default

CQMCAE

Example

AGENT_NAME(CQMCAEXX)

Also referred to as

Agent name

ATTLS_ENABLED

Use the ATTLS_ENABLED parameter in CQMPARMS to control the security behavior of your Query Monitor subsystem .

Description

Enables the use of AT-TLS so that all communications between the CAE Server, CAE Agent, and ISPF client are encrypted using AT-TLS instead of application-based encryption.

Syntax

ATTLS_ENABLED(Y|N)

Valid values

Y

Use AT-TLS.

N

(Default) Do not use AT-TLS.

Example

ATTLS_ENABLED(Y)

BACKUP_ADDRESS

Use the BACKUP_ADDRESS parameter in CQMCPRMS to control the HAFT behavior of the CAE agent.

Description

The IP address or DNS name (*address*) at which the backup CAE server listens for incoming connections from the CAE agent.

Syntax

BACKUP_ADDRESS(*address*)

Default

0.0.0.0

Example

BACKUP_ADDRESS(192.0.2.0)

Also referred to as

Backup CAE Server Listener Address

BACKUP_PORT

Use the BACKUP_PORT parameter in CQMCPRMS to control the HAFT behavior of the CAE agent.

Description

The port number (*port*) at which the backup CAE server listens for incoming connections from the CAE agent.

Syntax

BACKUP_PORT(*port*)

Default

3448

Example

BACKUP_PORT(53006)

Also referred to as

Backup CAE Server Listener Port

CALLBACK_ADDRESS

Use the CALLBACK_ADDRESS parameter in CQMCPRMS to control the communication behavior of the CAE agent.

Description

The IP address that the CAE server uses to respond to the CAE agent when sending meta data to the query tuning client.

Syntax

CALLBACK_ADDRESS(*address*)

Default

0.0.0.0

Example

CALLBACK_ADDRESS(192.0.2.0)

Also referred to as

Callback Address

CQM_CAE_RACF_LOGGING

Use the CQM_CAE_RACF_LOGGING parameter in CQMCPRMS to control the ICH messaging behavior of the CAE agent.

Description

The ICH message type (*msg_type*) printed to the system log by the CAE agent when a user lacks the necessary permissions to access a Db2 Query Monitor resource.

Syntax

CQM_CAE_RACF_LOGGING(*msg_type*)

Default

FINER

Valid values

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

Use the ISPF_LISTENER_PORT parameter in CQMCPRMS to control the connection behavior of the CAE agent.

Description

(Required) The port (*port*) you want the CAE agent to use when listening for incoming connections from the ISPF Client.

Important: 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.

Syntax

```
ISPF_LISTENER_PORT(port)
```

Default

None

Example

```
ISPF_LISTENER_PORT(60005)
```

Also referred to as

ISPF Listener Port

LISTENER_ADDRESSES

Use the LISTENER_ADDRESSES parameter in CQMCPRMS to control the connection behavior of the CAE agent.

Description

A comma-separated list of IP addresses or DNS names at which the CAE agent listens for incoming connections from the CAE server.

Syntax

```
LISTENER_ADDRESSES(address,address2,address1)
```

Default

0.0.0.0

Note: The default value 0.0.0.0 enables the CAE agent to listen at all IP addresses defined for the z/OS image on which the CAE agent is running.

Example

```
LISTENER_ADDRESSES(SRVR01.XYZ.COM,SRVR02.XYZ.COM)
```

Also referred to as

CAE Agent Listener Addresses

LISTENER_PORTS

Use the LISTENER_PORTS parameter in CQMCP RMS to control the communication behavior of the CAE agent.

Description

(Required) The port range (*port1-port2*) used by the CAE agent to accept communication requests from the CAE server.

Syntax

LISTENER_PORTS(*port1-port2*)

Default

53000-53005

Range

You should specify a port range of at least 2 ports. A port range of 5 ports is recommended.

Note: If you allow only one listener port, you cannot restart the CAE agent for at least 2 minutes after the termination of the previous CAE agent address space, even if it was terminated normally using /P.

Example

LISTENER_PORTS(60000-60004)

Also referred to as

CAE Agent Listener Port Range

MIXED_CASE_PASSWORDS

Use the MIXED_CASE_PASSWORDS parameter in CQMCP RMS to control the password behavior of the CAE agent.

Description

Indicates whether or not mixed-case passwords are accepted.

Syntax

MIXED_CASE_PASSWORDS(Y|N)

Default

N

Valid values

N

(Default) Mixed-case passwords are not required; users can enter passwords in any case and passwords will be upper-cased.

Y

Mixed-case passwords are required. If passwords are specified without the correct case, they will not be accepted. Do not specify **Y** if your security system does not use mixed-case passwords.

Example

MIXED_CASE_PASSWORDS(Y)

SERVER_ADDRESS

Use the SERVER_ADDRESS parameter in CQMCP RMS to control the connection behavior of the CAE agent.

Description

(Required) A list of IP addresses or DNS names at which the CAE server listens for incoming connections from the CAE agent.

Syntax

SERVER_ADDRESS(*address1,address2,...addressn*)

Default

0.0.0.0

Example

```
SERVER_ADDRESS(SRVR01.COMPANYNAME.COM)
```

Also referred to as

CAE Server Listener Address

SERVER_POLL_PERIOD

Use the SERVER_POLL_PERIOD parameter in CQMCPRMS to control the polling behavior of the CAE agent.

Description

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 SERVER_ADDRESS parameter) at the specified CAE Server Listener Port (defined by the SERVER_PORT parameter) at a frequency defined by the SERVER_POLL_PERIOD parameter.

Syntax

```
SERVER_POLL_PERIOD(n)
```

Default

10

Example

```
SERVER_POLL_PERIOD(20)
```

SERVER_PORT

Use the SERVER_PORT parameter in CQMCPRMS to control the connection behavior of the CAE agent.

Description

The port at which the CAE server listens for incoming connections from the CAE agent.

Syntax

```
SERVER_PORT(port_number)
```

Default

3448

Example

```
SERVER_PORT(53006)
```

Also referred to as

CAE Server Listener Port

CAE server parameters (USS)

The parameters for USS installations of the CAE server are defined in the CAE server started task CQMCAESV and in some cases CQMCAEWD, which is used in a High-Availability Fault-Tolerance (HAFT) environment.

The following provides an example of CQMCAESV, with a REGION set to 800M and several parameters specified for the STDENV DD:

```
//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
/*
```

Note: There must be 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_ADDRESS

Use the CQM_ADDRESS parameter in CQMCAEWD to control the HAFT behavior of the CAE server.

Description

The IP address or DNS name (*location*) where the primary CAE server is running.

Note: If you are running the CAE server on Windows, you can specify this parameter during installation using the **Portal Address** field.

Environment

This parameter is required for HAFT environments.

Syntax

CQM_ADDRESS=*location*

location

The TCP/IP address or DNS name of the primary CAE server.

Default

None

Example

```
CQM_ADDRESS=172.16.67.210
```

CQM_AGRP

Use the CQM_AGRP parameter in CQMCAEWD to control the HAFT behavior of the CAE server.

Description

The name of the primary CAE server (*agent_group_name*) specified by the CQM_ADDRESS parameter.

Note: If you are running the CAE server on Windows, you can specify this parameter during installation using the **Agent Group** field.

Environment

This parameter is required for HAFT environments.

Syntax

CQM_AGRP=*agent_group_name*

Default

None.

If you do not specify a value for CQM_AGRP, you can find an appropriate value in the primary CAE server log. To locate the CQM_AGRP value, open the primary CAE server log and find the line: Starting 'QM Server' in agentGroup '*agent_group_name*'.

Example

```
CQM_AGRP=AGrp1
```

CQM_CAE_AGENT_LISTENER_PORT

Use the CQM_CAE_AGENT_LISTENER_PORT parameter in CQMCAESV to control the ports used by the CAE server.

Description

The port (*port*) where the CAE server listens for incoming connections from the CAE agent.

Syntax

CQM_CAE_AGENT_LISTENER_PORT=*port*

Default

3448

Example

CQM_CAE_AGENT_LISTENER_PORT=3450

Also referred to as

CAE Server Listener Port

CQM_CAE_KEYSTORE_TYPE

Use the CQM_CAE_KEYSTORE_TYPE parameter in CQMCAESV to control the security behavior of the CAE server.

Description

The type (*type*) of the truststore and keystore. The truststore and keystore types cannot be different.

Syntax

CQM_CAE_KEYSTORE_TYPE=*type*

Default

JKS

Valid values**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 of 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.

Example

CQM_CAE_KEYSTORE_TYPE=RACF

CQM_CAE_LOCAL_ADDRESS

Use the CQM_CAE_LOCAL_ADDRESS parameter in CQMCAESV to specify the local address of the CAE server.

Description

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.

Syntax

CQM_CAE_LOCAL_ADDRESS=*ip_address*

Default

None. If this parameter is not specified, the CAE server determines its local address automatically.

Example

CQM_CAE_LOCAL_ADDRESS=10.10.10.10

CQM_CAE_TRUSTSTORE

Use the CQM_CAE_TRUSTSTORE parameter in CQMCAESV to control the security behavior of the CAE server.

Description

The location (*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).

Important: Do not specify this parameter if CQM_CAE_KEYSTORE_TYPE=JKS (or its synonym) is specified.

Syntax

CQM_CAE_TRUSTSTORE=safkeyring:///location

Default

None

CQM_CEE_RUNOPTS

Use the CQM_CEE_RUNOPTS parameter in CQMCAESV to control the runtime options behavior of the CAE server.

Description

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

Syntax

CQM_CEE_RUNOPTS

Default

If this parameter is not specified, the CAE server uses the Java virtual machine LE runtime options that are defined on the LPAR.

Example

CQM_CEE_RUNOPTS=ERRCOUNT(0),TRAP(ON,SPIE)

CQM_EXPIRED_FAILOVER_WAIT_TIME

Use the CQM_EXPIRED_FAILOVER_WAIT_TIME parameter in CQMCAESV to control the HAFT behavior of the CAE server.

Description

The number of seconds (*n*) 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.

Syntax

CQM_EXPIRED_FAILOVER_WAIT_TIME=*n*

Default

0

Range

Integers in the range

Example

CQM_EXPIRED_FAILOVER_WAIT_TIME=10

CQM_HEAP

Use the CQM_HEAP parameter in CQMCAESV to control the memory behavior of the CAE server.

Description

The amount of memory in MB (*n*) that the Java virtual machine heap can use.

Syntax

```
CQM_HEAP=n
```

Default

500

Range

Integers in the range

Valid values

The value you specify for MEMLIMIT must be at least 300 MB more than the value you specify for CQM_HEAP.

Important: It is recommended that you specify the following USS environment setting:
_BPX_SHAREAS=NO

Example

```
CQM_HEAP=550
```

CQM_HTTPS_PORT

Use the CQM_HTTPS_PORT parameter in CQMCAESV to control the ports used by the CAE server.

Description

The HTTPS Port (*port*) on the CAE server to which the CAE browser client connects.

Syntax

```
CQM_HTTPS_PORT=(port)
```

Default

443

Example

```
CQM_HTTPS_PORT=8443
```

Also referred to as

HTTPS Port

CQM_INITIAL_FAILOVER_WAIT_TIME

Use the CQM_INITIAL_FAILOVER_WAIT_TIME parameter in CQMCAESV to control the HAFT behavior of the CAE server.

Description

The time in seconds (*n*) 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.

Syntax

```
CQM_INITIAL_FAILOVER_WAIT_TIME=n
```

Default

18000

Example

```
CQM_INITIAL_FAILOVER_WAIT_TIME=20000
```

CQM_JAVA

Use the CQM_JAVA parameter in CQMCAESV to specify the path to your JDK installation.

Description

The USS path for the JDK that is used by the CAE.

Syntax

```
CQM_JAVA=path
```

Default

The value in JAVA_HOME. If JAVA_HOME is not defined, the following value is used:

```
/usr/lpp/java/J8.0_64
```

Example

```
CQM_JAVA=/usr/lpp/jv/J8.0_64
```

CQM_JDBC_PORT

Use the CQM_JDBC_PORT parameter in CQMCAESV to control the ports used by the CAE server.

Description

The Java Database Connectivity port (*port*) used by the CAE server.

Syntax

```
CQM_JDBC_PORT=port
```

Default

1112

Example

```
CQM_JDBC_PORT=1114
```

Also referred to as

JDBC Port

CQM_LOCAL_PORTAL_PORT

Use the CQM_LOCAL_PORTAL_PORT parameter in CQMCAESV to specify the port on which the Java agent listens. The Java agent can be the primary CAE server, watchdog, or backup CAE server. This port is called the *Java local portal port*.

Syntax

```
CQM_LOCAL_PORTAL_PORT=port
```

port

The port number. Do not specify a value within the RMI port range, which by default is 3445-3455. If you specify a value in this range, a conflict might occur.

Default

3444

Note: 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.

Example

```
CQM_LOCAL_PORTAL_PORT=3461
```

Related concepts

[“Db2 Query Monitor ports” on page 397](#)

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.

Related reference

[“CQM_REMOTE_PORTAL_PORT” on page 724](#)

Use the `CQM_REMOTE_PORTAL_PORT` parameter in `CQMCAEWD` to specify the port to which the Java agent attempts to connect. The Java agent can be the primary CAE server, watchdog, or backup CAE server. This port is called the *Java remote portal port*.

CQM_LOGS

Use the `CQM_LOGS` parameter in `CQMCAESV` to specify the location of the CAE agent logs.

Description

(Required) The location (*path*) to which CAE agent logs are stored on z/OS. 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).

Syntax

```
CQM_LOGS=path
```

Default

```
/var/cqm/logs
```

Example

```
CQM_LOGS=/u/username/cqm33/logs
```

CQM_LOGS_TO_KEEP

Use the `CQM_LOGS_TO_KEEP` parameter in `CQMCAESV` to control the CAE agent log retention behavior.

Description

The number of agent logs that are kept.

Syntax

```
CQM_LOGS_TO_KEEP=n
```

Default

```
5
```

Example

```
CQM_LOGS_TO_KEEP=10
```

CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME

Use the `CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME` parameter in `CQMCAESV` to control the communications behavior of the CAE server.

Description

Instructs the CAE server to use the IP address instead of the host name to send metadata to the query tuning client.

Syntax

```
CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME=true|false
```

Default

```
false
```

Example

```
CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME=true
```

CQM_REMOTE_PORTAL_PORT

Use the `CQM_REMOTE_PORTAL_PORT` parameter in `CQMCAEWD` to specify the port to which the Java agent attempts to connect. The Java agent can be the primary CAE server, watchdog, or backup CAE server. This port is called the *Java remote portal port*.

If you are setting up a CAE server, the remote portal port is the port on which the watchdog is set up. If you are setting up the watchdog, the remote portal port is the port for your CAE server.

Syntax

CQM_REMOTE_PORTAL_PORT=*port*

port

The port number. Do not specify a value within the RMI port range, which by default is 3445-3455. If you specify a value in this range, a conflict might occur.

Default

3444

Note: 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.

Example

CQM_REMOTE_PORTAL_PORT=3461

Related concepts

[“Db2 Query Monitor ports” on page 397](#)

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.

Related reference

[“CQM_LOCAL_PORTAL_PORT” on page 723](#)

Use the CQM_LOCAL_PORTAL_PORT parameter in CQMCAESV to specify the port on which the Java agent listens. The Java agent can be the primary CAE server, watchdog, or backup CAE server. This port is called the *Java local portal port*.

CQM_REORG_METRICS

Use the CQM_REORG_METRICS parameter in CQMCPMS to control the reorganization recommendation behavior of Db2 Query Monitor.

Description

Specifies the metrics and thresholds 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.

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.

Default

DB2_CPU:60:1:10,DB2_ELAPSED:60:10:20

Example

CQM_REORG_METRICS=GETPAGES:60:100:15

CQM_RMI_PORT_RANGE

Use the CQM_RMI_PORT_RANGE parameter in CQMCAESV to control the ports used by the CAE server.

Description

The range of ports (*port1-port2*) used by CAE server, watchdog and backup CAE server for ongoing communication.

Syntax

CQM_RMI_PORT_RANGE=*port1-port2*

Default

3445-3455

Example

CQM_RMI_PORT_RANGE=3465-3475

Also referred to as

RMI port range

CQM_SHTDWN_FAILOVER_WAIT_TIME

Use the CQM_SHTDWN_FAILOVER_WAIT_TIME parameter in CQMCAESV to control the HAFT behavior of the CAE server.

Description

The number of seconds (*n*) 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.

Syntax

CQM_SHTDWN_FAILOVER_WAIT_TIME=*n*

Default

600

Example

CQM_SHTDWN_FAILOVER_WAIT_TIME=800

CQM_TLS_CAE_AGNT_LSTNR_PORT

Use the CQM_TLS_CAE_AGNT_LSTNR_PORT parameter in CQMCAESV to control the ports used by the CAE server.

Description

The port (*port*) at which the CAE server opens a new TLS socket.

Environment

AT-TLS

Syntax

CQM_TLS_CAE_AGNT_LSTNR_PORT=*port*

Default

3449

Example

CQM_TLS_CAE_AGNT_LSTNR_PORT=3450

CQM_TLS_KEY_ALIAS

Use the CQM_TLS_KEY_ALIAS parameter in CQMCAESV to control the security behavior of the CAE server.

Description

Specifies the certificate alias that the CAE server uses when opening a new TLS socket.

Environment

AT-TLS

Syntax

CQM_TLS_KEY_ALIAS=*certificate_alias*

Default

CAE_AGENT_PORTAL

Example

CQM_TLS_KEY_ALIAS=CERT_ALIAS

CQM_VAR_HOME

Use the CQM_VAR_HOME parameter in CQMCAESV to configure your CAE server.

Description

(Required) The location (*path*) of the configuration and data files for the CAE server.

Syntax

CQM_VAR_HOME=*path*

Default

userhome/cqmv3r3/var

Example

CQM_VAR_HOME=/proj/qmcaedata

CQM_WEB_KEY_ALIAS

Use the CQM_WEB_KEY_ALIAS parameter in CQMCP RMS to control the security behavior of Db2 Query Monitor.

Description

Specifies the certificate alias that the CAE server uses when opening an HTTPS web connection.

Environment

AT-TLS

Syntax

CQM_WEB_KEY_ALIAS=*certificate_alias*

Default

WEBSERVER

Example

CQM_WEB_KEY_ALIAS=CERT_ALIAS

RC4_PROTOCOL_ENABLED

Use the RC4_PROTOCOL_ENABLED parameter in CQMCAESV to control the security behavior of the CAE server.

Description

Enables the CAE server to open RC4 sockets. Use this parameter for enhanced security if you have configured the use of AT-TLS for all of your CAE agents.

Environment

AT-TLS

Syntax

RC4_PROTOCOL_ENABLED=true|false

Default

true

Example

RC4_PROTOCOL_ENABLED=false

REGION

Use the REGION parameter in CQMCAESV to control the configuration of the CAE server.

Description

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.

Syntax

REGION=*size*

Default

800

Example

REGION=1000

CAE server properties (Windows)

CAE server properties are defined in `cqm.server.properties`.

- If your CAE server is installed on Windows, `cqm.server.properties` is located in the root folder of your CAE installation directory. If a `cqm.server.properties` file does not exist, create one.
- If your CAE server is installed on USS, the `cqm.server.properties` file is in the `CQM_VAR_HOME` directory on USS.

com.rocketsoft.denali.agents.localPort

Use the `com.rocketsoft.denali.agents.localPort` parameter in `cqm.server.properties` to control the ports used by the CAE server.

Description

The port (*port*) that the Java Agent listens on.

- If you change the Java local portal port of the CAE server, you must also change the Java remote portal port used by the backup CAE server and the watchdog to use that same port.
- 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 a conflict might occur.
- 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.

Syntax

`com.rocketsoft.denali.agents.localPort=port`

Default

3444

Example

`com.rocketsoft.denali.agents.localPort=3460`

Also referred to as

Java local portal port

com.rocketsoft.denali.agents.remotePort

Use the `com.rocketsoft.denali.agents.remotePort` parameter in `cqm.server.properties` to control the ports used by the CAE server.

Description

The port (*port*) that the Java Agent attempts to connect to.

Syntax

`com.rocketsoft.denali.agents.remotePort=port`

Default

3444

Example

`com.rocketsoft.denali.agents.remotePort=3460`

Also referred to as

Java remote portal port

com.rocketsoft.denali.agents.rmiPortRange

Use the `com.rocketsoft.denali.agents.rmiPortRange` parameter in `cqm.server.properties` to control the ports used by the CAE server.

Description

The range of ports (*port1-port2*) used by CAE server, watchdog and backup CAE server for ongoing communication.

Syntax

`com.rocketsoft.denali.agents.rmiPortRange=port1-port2`

Default

3445-3455

Example

`com.rocketsoft.denali.agents.rmiPortRange=3465-3475`

Also referred to as

RMI port range

com.rocketsoft.kbm.explicitLocalHost

Use the `com.rocketsoft.kbm.explicitLocalHost` parameter in `cqm.server.properties` to control the IP address of the CAE server.

Description

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.

Syntax

`com.rocketsoft.kbm.explicitLocalHost=ip_address`

Default

None. If this parameter is not specified, the CAE server determines its local address automatically.

Example

`com.rocketsoft.kbm.explicitLocalHost=10.10.10.10`

com.rocketsoft.nm.qm.caeAgent.listenerPort

Use the `com.rocketsoft.nm.qm.caeAgent.listenerPort` parameter in `cqm.server.properties` to control the ports used by the CAE server.

Description

The port (*port*) at which the CAE server listens for incoming connections from the CAE agent.

Syntax

`com.rocketsoft.nm.qm.caeAgent.listenerPort=port`

Default

3448

Example

`com.rocketsoft.nm.qm.caeAgent.listenerPort=3559`

Also referred to as

CAE Server Listener Port

com.rocketsoft.nm.qm.caeAgent.rc4ProtocolEnabled

Use the `com.rocketsoft.nm.qm.caeAgent.rc4ProtocolEnabled` parameter in `cqm.server.properties` to control the security behavior of the CAE server.

Description

Enables the CAE server to open RC4 sockets. Use this parameter for enhanced security if you have configured the use of AT-TLS for all of your CAE agents.

Environment

AT-TLS

Syntax

`com.rocketsoft.nm.qm.caeAgent.rc4ProtocolEnabled=true|false`

Default

true

Example

`com.rocketsoft.nm.qm.caeAgent.rc4ProtocolEnabled=false`

com.rocketsoft.nm.qm.caeAgent.tlsListenerPort

Use the `com.rocketsoft.nm.qm.caeAgent.tlsListenerPort` parameter in `cqm.server.properties` to control the ports used by the CAE server.

Description

Specifies the port (*port*) on which the CAE server opens a new TLS socket.

Environment

AT-TLS

Syntax

`com.rocketsoft.nm.qm.caeAgent.tlsListenerPort=port`

Default

3449

Example

`com.rocketsoft.nm.qm.caeAgent.tlsListenerPort=3450`

Also referred to as

TLS Listener Port

com.rocketsoft.nm.qm.caeAgent.AtTlsKey

Use the `com.rocketsoft.nm.qm.caeAgent.AtTlsKey` parameter in `cqm.server.properties` to control the certificate behavior of the CAE server.

Description

The certificate alias (*certificate_alias*) that the CAE server uses when opening a new TLS socket.

Environment

AT-TLS

Syntax

`com.rocketsoft.nm.qm.caeAgent.AtTlsKey=certificate_alias`

Default

CAE_AGENT_PORTAL

Example

`com.rocketsoft.nm.qm.caeAgent.AtTlsKey=CERT_ALIAS`

com.rocketsoft.nm.os390.defaultEncoding

Use the `com.rocketsoft.nm.os390.defaultEncoding` parameter in `cqm.server.properties` to control the CCSID encoding behavior of the CAE server.

Description

The CCSID encoding (*ccsid_encoding*) that the CAE server uses.

Syntax

`com.rocketsoft.nm.os390.defaultEncoding=ccsid_encoding`

The *ccsid_encoding* is in the format CpXXX where XXX is the encoding. For example, CCSID 037 is specified as Cp037.

Default

Cp500

Example

`com.rocketsoft.nm.os390.defaultEncoding=Cp037`

com.rocketsoft.nm.qm.webclient.sslKeyAlias

Use the com.rocketsoft.nm.qm.webclient.sslKeyAlias parameter in cqm.server.properties to control the certificate behavior of the CAE server.

Description

The certificate alias (*certificate_alias*) that the CAE server uses when opening a new TLS socket.

Environment

AT-TLS

Syntax

com.rocketsoft.nm.qm.webclient.sslKeyAlias=*certificate_alias*

Default

WEBSERVER

Example

com.rocketsoft.nm.qm.webclient.sslKeyAlias=CERT_ALIAS

com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames

Use the com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames parameter in cqm.server.properties to control the query tuning client integration of the CAE server.

Description

Instructs the CAE server to use the IP address instead of the host name to send metadata to the query tuning client.

Syntax

com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames=true|false

Default

false

Example

com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames=true

com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength

Use the com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength parameter in cqm.server.properties to control the smarter reorganization recommendation behavior of the CAE server.

Description

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).

Syntax

com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength=*time*

time

The time in milliseconds. The default value, 3600000, corresponds to 1 hour.

Default

3600000 milliseconds

Example

```
com.rocketsoft.nm.qm.reorg.MaxCollectionWindowLength=7200000
```

com.rocketsoft.nm.qm.reorg.MinIntervalLength

Use the `com.rocketsoft.nm.qm.reorg.MinIntervalLength` parameter in `cqm.server.properties` to control the smarter reorganization recommendation behavior of the CAE server.

Description

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`, then the performance window is increased to the `MinIntervalLength`. The minimum value that can be specified for `MinIntervalLength` is 5 minutes.

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).

Syntax

```
com.rocketsoft.nm.qm.reorg.MinIntervalLength=time
```

time

The time in milliseconds. The default value, 300000, corresponds to 5 minutes.

Default

300000 milliseconds

Range

Integers in the range

Valid values**Example**

```
com.rocketsoft.nm.qm.reorg.MinIntervalLength=600000
```

com.rocketsoft.nm.qm.reorg.metrics

Use the `com.rocketsoft.nm.qm.reorg.metrics` parameter in `cqm.server.properties` to control the smarter reorganization recommendation behavior of the CAE server.

Description

The metrics and thresholds analyzed during reorganization recommendation. One or more metrics (and their corresponding thresholds) can be defined. A colon separates the metric and its values. A comma separates each metric/value set.

Syntax

```
com.rocketsoft.nm.qm.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 (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.

Default

DB2_CPU:60:1:10,DB2_ELAPSED:60:10:20

Example

com.rocketsoft.nm.qm.reorg.metrics=GETPAGES:60:100:15

Offload parameters

The process of offloading Db2 Query Monitor data to the performance history database or to Analytics Accelerator is controlled by parameters that define the intervals and data that are to be offloaded.

Syntax

Follow these syntax rules when coding the parameters in the CQMLOADP DD statement in SCQMSAMP library members CQM@LDB2 (for offload to performance history database) or CQM@LIDA (for offload to Analytics Accelerator).

- 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_TBNAME(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
```

CQM_SUBSYSTEM

Use the CQM_SUBSYSTEM parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The source Query Monitor subsystem (*qmid*) from which data is offloaded. 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.

Syntax

```
CQM_SUBSYSTEM(qmid)
```

Default

```
DBQM
```

Example

```
CQM_SUBSYSTEM(QM01)
```

Related reference

[“DB2_SUBSYSTEM” on page 736](#)

Use the DB2_SUBSYSTEM parameter in CQM@WDB2 to control the offload of data to the performance history database.

[“INTERVAL_DSN” on page 741](#)

Use the INTERVAL_DSN parameter in CQM@WDB2 to control the offload of data to the performance history database.

DATA

Use the DATA parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

Indicates the data types that are to be loaded to Db2 tables.

Syntax

```
DATA(datatype_1,datatype_2,datatype_3...datatype_n)
```

datatype_1,datatype_2,datatype_3...datatype_n

The data types that are to be loaded to Db2 tables. Data types include:

METRICS

Load data from the METRDATA performance history file (which contains summary level information related to SQL call execution).

OBJECTS

Load data from the OBJSDATA performance history file (which contains summary object level data).

SQLTEXT

Load data from the TEXTDATA performance history file (which contains information about summary level SQL text data).

EXCEPTIONS

Load data from the EXCPINDEX and EXCPDATA performance history file (which contains information related to exception SQL calls, text, SQLCA, and host variables).

SQLCODES

Load data from the SQLCDATA performance history file (which contains information about SQLCODES collected during the course of an interval).

DB2CMDS

Load data from the DB2CDATA performance history file (which contains information about the execution of Db2 commands).

INTERVALS

Load data from the INTERVALS performance history file (which contains information about Db2 Query Monitor intervals).

Default

METRICS,DB2CMDS,SQLCODES,EXCEPTIONS,OBJECTS,SQLTEXT,INTERVALS

Example

DATA(METRICS,SQLCODES,OBJECTS,SQLTEXT,INTERVALS)

DB2_COMMANDS_TBNAME

Use the DB2_COMMANDS_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

Overrides the default Db2 commands table name with the table name (*table_name*) you specify. This parameter is valid only for the CQM@WDB2 program.

Syntax

DB2_COMMANDS_TBNAME(*table_name*)

Default

CQM_DB2_COMMANDS

Example

DB2_COMMANDS_TBNAME(CQM_DB2_CMD)

DB2_SUBSYSTEM

Use the DB2_SUBSYSTEM parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

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 considered to be the last written interval that is contained in the interval data set.

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.

Default

DSN

Example

DB2_SUBSYSTEM(SS01)

Related reference

[“CQM_SUBSYSTEM” on page 735](#)

Use the CQM_SUBSYSTEM parameter in CQM@WDB2 to control the offload of data to the performance history database.

[“INTERVAL_DSN” on page 741](#)

Use the INTERVAL_DSN parameter in CQM@WDB2 to control the offload of data to the performance history database.

DEBUG

Use the DEBUG parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

Turns on or off additional debugging.

Restrictions

This parameter is for IBM internal use only.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

DEBUG(Y|N)

Default

N

Example

DEBUG(Y)

DISALLOW_DUPLICATE_INTERVAL

Use the DISALLOW_DUPLICATE_INTERVAL parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

Indicates whether or not to treat a -803 on the interval table as a fatal error and cause the offload to fail.

Syntax

DISALLOW_DUPLICATE_INTERVAL(Y|N)

Default

N

Valid values

Y

Interpret 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 a prior offload

N

(Default) Ignore an SQLCODE -803 on the interval table. The offload might have failed in a prior attempt.

Example

```
DISALLOW_DUPLICATE_INTERVAL(Y)
```

ENDING_INTERVAL

Use the ENDING_INTERVAL parameter in CQM@WDB2 to control the offload of data to the performance history database .

Description

The end point (relative to the current interval, current day, or an absolute interval number) for the data that are to be loaded into Db2 tables.

Syntax

```
ENDING_INTERVAL(n)
```

n

The interval at which you want to stop loading data into Db2 tables.

- The STARTING_INTERVAL and ENDING_INTERVAL must both either be positive or negative.
- Negative numbers are relative to the current interval.
- The value you specify for ENDING_INTERVAL must be less than or equal to the value you specify for STARTING_INTERVAL.

Default

-1

Range

Non-zero integers in the range -99999 to 99999

Example 1

```
INTERVAL_UNITS(DAYS),  
STARTING_INTERVAL(-1),  
ENDING_INTERVAL(-5)
```

Example 2

```
INTERVAL_UNITS(INTERVALS),  
STARTING_INTERVAL(100),  
ENDING_INTERVAL(10)
```

EXCEPTION_CALLS_TBNAME

Use the EXCEPTION_CALLS_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database .

Description

The table name that overrides the default exception call level detail table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

```
EXCEPTION_CALLS_TBNAME(tbname)
```

Default**Example**

```
EXCEPTION_CALLS_TBNAME(CQM_EXC_CALLS)
```

EXCEPTION_HOSTV_TBNAME

Use the EXCEPTION_HOSTV_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database .

Description

The table name that overrides the default exception host variable table name. The host variable information resides in the EXCPDATA performance history file.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

```
EXCEPTION_HOSTV_TBNAME(tname)
```

Default

```
CQM_EXCP_HOSTV
```

Example

```
EXCEPTION_HOSTV_TBNAME(CQM_EXC_HOSTV)
```

EXCEPTION_OBJJS_TBNAME

Use the EXCEPTION_OBJJS_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database .

Description

The table name that overrides the default exception objects table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

```
EXCEPTION_OBJJS_TBNAME(tname)
```

Default

```
CQM_EXCP_OBJJS
```

Example

```
EXCEPTION_OBJJS_TBNAME(CQM_EXC_OBJJS)
```

EXCEPTION_TEXT_TBNAME

Use the EXCEPTION_TEXT_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database .

Description

The table name that overrides the default exception SQL text table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

```
EXCEPTION_TEXT_TBNAME(tname)
```

Default

```
CQM_EXCP_TEXT
```

Example

```
EXCEPTION_TEXT_TBNAME(CQM_EXC_TEXT)
```

EXCEPTIONS_TBNAME

Use the EXCEPTIONS_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database .

Description

The table name that overrides the default exception table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

EXCEPTIONS_TBNNAME(*tbnname*)

Default

CQM_EXCEPTIONS

Example

EXCEPTIONS_TBNNAME(CQM_EXCPTS)

FILTER_DB2_SUBSYSTEM

Use the FILTER_DB2_SUBSYSTEM parameter in CQM@WDB2 to control the offload of data to the performance history database .

Description

A list of up to 32 Db2 subsystem names (SSIDs) for which data is offloaded into tables. Data for all other Db2 subsystems are ignored. Only the records that match the specified Db2 subsystems are selected.

Syntax

FILTER_DB2_SYBSYSTEM(*ssid1,ssid2,...,ssid32*)

ssid1,ssid2,...,ssid32

The names of the Db2 subsystems for which you want to offload Db2 Query Monitor data. The maximum number of SSIDs that can be specified is 32.

Specify FILTER_DB2_SYBSYSTEM(*) to offload all SSIDs. Be aware that although FILTER_DB2_SYBSYSTEM(*) is similar to removing the FILTER_DB2_SUBSYSTEM parameter, it reduces performance.

Default

None

Example

FILTER_DB2_SYBSYSTEM(DB2_NAME1,DB2_NAME2,DB2_NAME3)

IDAA

Use the IDAA parameter in CQM@LIDA to control the offload of data to the performance history database and to Analytics Accelerator.

Description

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.

Syntax

IDAA(*mode,accelerator_name*)

mode

(Optional) Accelerator loader mode. Valid values are:

IDAA_ONLY

Load into accelerator only.

IDAA_DUAL

Load into both Db2 and accelerator.

accelerator_name

(Required) The accelerator name.

Default

None

Example

IDAA(IDAA_ONLY,ACCEL01)

INTERVAL_DSN

Use the INTERVAL_DSN parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The interval data set name (*interval_data_set_name*) that is to be offloaded.

- This parameter is valid only for the CQM@WDB2 program.
- This parameter is required 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 active.
- This parameter is not required for normal offloads.

Syntax

```
INTERVAL_DSN(interval_data_set_name)
```

Default

None

Example

```
INTERVAL_DSN(CQM.INTERVAL)
```

Related reference

[“CQM_SUBSYSTEM” on page 735](#)

Use the CQM_SUBSYSTEM parameter in CQM@WDB2 to control the offload of data to the performance history database.

[“DB2_SUBSYSTEM” on page 736](#)

Use the DB2_SUBSYSTEM parameter in CQM@WDB2 to control the offload of data to the performance history database.

INTERVALS_TBNAME

Use the INTERVALS_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The table name that overrides the default intervals table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

```
INTERVALS_TBNAME(tname)
```

Default

CQM_INTERVALS

Range

Integers in the range

Example

```
INTERVALS_TBNAME(CQM_INTV)
```

INTERVAL_UNITS

Use the INTERVAL_UNITS parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

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.

Syntax

INTERVAL_UNITS(INTERVALS|DAYS)

Default

INTERVALS

Valid values**INTERVALS**

(Default) 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

Use the LOAD parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

(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.

Syntax

LOAD(RESUME|REPLACE|REPLACE,STATISTICS)

Default

REPLACE

Valid values**RESUME**

Perform the LOADs in RESUME mode.

REPLACE

(Default) Perform the LOADs in REPLACE mode.

REPLACE,STATISTICS

Adds the following load card to the Db2 Load Utility control file, which generates the statistics as described in the *Db2 Utilities Suite for z/OS Utility Guide and Reference* (SC18-7427):

```
STATISTICS TABLE(ALL) INDEX(ALL)
```

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.

Related tasks

[“Running the offload to Analytics Accelerator” on page 443](#)

Complete these steps to offload data from your performance history files to Analytics Accelerator.

METRICS_TBNAME

Use the METRICS_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The table name that overrides the default summary metrics table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

METRICS_TBNAME(*tname*)

Default

CQM_SUMM_METRICS

Example

METRICS_TBNAME(CQM_SUM_METRICS)

NO_DATA_RC

Use the NO_DATA_RC parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The user return code (*rc*) that is issued when an empty backstore interval condition occurs.

Syntax

NO_DATA_RC(*rc*)

Default

08

Range

Integers in the range 0 - 4095

Example

NO_DATA_RC(12)

OBJECTS_TBNAME

Use the OBJECTS_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The table name that overrides the default summary objects table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

OBJECTS_TBNAME(*tname*)

Default

CQM_SUMM_OBJECTS

Example

OBJECTS_TBNAME(CQM_SUM_OBJS)

SQLCODE_DETAIL_TBNAME

Use the SQLCODE_DETAIL_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The table name that overrides the default SQLCODE detail table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

SQLCODE_DETAIL_TBNAME(*tname*)

Default

CQM_SQLCODE_DET

Example

SQLCODE_DETAIL_TBNAME(CQM_SQLC_DET)

SQLCODE_TEXT_TBNAME

Use the SQLCODE_TEXT_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The table name that overrides the default SQLCODE text table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

SQLCODE_TEXT_TBNAME(*tname*)

Default

CQM_SQLCODE_TEXT

Example

SQLCODE_TEXT_TBNAME(CQM_SQLC_TEXT)

SQLCODES_TBNAME

Use the SQLCODES_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The table name that overrides the default summary SQLCODE table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

SQLCODES_TBNAME(*tname*)

Default

CQM_SQLCODES

Example

SQLCODES_TBNAME(CQM_SQLC)

SQLTEXT_TBNAME

Use the SQLTEXT_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The table name that overrides the default summary SQL text table name.

Scope

This parameter is valid only for the CQM@WDB2 program.

Syntax

SQLTEXT_TBNAME(*tname*)

Default

CQM_SUMM_TEXT

Example

```
SQLTEXT_TBNAME(CQM_SUMM_TXT)
```

STARTING_INTERVAL

Use the STARTING_INTERVAL parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The start point (relative to the current interval, current day, or an absolute interval number) for the data that are to be loaded into Db2 tables.

Syntax

```
STARTING_INTERVAL(n)
```

n

Indicates the interval at which you want to start loading data into Db2 tables.

- The STARTING_INTERVAL and ENDING_INTERVAL must both either be positive or negative.
- Negative numbers are relative to the current interval.
- The value you specify for ENDING_INTERVAL must be less than or equal to the value you specify for STARTING_INTERVAL.

Default

-1

Range

Non-zero integers in the range -99999 to 99999

Example 1

```
INTERVAL_UNITS(DAYS),  
STARTING_INTERVAL(-2),  
ENDING_INTERVAL(-5)
```

Example 2

```
INTERVAL_UNITS(INTERVALS),  
STARTING_INTERVAL(100),  
ENDING_INTERVAL(10)
```

STATEMENT_TYPE_TBNAME

Use the STATEMENT_TYPE_TBNAME parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The table name that overrides the default statement type table name.

Scope

This parameter is valid only for the CQM@LSTM program.

Syntax

```
STATEMENT_TYPE_TBNAME(tbname)
```

Default

CQM_STMT_TYPES

Example

```
STATEMENT_TYPE_TBNAME(CQM_STMT_TYP)
```

TBCREATOR

Use the TBCREATOR parameter in CQM@WDB2 to control the offload of data to the performance history database.

Description

The schema name used to override the default schema name for the Db2 tables.

Syntax

TBCREATOR(*creator*)

creator

The 1 to 8 character schema name.

Default

SYSTOOLS

Example

TBCREATOR(SYST)

Other parameters

The parameters are defined in various locations as shown in the description of each parameter.

CQM_REUSE_WEBSERVER_KS

Use the CQM_REUSE_WEBSERVER_KS parameter in the CQMICERT JCL to rename the certificate alias to WEBSERVER.

Description

Indicates whether or not to reuse the certificate alias "WEBSERVER" in different keystores.

Note: If you specify CQM_REUSE_WEBSERVER_KS=Y and CQM_CAE_TRUSTSTORE_TYPE=RACF for your CQMICERT JCL on USS, the message CQMC1036W will be displayed. This is due to the fact that RACF keystores do not support the CQM_REUSE_WEBSERVER_KS parameter in the cqmimportcerts script to rename the certificate alias in the RACF keystores to WEBSERVER and you must rename the certificate alias manually if you want to reuse the certificate alias for RACF keystores.

Environment

AT-TLS

Syntax

CQM_REUSE_WEBSERVER_KS=Y|N

Default

N

Example

CQM_REUSE_WEBSERVER_KS=Y

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.3.3.0',FECLEVEL='FEC.V1R3'  
//*****  
//* [several lines of comments...]  
//*****  
//CQMPROC EXEC PGM=CQM#MAIN,REGION=7M,DYNAMNBR=200,TIME=1440
```

Add the PARM keyword and the appropriate option:

```
//CQMPROC PROC HILEVEL='CQM.3.3.0',FECLEVEL='FEC.V1R3',OPTION=  
//*****  
//* [several lines of comments...]  
//*****  
//CQMPROC EXEC PGM=CQM#MAIN,REGION=7M,DYNAMNBR=200,TIME=1440,  
// PARM='&OPTION'
```

For example:

```
//CQMPROC PROC HILEVEL='CQM.3.3.0',FECLEVEL='FEC.V1R3',OPTION=  
//*****  
//* [several lines of comments...]  
//*****  
//CQMPROC EXEC PGM=CQM#MAIN,REGION=7M,DYNAMNBR=200,TIME=1440,  
// PARM='SM,NORUN'
```

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:

```
S CQMPROC
```

Commands

This topic describes the commands that are available in Db2 Query Monitor.

Dynamic configuration change commands

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*.

ACTIVATE

Use the ACTIVATE command to activate a monitoring agent.

Description

Activate a monitoring agent and monitoring profile for a specified Db2 subsystem.

- When you issue the ACTIVATE command using a monitoring profile that has not yet been installed, it both installs and activates the monitoring profile.
- If you issue the ACTIVATE command against a Db2 subsystem that is already actively monitored by another monitoring profile, then the ACTIVATE command changes the monitoring profile to the specified profile.

Syntax

F *cqmtaskname*,ACTIVATE(*ssss*,*profname*)

cqmtaskname

The Db2 Query Monitor started task name.

ssss

The Db2 subsystem SSID.

profname

The monitoring profile name you want to use to monitor the specified Db2 subsystem.

Related reference

[“CHANGE_PROF” on page 748](#)

Use the CHANGE_PROF command to change the monitoring profile used to monitor your Db2 subsystem.

[“DEACTIVATE” on page 749](#)

Use the DEACTIVATE command to control the deactivation of a monitoring agent.

[“REFRESH_PROF” on page 750](#)

Use the REFRESH_PROF command to refresh the monitoring profile used to monitor your Db2 subsystem.

CHANGE_PROF

Use the CHANGE_PROF command to change the monitoring profile used to monitor your Db2 subsystem.

Description

Change the monitoring profile that is used to monitor a specified Db2 subsystem.

Syntax

F *cqmtaskname*,CHANGE_PROF(*ssss*,*profname*)

cqmtaskname

The Db2 Query Monitor started task name.

ssss

The Db2 subsystem SSID.

profname

The monitoring profile name you want to use to monitor the specified Db2 subsystem.

Related reference

[“ACTIVATE” on page 748](#)

Use the ACTIVATE command to activate a monitoring agent.

[“DEACTIVATE” on page 749](#)

Use the DEACTIVATE command to control the deactivation of a monitoring agent.

[“REFRESH_PROF” on page 750](#)

Use the REFRESH_PROF command to refresh the monitoring profile used to monitor your Db2 subsystem.

DEACTIVATE

Use the DEACTIVATE command to control the deactivation of a monitoring agent.

Description

Deactivate a monitoring agent for a specified Db2 subsystem.

Syntax

```
F cqmtaskname,DEACTIVATE(ssss)
```

cqmtaskname

The Db2 Query Monitor started task name.

ssss

The Db2 subsystem SSID.

Related reference

[“ACTIVATE” on page 748](#)

Use the ACTIVATE command to activate a monitoring agent.

[“CHANGE_PROF” on page 748](#)

Use the CHANGE_PROF command to change the monitoring profile used to monitor your Db2 subsystem.

[“REFRESH_PROF” on page 750](#)

Use the REFRESH_PROF command to refresh the monitoring profile used to monitor your Db2 subsystem.

DISABLE_INFLIGHT

Use the DISABLE_INFLIGHT command to disable inflight processing for a started task.

Description

Disables inflight processing for the specified started task.

Syntax

```
F cqmtaskname,DISABLE_INFLIGHT
```

cqmtaskname

The Db2 Query Monitor started task name for which inflight processing is to be disabled.

DISABLE_OBJECTS

Use the DISABLE_OBJECTS command to disable the collection of object statistics for a Db2 Query Monitor started task.

Description

Disables the collection of object statistics for the specified Db2 Query Monitor started task.

Syntax

```
F cqmtaskname,DISABLE_OBJECTS
```

cqmtaskname

The Db2 Query Monitor started task name for which the collection of object statistics is to be disabled.

DISABLE_PARALLEL

REFRESH_PROF

Use the REFRESH_PROF command to refresh the monitoring profile used to monitor your Db2 subsystem.

Description

Refresh the current monitoring profile for the specified Db2 subsystem.

Syntax

```
F cqmtaskname,REFRESH_PROF(ssss)
```

cqmtaskname

The Db2 Query Monitor started task name.

*s*sss

The Db2 subsystem SSID.

Related reference

[“ACTIVATE” on page 748](#)

Use the ACTIVATE command to activate a monitoring agent.

[“CHANGE_PROF” on page 748](#)

Use the CHANGE_PROF command to change the monitoring profile used to monitor your Db2 subsystem.

[“DEACTIVATE” on page 749](#)

Use the DEACTIVATE command to control the deactivation of a monitoring agent.

Sample library members

The Db2 Query Monitor sample library (SCQMSAMP) includes the following sample jobs.

SCQMSAMP member	Description
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 (SCQMQR) 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 (SCQMQR) 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 (SCQMQR) without having to alter the source programs.

Table 58. SCQMSAMP library members (continued)

SCQMSAMP member	Description
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 (SCQMQRV) 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 (SCQMQRV) 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 (SCQMQRV) 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 (SCQMQRV) without having to alter the source programs.
CQM@CNVT	A LOAD utility job that loads the data from the Db2 Query Monitor 3.2.0 performance history database to the Db2 Query Monitor 3.3.0 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.

Table 58. SCQMSAMP library members (continued)

SCQMSAMP member	Description
CQM@LDB2	<p>Specifies parameters and DDNAMES needed to run the offload process.</p> <p>Important: The CQM@LDB2 job is provided as an example. You must edit 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 reopens 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.</p>
CQM@LIDA	<p>Loads performance history data into IBM Db2 Analytics Accelerator.</p> <p>Important: The CQM@LIDA job is provided as an example. You must edit this job to suit your needs.</p>
CQM@LSTM	<p>Updates the statement type table (CQM_STMT_TYPES). The CQM@LSTM program is updated through the PTF maintenance stream when IBM adds SQL statement types.</p>
CQM@NOCP	<p>Sets the offload table spaces to NOCOPYPEND.</p>
CQM@NRPB	<p>Provides a sample of a Db2 bind and grant that gives Db2 access to use Db2 Query Monitor batch reporting for z/OS.</p>
CQM@NRPT	<p>Executes batch reports.</p>
CQM@WDB2	<p>This program performs the Db2 Query Monitor data offload. This program verifies that all Db2 tables in Db2 Query Monitor 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.</p>
CQMADBI	<p>Provides a sample EXEC to add Db2 Query Monitor to Db2 Administration Tool Launch Pad.</p>
CQMBIND	<p>Binds the CQM plan.</p>
CQMCAE	<p>The CAE agent started task.</p>

Table 58. SCQMSAMP library members (continued)

SCQMSAMP member	Description
CQMCAESV	Starts the CAE server on USS.
CQMCAEWD	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.
CQMCHMOD	Sets the file permissions for the CAE Server on USS.
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.
CQMCNTFL	Builds the VSAM control file used for holding Db2 subsystem ID information.
CQMCOMM	Adds table and column descriptions to the Db2 catalog.
CQMCPRMS	Provides a sample CQMCPRMS for CAE agent startup.
CQMCRDB	Creates the performance history database, which is the Db2 database that is used for offloading data from Db2 Query Monitor.
CQMCSDDL	Creates the staging tables used by the integration between Db2 Query Monitor and IBM query workload tuning tools.
CQMCSMGT	Migrates the Db2 Query Monitor staging tables.
CQMCUNPX	Unpaxes the configuration and data files to the CQM_VAR_HOME directory.
CQMCUPPT	<p>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 3.3.0 installation. To apply the updates, edit and run CQMCUPPT according to the instructions in the member.</p> <p>Note: The CQMCUPPT job is cumulative and only needs to be run once to install the current maintenance level.</p>
CQMDDL	Creates the performance history database objects.
CQMDDLST	Creates additional performance history database objects for statement types and descriptions.

Table 58. SCQMSAMP library members (continued)

SCQMSAMP member	Description
CQMDROP	<p>Drops the database objects associated with the performance history database.</p> <p>Important: Run this only if you want to re-create the Db2 Query Monitor objects. If you want to drop the performance history database, you must uncomment the DROP DATABASE command in this member and comment out all of the DROP TABLESPACE commands. Before dropping the performance history database, you should be aware that such action will affect other Db2 tools that use this database. Verify that dropping the performance history database will not adversely affect any other Db2 tools at your site that you do not intend to affect by this action.</p>
CQMGRTB	<p>Grants the appropriate privileges to authorization IDs to access the performance history database.</p>
CQMCCERT	<p>Creates a new certificate inside the certs directory defined by CQM_VAR_HOME.</p>
CQMECERT	<p>Exports certificates from the certs directory inside the directory defined by CQM_VAR_HOME.</p>
CQMHVBLD	<p>This JCL assembles and links a 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.</p>
CQMICERT	<p>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.</p>
CQMIADD	<p>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, CQMIDAM1, CQMIDAM2, and CQMIDAM3 scripts.</p>

Table 58. SCQMSAMP library members (continued)

SCQMSAMP member	Description
CQMIDAA	<p>CQMIDAA is an ISPF edit macro that modifies CQMDDL to be compatible with Analytics Accelerator. When you run CQMIDAA without parameters, the resulting DDL creates accelerator shadow tables. When you run CQMIDAA with parameters, the resulting DDL creates accelerator-only tables. To define accelerator-only tables, the macro requires the database name and the Analytics Accelerator name. The edit macro modifies the performance history database in the following ways:</p> <ul style="list-style-type: none"> • 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 <p>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 Analytics Accelerator.</p>
CQMIDAAL	<p>Loads data from the Db2 Query Monitor 3.3.0 performance history database to the Db2 Query Monitor 3.3.0 accelerator shadow tables.</p> <p>Important: When migrating from 3.2.0 accelerator shadow tables to 3.3.0 accelerator shadow tables, run CQMMIDAA before you run CQMIDAAL.</p>
CQMIDAD1	<p>Drops accelerator shadow tables and database. Use this any time you want to drop accelerator objects.</p>
CQMIDAD2	<p>Drops accelerator only tables and database. Use this any time you want to drop accelerator-only objects.</p>

Table 58. SCQMSAMP library members (continued)

SCQMSAMP member	Description
CQMIDAM1	<p>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.</p> <ul style="list-style-type: none"> • 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	<p>Moves offloaded data from Db2 schema to accelerator schema.</p>
CQMIDAM3	<p>Migrates offloaded data from accelerator schema created prior to PH17430 (#DBOLD#) to newly created accelerator schema (#DBNEW#) for support of anomaly detection and data collection.</p> <p>Note: Db2 Query Monitor does not currently support altering the table structure of accelerator tables. CQMIDAM3 must be used to create the new database with offload tables in the new column format and to migrate your data.</p>
CQMIDEL	<p>A REXX program to drop accelerator shadow tables. This REXX program is used by the CQMIDAD1, CQMIDAM1, CQMIDAM2, and CQMIDAM3 scripts.</p>
CQMIENBL	<p>A REXX program to enable query acceleration for the accelerator shadow table by changing its state. This REXX program is used by the CQMIDAD1, CQMIDAM1, CQMIDAM2, and CQMIDAM3 scripts.</p>

Table 58. SCQMSAMP library members (continued)

SCQMSAMP member	Description
CQMINDEX	<p>Defines indexes for tables in the offload database to help to improve the performance of queries that are run against the performance history database. These indexes identify the relationships between the performance history database tables. You can run test queries on your performance history database to identify performance optimization requirements. You can then modify and run CQMINDEX to ensure that the indexes you define are best suited to your environment.</p> <p>Important: The indexes documented in CQMINDEX are current as of version 3.2 of Db2 Query Monitor. No further development has been made to them.</p>
CQMINTER	Allocates the intervals data set.
CQMLDTAS	A REXX program to load data from the source tables in Db2 into the corresponding accelerator shadow tables.
CQMMIDAA	<p>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.</p> <p>Important: Before submitting CQMMIDAA, make sure that the V3.3 offload Db2 tables are empty.</p>
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.
CQMQR01	Verifies performance history database tables.
CQMUDDL	Creates a stored procedure for Db2 Query Monitor.

<i>Table 58. SCQMSAMP library members (continued)</i>	
SCQMSAMP member	Description
CQMUDFHV	The source for the assembler program that implements the user-defined function to format the contents of the HOSTV_TEXT column.
CQMUTS1	Migrates the following segmented table spaces that contain offload tables to partition-by-growth table spaces: CQMMET, CQMINT, CQMOBJ, CQMEXP, CQMEXC, CQMEXH, CQMEXO, CQMDBC, CQMSQS, and CQMSQD.
CQMUTS2	Migrates the following segmented table spaces for statement type tables to partition-by-growth table spaces: CQMSTYPE.
CQMUTS3	Migrates the following segmented table spaces for staging tables to partition-by-growth table spaces: CAPTS, STMTTS, OBJTS.

Related tasks

[“Configuring the offload to Analytics Accelerator” on page 441](#)

Before you load Db2 Query Monitor data to Analytics Accelerator, you must configure this offload process.

SCQMSAMP members for loading data to the performance history database

The following SCQMSAMP members are associated with the process of offloading Db2 Query Monitor data to the performance history database.

<i>Table 59. SCQMSAMP library members for the offloading to the performance history database</i>	
SCQMSAMP member	Description
CQM@LDB2	Specifies parameters and DDNAMES needed to run the offload process. Important: The CQM@LDB2 job is provided as an example. You must edit 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 reopens 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@LSTM	Updates the statement type table (CQM_STMT_TYPES). The CQM@LSTM program is updated through the PTF maintenance stream when IBM adds SQL statement types.

Table 59. SCQMSAMP library members for the offloading to the performance history database (continued)

SCQMSAMP member	Description
CQMUTS1	Migrates the following segmented table spaces that contain offload tables to partition-by-growth table spaces: CQMMET, CQMINT, CQMOBJ, CQMEXP, CQMEXC, CQMEXH, CQMEXO, CQMDBC, CQMSQS, and CQMSQD.
CQM@WDB2	This program performs the Db2 Query Monitor data offload. This program verifies that all of the Db2 tables in Db2 Query Monitor 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.
CQMBIND	Binds the CQM plan.
CQMCOMM	Adds table and column descriptions to the Db2 catalog.
CQMCRDB	Creates the performance history database, which is the Db2 database that is used for offloading data from Db2 Query Monitor.
CQMDDL	Creates the performance history database objects.
CQMDDLST	Creates additional performance history database database objects for statement types and descriptions.
CQMDROP	Drops the database objects associated with the performance history database. Important: Run this only if you want to re-create the Db2 Query Monitor objects. If you want to drop the performance history database, you must uncomment the DROP DATABASE command in this member and comment out all of the DROP TABLESPACE commands. Before dropping the performance history database, you should be aware that such action will affect other Db2 tools that use this database. Verify that dropping the performance history database will not adversely affect any other Db2 tools at your site that you do not intend to affect by this action.
CQMGRTB	Grants the appropriate privileges to authorization IDs to access the performance history database.

Table 59. SCQMSAMP library members for the offloading to the performance history database (continued)

SCQMSAMP member	Description
CQMINDEX	<p>Defines indexes for tables in the offload database to help to improve the performance of queries that are run against the performance history database. These indexes identify the relationships between the performance history database tables. You can run test queries on your performance history database to identify performance optimization requirements. You can then modify and run CQMINDEX to ensure that the indexes you define are best suited to your environment.</p> <p>Important: The indexes documented in CQMINDEX are current as of version 3.2 of Db2 Query Monitor. No further development has been made to them.</p>

SCQMSAMP members for loading data to Analytics Accelerator

The following SCQMSAMP members are utility jobs or scripts that perform accelerator operations in batch. These members are not created in Tools Customizer.

Table 60. SCQMSAMP library members for the offloading to Analytics Accelerator

SCQMSAMP member	Description
CQM@LIDA	The IBM Db2 Analytics Accelerator for z/OS offload sample.
CQMDDL	Creates the performance history database objects.
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, CQMIDAM1, CQMIDAM2, and CQMIDAM3 scripts.

Table 60. SCQMSAMP library members for the offloading to Analytics Accelerator (continued)

SCQMSAMP member	Description
CQMIDAA	<p>CQMIDAA is an ISPF edit macro that modifies CQMDDL to be compatible with Analytics Accelerator. When you run CQMIDAA without parameters, the resulting DDL creates accelerator shadow tables. When you run CQMIDAA with parameters, the resulting DDL creates accelerator-only tables. To define accelerator-only tables, the macro requires the database name and the Analytics Accelerator name. The edit macro modifies the performance history database in the following ways:</p> <ul style="list-style-type: none"> • 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 <p>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 Analytics Accelerator.</p>
CQMIDAAL	<p>Loads data from the Db2 Query Monitor 3.3.0 performance history database to the Db2 Query Monitor 3.3.0 accelerator shadow tables.</p> <p>Important: When migrating from 3.2.0 accelerator shadow tables to 3.3.0 accelerator shadow tables, run CQMMIDAA before you run CQMIDAAL.</p>
CQMIDAD1	<p>Drops accelerator shadow tables and database. Use this any time you want to drop accelerator objects.</p>
CQMIDAD2	<p>Drops accelerator only tables and database. Use this any time you want to drop accelerator-only objects.</p>

Table 60. SCQMSAMP library members for the offloading to Analytics Accelerator (continued)

SCQMSAMP member	Description
CQMIDAM1	<p>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.</p> <ul style="list-style-type: none"> • 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	<p>Moves offloaded data from Db2 schema to accelerator schema.</p>
CQMIDAM3 ¹	<p>Migrates offloaded data from accelerator schema created prior to PH17430 (#DBOLD#) to newly created accelerator schema (#DBNEW#) for support of anomaly detection and data collection.</p>
CQMIDEL	<p>A REXX program to drop accelerator shadow tables. This REXX program is used by the CQMIDAD1, CQMIDAM1, CQMIDAM2, and CQMIDAM3 scripts.</p>
CQMIENBL	<p>A REXX program to enable query acceleration for the accelerator shadow table by changing its state. This REXX program is used by the CQMIDAD1, CQMIDAM1, CQMIDAM2, and CQMIDAM3 scripts.</p>
CQMLDTAS	<p>A REXX program to load data from the source tables in Db2 into the corresponding accelerator shadow tables.</p>
CQMMIDAA	<p>Migrates data from Db2 Query Monitor 3.2 accelerator-only tables to Db2 Query Monitor 3.3.0 accelerator-only tables. When you run CQMMIDAA and then CQMIDAAL, migrates data from Db2 Query Monitor 3.2 accelerator shadow tables to Db2 Query Monitor 3.3.0 accelerator shadow tables.</p> <p>Important: Before submitting CQMMIDAA, make sure that the 3.3.0 offload Db2 tables are empty.</p>

Table notes:

1. Db2 Query Monitor does not currently support altering the table structure of accelerator tables. Therefore, CQMIDAM3 must be used to create the new database with offload tables in the new column format and to migrate your data.

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 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.

Main 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 main list. When you create a new Db2entry, it is added to the main list, and when you associate the new entry with Db2

Query Monitor, it is removed from the main list and added to the associated list. The main list is displayed on **Associate a Db2 Entry for Product**.

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 main list to the associated list.

You can create new Db2 entries and copy existing entries to the main 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 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 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 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 61. Status types for the product, the LPAR, and the Db2 entries

Status	Product	LPAR	Db2 entries
Incomplete	The required product parameters are not defined.	The required parameters are not defined.	The required parameters are not defined.
Discovered	The product parameter definitions were discovered by using the product Discover EXEC.	N/A	N/A
Ready to Customize	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.	The required LPAR parameters are defined or LPAR parameters are not required.	The required Db2 parameters are defined or Db2 parameters are not required.

Table 61. Status types for the product, the LPAR, and the Db2 entries (continued)

Status	Product	LPAR	Db2 entries
Verify Values	The required product or component parameter values are defined but they either have not been verified or verification is not enabled on the Product or Component Parameters panel.	The required LPAR parameter values are defined, but they either have not been verified or verification is not enabled on the LPAR Parameters panel.	The required Db2 parameter values are defined, but they either have not been verified or verification is not enabled on the Db2 Parameters panel.
Customized	The jobs are customized on the local LPAR.	The jobs are customized for the product or for all of the associated Db2 entries on the local LPAR.	The jobs are customized for the Db2 entry.
Errors in Customization	N/A	N/A	Errors occurred while the customization jobs were being generated.
Not Required	N/A	LPAR parameters are not required.	Db2 parameters are not required.

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. Db2 Query Monitor 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. READ 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. WRITE 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.DATASTOR. 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 (CCQPSET)
- *LPAR_name* is the four-character LPAR name
- *xyzvrm* 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 62. Data set attributes for allocating the Discover output, data store, and customization library data sets

Data set	Organization	Record format	Record length	Block size	Data set name type
Discover output data set	PO	Variable block	16383	32760	LIBRARY
Data store data set	PO	Variable block	16383	32760	LIBRARY
Product customization library	PO	Fixed block	80	32720	LIBRARY

Restrictions:

- Multiple users cannot simultaneously share the discover output data set, data store data set, Tools Customizer metadata library, and metadata library.

Other reference topics

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 sqllda 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, for example, 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 (for example, 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 (for example, 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. A 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 cannot 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)

SynchronousIODelayProblem

Indicates that a large portion of the total IO delay time was taken up with synchronous IO (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, for example, top N values in a set, or distribution analysis of a set.

Synchronous IO Delay Problem

Indicates that a large portion of the total IO delay time was taken up with synchronous IO.

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

US/Samoa

America/Adak

America/Atka

Etc/GMT+10

Pacific/Fakaofu

Pacific/Honolulu

Pacific/Johnston

Pacific/Rarotonga

Pacific/Tahiti

US/Aleutian

US/Hawaii

Pacific/Marquesas

America/Anchorage

America/Juneau

America/Nome

America/Yakutat

Etc/GMT+9

Pacific/Gambier

US/Alaska

America/Dawson

America/Ensenada

America/Los_Angeles

America/Tijuana

America/Vancouver

America/Whitehorse

Canada/Pacific

Canada/Yukon

Etc/GMT+8

Mexico/BajaNorte

Pacific/Pitcairn

US/Pacific
US/Pacific-New
America/Boise
America/Cambridge_Bay
America/Chihuahua
America/Dawson_Creek
America/Denver
America/Edmonton
America/Hermosillo
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/Rankin_Inlet

America/Regina
America/Swift_Current
America/Tegucigalpa
America/Winnipeg
Canada/Central
Canada/East-Saskatchewan
Canada/Saskatchewan
Chile/EasterIsland
Etc/GMT+6
Mexico/General
Pacific/Easter
Pacific/Galapagos
US/Central
US/Indiana-Starke
America/Bogota
America/Cayman
America/Coral_Harbour
America/Detroit
America/Eirunepe
America/Fort_Wayne
America/Grand_Turk
America/Guayaquil
America/Havana
America/Indiana/Indianapolis
America/Indiana/Marengo
America/Indiana/Vevay
America/Indianapolis
America/Iqaluit
America/Jamaica
America/Kentucky/Louisville
America/Kentucky/Monticello
America/Lima
America/Louisville
America/Montreal
America/Nassau
America/New_York
America/Nipigon
America/Panama
America/Pangnirtung

America/Port-au-Prince
America/Porto_Acre
America/Rio_Branco
America/Thunder_Bay
America/Toronto
Brazil/Acre
Canada/Eastern
Cuba
Etc/GMT+5
Jamaica
US/East-Indiana
US/Eastern
US/Michigan
America/Anguilla
America/Antigua
America/Aruba
America/Asuncion
America/Barbados
America/Boa_Vista
America/Campo_Grande
America/Caracas
America/Cuiaba
America/Curacao
America/Dominica
America/Glace_Bay
America/Goose_Bay
America/Grenada
America/Guadeloupe
America/Guyana
America/Halifax
America/La_Paz
America/Manaus
America/Martinique
America/Moncton
America/Montserrat
America/Port_of_Spain
America/Porto_Velho
America/Puerto_Rico
America/Santiago

America/Santo_Domingo
America/St_Kitts
America/St_Lucia
America/St_Thomas
America/St_Vincent
America/Thule
America/Tortola
America/Virgin
Antarctica/Palmer
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
Etc/GMT+3
America/Noronha
Atlantic/South_Georgia
Brazil/DeNoronha
Etc/GMT+2
America/Scoresbysund
Atlantic/Azores
Atlantic/Cape_Verde
Etc/GMT+1
Africa/Abidjan
Africa/Accra
Africa/Bamako
Africa/Banjul
Africa/Bissau
Africa/Casablanca
Africa/Conakry
Africa/Dakar
Africa/El_Aaiun
Africa/Freetown
Africa/Lome
Africa/Monrovia
Africa/Nouakchott
Africa/Ouagadougou
Africa/Sao_Tome
Africa/Timbuktu
America/Danmarkshavn
Atlantic/Canary
Atlantic/Faeroe
Atlantic/Madeira
Atlantic/Reykjavik

Atlantic/St_Helena
Eire
Etc/GMT
Etc/GMT+0
Etc/GMT-0
Etc/GMT0
Etc/Greenwich
Etc/UCT
Etc/UTC
Etc/Universal
Etc/Zulu
Europe/Belfast
Europe/Dublin
Europe/Lisbon
Europe/London
GB
GB-Eire
Greenwich
Iceland
Portugal
Universal
Zulu
Africa/Algiers
Africa/Bangui
Africa/Brazzaville
Africa/Ceuta
Africa/Douala
Africa/Kinshasa
Africa/Lagos
Africa/Libreville
Africa/Luanda
Africa/Malabo
Africa/Ndjamena
Africa/Niamey
Africa/Porto-Novo
Africa/Tunis
Africa/Windhoek
Arctic/Longyearbyen
Atlantic/Jan_Mayen

Etc/GMT-1
Europe/Amsterdam
Europe/Andorra
Europe/Belgrade
Europe/Berlin
Europe/Bratislava
Europe/Brussels
Europe/Budapest
Europe/Copenhagen
Europe/Gibraltar
Europe/Ljubljana
Europe/Luxembourg
Europe/Madrid
Europe/Malta
Europe/Monaco
Europe/Oslo
Europe/Paris
Europe/Prague
Europe/Rome
Europe/San_Marino
Europe/Sarajevo
Europe/Skopje
Europe/Stockholm
Europe/Tirane
Europe/Vaduz
Europe/Vatican
Europe/Vienna
Europe/Warsaw
Europe/Zagreb
Europe/Zurich
Poland
Africa/Blantyre
Africa/Bujumbura
Africa/Cairo
Africa/Gaborone
Africa/Harare
Africa/Johannesburg
Africa/Kigali
Africa/Lubumbashi

Africa/Lusaka
Africa/Maputo
Africa/Maseru
Africa/Mbabane
Africa/Tripoli
Asia/Amman
Asia/Beirut
Asia/Damascus
Asia/Gaza
Asia/Istanbul
Asia/Jerusalem
Asia/Nicosia
Asia/Tel_Aviv
Egypt
Etc/GMT-2
Europe/Athens
Europe/Bucharest
Europe/Chisinau
Europe/Helsinki
Europe/Istanbul
Europe/Kaliningrad
Europe/Kiev
Europe/Mariehamn
Europe/Minsk
Europe/Nicosia
Europe/Riga
Europe/Simferopol
Europe/Sofia
Europe/Tallinn
Europe/Tiraspol
Europe/Uzhgorod
Europe/Vilnius
Europe/Zaporozhye
Israel
Libya
Turkey
Africa/Addis_Ababa
Africa/Asmera
Africa/Dar_es_Salaam

Africa/Djibouti
Africa/Kampala
Africa/Khartoum
Africa/Mogadishu
Africa/Nairobi
Antarctica/Syowa
Asia/Aden
Asia/Baghdad
Asia/Bahrain
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
Australia/Canberra
Australia/Currie
Australia/Hobart
Australia/Lindeman
Australia/Melbourne
Australia/NSW
Australia/Queensland
Australia/Sydney
Australia/Tasmania
Australia/Victoria
Etc/GMT-10
Pacific/Guam
Pacific/Port_Moresby
Pacific/Saipan
Pacific/Truk
Pacific/Yap
Australia/LHI
Australia/Lord_Howe
Asia/Magadan
Etc/GMT-11
Pacific/Efate
Pacific/Guadalcanal
Pacific/Kosrae
Pacific/Noumea
Pacific/Ponape
Pacific/Norfolk
Antarctica/McMurdo
Antarctica/South_Pole
Asia/Anadyr
Asia/Kamchatka

Etc/GMT-12
Kwajalein
NZ
Pacific/Auckland
Pacific/Fiji
Pacific/Funafuti
Pacific/Kwajalein
Pacific/Majuro
Pacific/Nauru
Pacific/Tarawa
Pacific/Wake
Pacific/Wallis
NZ-CHAT
Pacific/Chatham
Etc/GMT-13
Pacific/Enderbury
Pacific/Tongatapu
Etc/GMT-14
Pacific/Kiritimati

Batch reports

Db2 Query Monitor 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 items are delivered for each batch report:

- QMF Form – Delivered in SCQMFORM data set
- QMF Query – Delivered in SCQMORY data set
- 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.
- 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.

Procedure

- 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
- 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

When you run Db2 Query Monitor batch reports, you must edit several parameters.

Specify the PARM field of the appropriate EXEC statement using the following syntax:

```
PARM='DB2_SSID,PLAN'
```

DB2_SSID

Specifies the name of the Db2 subsystem (SSID) on which the Db2 Query Monitor tables reside.

PLAN

Specifies the name of the plan that was bound for batch reports.

Example:

```
//CQM@RDSC EXEC PGM=CQMDSC,REGION=5M,PARM='DB01,CQMDSC'
```

Update the HOSTVARS in-stream data set to specify start and end timestamps in the format *yyyy-mm-dd-hh.mm.ss*. Both values are required.

Example:

```
//HOSTVARS DD *  
0001-01-01-00.00.00  
3001-01-01-00.00.00  
/*
```

Related information

[Timestamp \(Db2 for z/OS 13 documentation\)](#)

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, WSNAME, WSTRAN, 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 63. Physical block size and blocks per track used by VSAM

Control interval size	Physical block size	Blocks per track
512	512	49
1024	1024	33
1536	1536	26
2048	2048	21
2560	2560	17
3072	3072	15
3584	3584	13
4096	4096	12
4608	4608	10
5120	5120	9
5632	5632	9
6144	6144	8
6656	6656	7
7168	7168	7
7680	7680	6
8192	8192	6
10240	10240	5
12288	12288	4

Table 63. Physical block size and blocks per track used by VSAM (continued)

Control interval size	Physical block size	Blocks per track
14336	7168	7
16384	16384	3
18432	18432	3
20480	10240	5
22528	5632	9
24576	24576	2
26624	26624	2
28672	7168	7
30720	10240	5
32768	16384	3

- 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 790](#), 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 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 EXCPINDX

The EXCPINDX backstore data set contains statement/cursor level exception information.

About this task

Each record in the EXCPINDX backstore is fixed length and is 1472 bytes long. Follow the steps in the METRDATA calculation, but use the EXCPINDX 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 an 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 790. 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 record 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, for example, 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 CIDE and 1 RDE 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 CIDE and subtract 4 bytes for a CIDE.
2. Add 3 bytes to each record length for a RDE, for example, an exception object record would be 655 bytes (652 + 3).
3. Keep subtracting record lengths with RDEs 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 CIDE. $8192 - 4 = 8188$ 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 CIDE. $8192 - 4 = 8188$ 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 Db2 Query Monitor performance history database contains tables CQM_INTERVALS, CQM_SUMM_METRICS, CQM_SUMM_OBJECTS, CQM_SUMM_TEXT, CQM_EXCEPTIONS,

CQM_EXCP_CALLS, CQM_EXCP_HOSTV, CQM_EXCP_OBJS, CQM_EXCP_TEXT, CQM_DB2_COMMANDS, CQM_SQLCODES, CQM_SQLCODE_DET, and CQM_SQLCODE_TEXT.

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_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and CQM_VERSION

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 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 V12 is 120 and the DB2_VERSION for Db2 V13 is 130.

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 V12 is 1210 and the DB2_VERSION_LONG for Db2 V13 is 1310.

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.

A query for objects with the same SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, 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 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 V12 is 120 and the DB2_VERSION for Db2 V13 is 130.

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 PRECOMPILER.

TYPE

The key to the CQM_STMT_TYPES table to find the type of statement, such as OPEN or FETCH. To determine which SQL statement type corresponds to this integer value, query CQM_STMT_TYPES.

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 elapsed time generated by a user-defined function as a result of executing the SQL Call. A user-defined function might initiate a trigger or invoke a stored procedure. 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 the WLM address space.

UDF_DB2_ELAPSED

The accumulated elapsed time consumed in Db2 when processing SQL statements that were used by user-defined functions.

UDF_DB2_CPU

The CPU time consumed in Db2 by the user-defined function.

SP_APP_ELAPSED

The elapsed time generated by a stored procedure as a result of executing the SQL call. 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 accumulated CPU time used to satisfy stored procedure requests processed in the WLM address space.

SP_DB2_ELAPSED

The accumulated elapsed time consumed in Db2 when processing SQL statements that were issued by stored procedures.

SP_DB2_CPU

The accumulated CPU time consumed in Db2 when processing SQL statements that were 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

The accumulated wait time for IXLCACHE and IXLFCOMP asynchronous requests.

COMM_PH1WRT_DLY

The 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 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 times an SQL CALL statement was delayed waiting for the scheduling of a stored procedure.

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.

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 the SQL statement has been 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 might run. 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 V12 is 1210 and the DB2_VERSION_LONG for Db2 V13 is 1310.

ACCEL_ELIGIBLE_ELAPSED

The amount of elapsed time that could be saved if the statement or call were to 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 could be saved if the statement or call were to 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 could be saved if the statement or call were to 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

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

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, 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.

TYPE

The object type. Valid values are I (index) and T (table).

DATABASE_NAME

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_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 V12 is 120 and the DB2_VERSION for Db2 V13 is 130.

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 V12 is 1210 and the DB2_VERSION_LONG for Db2 V13 is 1310.

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, 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 information about exceptions generated based on the active monitoring profile.

A query for exception calls, host variables, or exception objects with the SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, 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 Db2 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 V12 is 120 and the DB2_VERSION for Db2 V13 is 130.

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 - 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 - RRSF (RRSAF Attach).

NETID

The network identifier.

LUNAME

The logical unit name.

UNIQUSS_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 these 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 these 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 criterion 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 times an SQL CALL statement was delayed waiting for the scheduling of a stored procedure.

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 V12 is 1210 and the DB2_VERSION_LONG for Db2 V13 is 1310.

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 might run. 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 that could be saved if the statement or call were to 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 could be saved if the statement or call were to 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 could be saved if the statement or call were to 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 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.

HOSTV_COUNT

The host variable count.

LOG_BYTES_WRITTEN

The number of log bytes written.

LOG_RECORDS_WRITTEN

The total number of log records written.

CPU_ROLL_AVG

The value of the CPU rolling average at the time the exception was generated.

CPU_ROLL_STDV

The value of the CPU rolling standard deviation at the time the exception was generated.

CPU_FACTOR

The amount of standard deviations from the mean the CPU was at the time the exception was generated.

ECPU_ROLLLM

The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly exception for CPU.

ACPU_ROLLLM

The tolerance level that would have to be crossed in order for a SQL statement to generate an anomaly alert for CPU.

CPU_DSC

Indicates whether or not the value of the CPU for a given SQL statement was factored into the rolling mean and standard deviation.

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.

ELAP_ROLL_AVG

The value of the elapsed time rolling average at the time the exception was generated.

ELAP_ROLL_STDV

The value of the elapsed time rolling standard deviation at the time the exception was generated.

ELAP_FACTOR

The amount of standard deviations from the mean the elapsed time was at the time the exception was generated.

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.

AELAP_ROLLLM

The tolerance level that would have to be crossed in order for an SQL statement to generate an anomaly alert for elapsed time.

ELAP_DSC

Indicates whether or not the value of the elapsed time for a given SQL statement was factored into the rolling mean and standard deviation.

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.

GETPGS_ROLL_AVG

The value of the getpage rolling average at the time the exception was generated.

GETPGS_ROLL_STDV

The value of the getpages rolling standard deviation at the time the exception was generated.

GETPGS_FACTOR

The amount of standard deviations from the mean the getpages were at the time the exception was generated.

EGETPGS_ROLLLM

The tolerance level that would have to be crossed in order for an SQL statement to generate an anomaly exception for getpages.

AGETPGS_ROLLLM

The tolerance level that would have to be crossed in order for an SQL statement to generate an anomaly alert for getpages.

GETPGS_DSC

Indicates whether or not the value of the getpages for a given SQL statement was factored into the rolling mean and standard deviation.

GETPGS_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.

EXCEPTION_ELAPSED_ANOMALY

Db2 Elapsed Time exception anomaly detected

EXCEPTION_CPU_ANOMALY

Db2 CPU Time exception anomaly detected

EXCEPTION_GETPGS_ANOMALY

GETPAGE exception anomaly detected

ALERT_ELAPSED_ANOMALY

Db2 Elapsed Time alert anomaly detected

ALERT_CPU_ANOMALY

Db2 CPU Time alert anomaly detected

ALERT_GETPGS_ANOMALY

GETPAGE alert anomaly detected

EXCEPTION_ANOMALIES

Indicates whether anomalies were detected for the statement based on the exception anomaly settings in the profile.

ALERT_ANOMALIES

Indicates whether anomalies were detected for the statement based on the alert anomaly settings in the profile.

ANOMALIES

Indicates whether either exception or alert anomalies were detected.

DB2_CPU_TIME_PROF_EXCP_TOLER

Indicates the CPU toleration, when exceeded, produces an anomaly exception for CPU time for a SQL statement.

DB2_ELAP_TIME_PROF_EXCP_TOLER

Indicates the elapsed time toleration, when exceeded produces an elapsed time anomaly exception for a SQL statement.

TOTAL_GETP_PROF_EXCP_TOLER

Indicates the getpage toleration, when exceeded, produces an anomaly getpage exception for a SQL statement.

DB2_CPU_TIME_PROF_ALRT_TOLER

Indicates the CPU time toleration, when exceeded produces an anomaly CPU alert for a SQL statement.

DB2_ELAP_TIME_PROF_ALRT_TOLER

Indicates the elapsed time toleration when exceeded, produces an elapsed time anomaly alert for a SQL statement.

TOTAL_GETP_PROF_ALRT_TOLER

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, EXCEPTION_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.

EXCEPTION_TOKEN

The exception token.

EXCEPTION_TIMESTAMP

The exception timestamp.

EXCEPTION_TIMESTAMP_UTC

The exception timestamp in UTC.

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).

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.

SQLWARNO

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.

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 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 times an SQL CALL statement was delayed waiting for the scheduling of a stored procedure.

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 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_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.

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, EXCEPTION_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.

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 PRECOMPILER 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_CCSD 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, EXCEPTION_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.

EXCEPTION_TOKEN

The exception token.

EXCEPTION_TIMESTAMP

The exception timestamp.

EXCEPTION_TIMESTAMP_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, 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.

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 V12 is 120 and the DB2_VERSION for Db2 V13 is 130.

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 V12 is 1210 and the DB2_VERSION_LONG for Db2 V13 is 1310.

CQM_SQLCODES

The CQM_SQLCODES table contains information about SQLCODES collected for a monitored Db2 subsystem.

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 V12 is 120 and the DB2_VERSION for Db2 V13 is 130.

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 V12 is 1210 and the DB2_VERSION_LONG for Db2 V13 is 1310.

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 V12 is 120 and the DB2_VERSION for Db2 V13 is 130.

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 V12 is 1210 and the DB2_VERSION_LONG for Db2 V13 is 1310.

CURRENT_SCHEMA

The current schema that executed the SQL.

CQM_SQLCODE_TEXT

The CQM_SQLCODE_TEXT table contains information about the 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 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.

Monitor queries in a data sharing environment

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

Data sharing requirements

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”](#) on page 658.

- 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 [“Installing CAE components” on page 113](#) and [“Selecting a CAE server for ISPF view of data sharing group” on page 153](#).

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).

Required parameters

The master address space that is used by an installation of CQM or Guardium S-TAP for Db2 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 Guardium S-TAP for Db2), the same master address space is used by those product installations.

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 [“Activity Browser” on page 322](#).

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.

Notes: Check 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 328](#).
- 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 main Query Monitor subsystem of the subsystem group. For more information, see [“Intervals and data sharing” on page 342](#).

Example

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 V13 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: CQMPLANA

DB2B

These descriptors apply to the DB2B SSID:

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

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: CQMPLANA

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: CQMPLANA

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: CQMPLANA

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 a 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#CTLF 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.

```
//SYSIN DD *
  ADD(D11A)
    BSDS_DSNAME(D11A.BSDS01)
    BSDS_DSNAME(D11A.BSDS02)
    ZPARMS_MEMBER(D11APARM)
    DB2_LOADLIB(DSN.VD10.SDSNLOAD)
    PLAN(CQMPLAN)
    REPLACE(Y)
  ADD(D11B)
    BSDS_DSNAME(D11B.BSDS01)
    BSDS_DSNAME(D11B.BSDS02)
    ZPARMS_MEMBER(D11BPARM)
    DB2_LOADLIB(DSN.VD10.SDSNLOAD)
    PLAN(CQMPLAN)
    REPLACE(Y)
  ADD(D11C)
    BSDS_DSNAME(D11C.BSDS01)
    BSDS_DSNAME(D11C.BSDS02)
    ZPARMS_MEMBER(D11CPARM)
    DB2_LOADLIB(DSN.VD10.SDSNLOAD)
    PLAN(CQMPLAN)
    REPLACE(Y)
  ADD(GRP1)
    BSDS_DSNAME(D11A.BSDS01)
    BSDS_DSNAME(D11A.BSDS02)
    ZPARMS_MEMBER(D11APARM)
    DB2_LOADLIB(DSN.VD10.SDSNLOAD)
    PLAN(CQMPLAN)
    REPLACE(Y)
//*
```

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 the Db2 Query Monitor 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 the architecture of Db2 Query Monitor.

```

DSN SYSTEM(DB2A)
BIND PACKAGE (CQMDB2A) -
  QUALIFIER (USERID) -
  MEMBER (CQM@STXT) -
  OWNER (USERID) -
  ACTION (REPLACE) -
  DYNAMICRULES (RUN) -
  ENCODING (EBCDIC) -
  EXPLAIN (NO) -
  ISOLATION (CS) -
  VALIDATE (RUN)
.
.
BIND PLAN (CQMPLANA) -
  PKLIST (CQMDB2A.* -
  )
  ACTION (REPLACE) -
  RETAIN -
  DYNAMICRULES (RUN) -
  ENCODING (EBCDIC) -
  EXPLAIN (NO) -
  ISOLATION (CS) -
  SQLRULES (DB2) -
  VALIDATE (RUN)
END

DSN SYSTEM(DB2B)
BIND PACKAGE (CQMDB2B) -
  QUALIFIER (USERID) -
  MEMBER (CQM@STXT) -
  OWNER (USERID) -
  ACTION (REPLACE) -
  DYNAMICRULES (RUN) -
  ENCODING (EBCDIC) -
  EXPLAIN (NO) -
  ISOLATION (CS) -
  VALIDATE (RUN)
.
.
BIND PLAN (CQMPLANA) -
  PKLIST (CQMDB2B.* -
  )
  ACTION (REPLACE) -
  RETAIN -
  DYNAMICRULES (RUN) -

```

```

ENCODING      (EBCDIC)  -
EXPLAIN       (NO)      -
ISOLATION     (CS)      -
SQLRULES     (DB2)     -
VALIDATE      (RUN)     -
END

DSN SYSTEM(GRP1)
BIND PACKAGE  (CQMGRP1) -
  QUALIFIER   (USERID) -
  MEMBER      (CQM@STXT) -
  OWNER       (USERID) -
  ACTION      (REPLACE) -
  DYNAMICRULES (RUN) -
  ENCODING    (EBCDIC) -
  EXPLAIN     (NO) -
  ISOLATION   (CS) -
  VALIDATE    (RUN)
.
.
BIND PLAN     (CQMPLANA) -
  PKLIST      (CQMGRP1.* -
  )
  ACTION      (REPLACE) -
  RETAIN      -
  DYNAMICRULES (RUN) -
  ENCODING    (EBCDIC) -
  EXPLAIN     (NO) -
  ISOLATION   (CS) -
  SQLRULES    (DB2) -
  VALIDATE    (RUN)
END

```

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).

Procedure

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 153.
2. Select a data sharing group on the **QM Subsystem Discovery** panel. For more information see [“Discovering Query Monitor subsystems”](#) on page 154.
3. You can now use Db2 Query Monitor to view activity in your data sharing environment.

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 master 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 master 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 master 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

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 CQMCMDS

The commands processed by the **Interval Data Sets** panel are installation-specific and can be defined in the CQMCMDS CLIST which installs in your SYSPROC concatenation.

About this task

A sample SCQMSAMP member CQMCMDS 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 the Db2 Query Monitor 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:

```
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.

```
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:

- MEMLIMIT parameter - Defaults - https://www.ibm.com/support/knowledgecenter/en/SSLTBW_2.1.0/com.ibm.zos.v2r1.ieab600/iea3b6_Defaults38.htm
- MEMLIMIT parameter - Subparameter definition - https://www.ibm.com/support/knowledgecenter/en/SSLTBW_2.1.0/com.ibm.zos.v2r1.ieab600/iea3b6_Subparameter_definition66.htm

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