

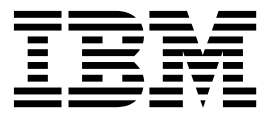
Version 3 Release 2

*IBM DB2 Query Monitor for z/OS
User's Guide*

IBM

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User's Guide*



Note:

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

Third Edition (November 2016)

This edition applies to Version 3 Release 2 of DB2 Query Monitor (product number 5655-V42) and to all subsequent releases and modifications until otherwise indicated in new editions.

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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

Always check the DB2 Tools Product Documentation page for the current version of this information:

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

Chapter 1. DB2 Query Monitor overview

IBM DB2 Query Monitor for z/OS (also referred to as DB2 Query Monitor) monitors SQL queries across your DB2 for z/OS environment. It provides alerts when performance thresholds are exceeded and identifies where slowdowns are occurring. DB2 Query Monitor helps detect issues before they affect your business.

DB2 Query Monitor helps you:

- Monitor SQL queries across your entire enterprise, including data sharing groups.
- Configure alerts to notify you of query activities that exceed preset thresholds so you can take corrective actions quickly.
- Identify and tune problematic queries.
- Manage your DB2 query environment with a web-based console or Interactive System Productivity Facility (ISPF).

Topics:

- “What's new in DB2 Query Monitor”
- “DB2 Query Monitor terminology” on page 2
- “DB2 Query Monitor features and benefits” on page 3
- “DB2 Query Monitor components” on page 4
- “Integration points” on page 12
- “Service updates and support information” on page 14
- “Product documentation and updates” on page 15
- “Accessibility features” on page 16
- “ISPF panel and column help” on page 16

What's new in DB2 Query Monitor

The following summarizes the changes for this edition.

New and changed information is indicated by a vertical bar (|) to the left of a change. Editorial changes that have no technical significance are not noted.

SC19-4143-03

DB2 Data Access Common Collector information

Expanded description of the DB2 Data Access Common Collector.

Accelerator-eligible SQL

DB2 Query Monitor now reports:

- SQL workload that is eligible to be accelerated
- Potential real-world DB2 CPU time and elapsed time savings

Getting started with DB2 Query Monitor

Expanded information about basic DB2 Query Monitor concepts, how to create an implementation strategy, and how to configure the DB2 Query Monitor subsystem.

DB2 Query Monitor terminology

DB2 Query Monitor includes several unique terms that you should understand before you begin to use DB2 Query Monitor.

action An action is a command that can be executed through the user interface, either interactively by selecting a domain element and initiating the command, or automatically using a predefined response or action schedule.

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.

alert An alert is a type of event that occurs when an alert threshold is exceeded. An alert is an SQL event for which you want a DBA to stop what they are doing and take immediate action.

collection point

A collection point is information that DB2 Query Monitor collects about the DB2 subsystems it monitors. DB2 Query Monitor uses nine collection points. These include DB2 command data, SQL text data, SQL metrics data, DB2 object data, exception data, statement-level exception data, negative SQLCODES data, exception host variable data, exception SQL text data. Each collection point stores the data it collects in a corresponding performance history file.

correlation

A correlation is a relationship between two events that DB2 Query Monitor interprets as causal in nature (one event type is defined as the result of another event type). 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.

element

An element is something the CAE models. This includes z/OS images, Open Systems hosts, DB2 subsystems, SQL statements, DB2 Query Monitor subsystems, CAE Agents, and the DB2 Query Monitor application.

event (Also referred to as *fault*) An event is a condition that occurs when a threshold (either an alert threshold or an exception threshold) is exceeded.

exception

An exception is a type of event that occurs when an exception threshold is exceeded. An exception is an SQL events that a DBA might be requested to research.

interval

An interval is 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.

monitoring profile

A monitoring profile enables you to tailor how DB2 Query Monitor monitors specific SQL workloads. Monitoring profiles control summary reporting, negative SQLCODE reporting, exception limits, alert notification thresholds, host variable reporting, and OPTKEYS override settings. Monitoring profiles do not affect DB2 command reporting.

monitoring profile line

Monitoring profile lines specify the inclusion or exclusion of specific 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 workload.

performance history database

(Formerly referred to as *offload tables*) The performance history database is a set of DB2 tables to which you can offload data from DB2 Query Monitor's performance history files. The uniqueness of DB2 Query Monitor data across z/OS systems, DB2 subsystems, and DB2 Query Monitor subsystems is maintained when you offload data from DB2 Query Monitor's performance history files to the performance history database.

performance history files

(Formerly referred to as *backstore data sets*) DB2 Query Monitor's performance history files are VSAM data sets that hold information collected by DB2 Query Monitor's collection points. One performance history file is created for each collection point (with the exception of the host variables collection point) on a per-interval basis. Additionally, information about the exceptions and notifications DB2 Query Monitor recognizes and sends are also written to performance history files, also on a per interval basis.

Notes:

1. A performance history file for host variables is only created if you specify the EXCPHSTV_* parameters in CQMPARMS.
2. DB2 Query Monitor dynamically allocates the performance history files. You can control the allocation of performance history files by using start-up parameters specified in CQMPARMS.

SQL workload

An SQL workload provides a way of identifying a group of applications to DB2 Query Monitor so that performance data can be collected for SQL statements executed by those applications. SQL workloads are defined in the monitoring profile used by DB2 Query Monitor to monitor a given DB2 subsystem.

DB2 Query Monitor features and benefits

DB2 Query Monitor provides the following features and benefits.

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 DB2 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, exclude specific -SQLCODES from exception or alert processing, set exception limits and thresholds, and define alert notification thresholds.
- View the expanded text description for an SQLCODE that is supplied by the IBM utility program DSNTIAR.
- View information about the DB2 commands that are executed on monitored DB2 subsystems.
- Collect information relating to exceptional SQL-related events.
- Configure proactive notification to alert users of problems.
- Automate curative actions to deal with exceptional events as they occur.
- Access consolidated data and events for DB2 subsystems, whether within a single z/OS image or across multiple z/OS images, independent of the existence of a coupling facility.
- View and configure monitoring across your enterprise from a single console.

Benefits

DB2 Query Monitor provides the following benefits:

- Scalable over the full range of DB2 installations.
- Operates seamlessly in sysplex and stand-alone environments.
- Supports single-console viewing of enterprise-wide DB2 SQL and object access activity.

DB2 Query Monitor components

The sections that follow describe the various DB2 Query Monitor components.

DB2 Data Access Common Collector

The DB2 Data Access Common Collector (CQC) is a product that is used by DB2 Query Monitor.

The CQC collects a variety of data for the following products:

- IBM DB2 Query Monitor for z/OS (CQM) V3.2
- InfoSphere Guardium S-TAP for DB2 on z/OS (ADH) V9.1
- InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS (CQR) V2.1

The advantage of using CQC with these products is that the data are collected once instead of multiple times for the products. This reduces CPU overhead and can result in substantial savings. The CQC integrates data for the products to provide a complete picture of query activity in the monitored systems.

The CQC collects the following data:

- SQL metrics
- DB2 object access
- SQL text
- DB2 commands
- Negative SQLCODEs
- Host variables

The CQC is not a stand-alone address space. The CQC 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 CQM, ADH, or CQR. The data collected by the CQC is stored in memory objects that are owned by the Support Services Address Space.

Note: The following products do not use the CQC:

- IBM DB2 Query Monitor for z/OS (CQM) V3.1
- InfoSphere Guardium S-TAP for DB2 on z/OS (ADH) V9.0
- InfoSphere Guardium S-TAP for DB2 on z/OS (ADH) V8.1
- InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS (CQR) V1.1

Support Services Address Space

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

The Support Services Address Space is a service address space that owns the shared memory objects where the data that is collected by the CQC is staged. The Support Services Address Space acts as a placeholder for CQC resources and is similar to other master address spaces that are used throughout z/OS (z/OS and DB2, for example, have master address spaces).

The Support Services Address Space:

- Never shuts down
- Does not execute any code during the course of existence, except for its initialization routines; therefore does not have to be controlled by an installation
- Owns resources required by the CQC
- Does not require a formal shutdown and should not be canceled or forced to shut down during the operation of CQM, CQR, or ADH. Forcing the Support Services Address Space to stop causes the abnormal termination of all CQM, CQR, or ADH started tasks on the LPAR.

MASTER_PROCNAME parameter

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

The MASTER_PROCNAME parameter is required; it must be specified for each product that uses the CQC. When the same MASTER_PROCNAME value is specified among product installations (CQM, CQR, or ADH), this causes the product installations to use the same Support Services Address Space.

If you are running two versions of DB2 Query Monitor, you must specify different values for the MASTER_PROCNAME parameters for each version.

Stopping the Support Services Address Space

Use this procedure if you need to stop the Support Services Address Space (also referred to as the Master Address Space).

About this task

Important: Stop the Support Services Address Space only if directed to do so by IBM Software Support or by a ++HOLD(ACTION) in a PTF.

To ensure product stability, the Support Services Address Space should be stopped only by using the sample job provided in SCQMSAMP member CQMMSTR (for DB2 Query Monitor Version 3.2 and later, use the TCz customization panels to generate this job). As a safeguard before stopping the Support Services Address Space, this job verifies that no other products that use it are still running.

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

DB2 Query Monitor monitoring agent

The DB2 Query Monitor subsystem works with the CQC through the use of monitoring agents. A monitoring agent is the interface that DB2 Query Monitor installs within a DB2 subsystem to capture SQL performance data.

One monitoring agent is installed for each monitored DB2 subsystems. For example, if one DB2 Query Monitor subsystem performs data collection on two DB2 subsystems, then two monitoring agents are required, one for each DB2 subsystem. Each monitoring agent can optionally have a monitoring profile associated with it.

DB2 Query Monitor subsystem

This topic provides information about the DB2 Query Monitor subsystem.

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

A DB2 Query Monitor subsystem can run as either a started task or as a batch job under the control of JES. To run the DB2 Query Monitor subsystem as a started task, the started task JCL must reside in a cataloged procedure library. The SCQMSAMP data set member CQMPROC contains a copy of the JCL that can be customized for a specific installation of DB2 Query Monitor.

The DB2 Query Monitor subsystem contains a CQMPARMS DD statement that points to the DB2 Query Monitor control data set that in turn contains DB2 Query Monitor parameter file, CQMPARMS. CQMPARMS defines the DB2 Query Monitor subsystem ID (QMID) that identifies the DB2 Query Monitor subsystem.

DB2 Query Monitor subsystem data collection

The DB2 Query Monitor subsystem collects data, manages intervals, archives historical data, and installs/removes the required instrumentation components. Data collection consists of the following components:

- Address space initialization
- Control block allocation
- Address space termination and cleanup
- DB2 discovery
- Instrumentation install and de-install
- First-level data summarization
- Performance history file population and management
- Exception recognition and notification
- Field diagnostic generation

- Interval processing
- Historical data archival
- Historical data archive history maintenance

Monitoring more than one DB2 subsystem

A DB2 Query Monitor subsystem can monitor one to 64 DB2 subsystems on an LPAR. A minimal implementation consists of one DB2 Query Monitor subsystem per LPAR. An extremely granular implementation uses one DB2 Query Monitor subsystem to monitor each DB2 subsystem.

If you use several DB2 Data Access Common Collector products (CQM, ADH, or CQR) or several instances of the same product to monitor more than one DB2 subsystem on the same LPAR, each product (or instance of a product) can have a different value for the MASTER_PROCNAME parameter. This configuration is appropriate when running code at different maintenance levels on the same LPAR (for example, if you are testing new maintenance prior to upgrading your production system).

Running multiple DB2 Query Monitor subsystems

DB2 Query Monitor is designed so that multiple DB2 Query Monitor subsystems can run concurrently on a single z/OS image, provided that each DB2 Query Monitor subsystem monitors a different DB2 subsystem. Two DB2 Query Monitor subsystem cannot monitor the same DB2 subsystem.

Each DB2 Query Monitor subsystem must have a unique ID and started task JCL associated with it. The started task JCL must point to:

DB2PARMS

The DB2 control file. DB2PARMS defines the connections to DB2. There should be only one DB2 control file for your enterprise, if possible.

CQMPARMS

The DB2 Query Monitor parameter file. You must use a unique CQMPARMS file for each DB2 Query Monitor subsystem.

CQMINTER

The DB2 Query Monitor interval data set. You must use a unique CQMINTER data set for each DB2 Query Monitor subsystem.

CQMPROFS

The DB2 Query Monitor monitoring profile data set. In most situations, is preferable that you use a single CQMPROFS data set for all DB2 Query Monitor subsystems. In certain situations, multiple CQMPROFS data sets are used, for example, if you have one CQMPROFS for DEV and another for PROD.

Monitoring the same DB2 subsystem with multiple DB2 Data Access Common Collector products

If you use multiple DB2 Data Access Common Collector products (CQM, ADH, or CQR) 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 DB2 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.

DB2 Query Monitor's data sets

This topic describes DB2 Query Monitor's data sets.

DB2 Query Monitor uses various data sets to hold information about DB2 subsystem and plan names, monitoring profiles, intervals, and parameters. Additionally, DB2 Query Monitor uses a set of VSAM data sets (referred to as performance history files) to hold the information that is captured for a monitored DB2 subsystem.

The DB2 Query Monitor subsystem references the following data sets:

DB2PARMS

The DB2 control file, DB2PARMS, identifies 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

The DB2 Query Monitor parameters member, CQMPARMS, is an 80-byte sequential or partitioned data set that you must allocate to the CQMPARMS DD. CQMPARMS defines the parameters that control how DB2 Query Monitor is implemented (such as DB2 Query Monitor subsystem name, the monitored DB2 subsystems, the length of the recording interval, and other parameters).

CQMINTER

The CQMINTER data set is used by DB2 Query Monitor to store 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 parameters in CQMPARMS.

An interval switch occurs at DB2 Query Monitor start-up, during which time the 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

The CQMPROFS data set is used by DB2 Query Monitor to store information about monitoring profiles. You can update the CQMPROFS performance history file using DB2 Query Monitor Main Menu Option 8 (Work with Profiles).

DB2 Query Monitor uses the following performance history files to hold captured information about a system's SQL activity:

DB2CDATA

The DB2CDATA performance history file contains 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

The TEXTDATA performance history file contains information about summary level SQL text data. You can modify the parameters that control the TEXTDATA performance history file by tailoring the TEXTDATA_* parameters in CQMPARMS.

METRDATA

The METRDATA performance history file contains 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

The OBJSDATA performance history file contains summary object level data. You can modify the parameters that control the OBJSDATA performance history file by tailoring the OBJSDATA_* parameters in CQMPARMS.

EXCPDATA

The EXCPDATA performance history file contains 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

The EXCPINDX performance history file contains 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

The SQLCDATA performance history file contains information about negative 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

The EXCPHSTV performance history file contains 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

The EXCPTEXT performance history file contains information about exception SQL text collected during the course of an interval. You can modify the parameters that control the EXCPTEXT performance history file by tailoring the EXCPTEXT_* parameters in CQMPARMS.

Consolidation and Analysis Engine

DB2 Query Monitor's Consolidation and Analysis Engine (CAE) consists of three components, the CAE Agent, the CAE Server, and the CAE Browser Client. Together, these components provide enterprise-wide data consolidation, autonomic root cause analysis, and corrective actions of the SQL queries across your system.

The CAE Agent discovers and monitors multiple DB2 subsystems across z/OS image boundaries, regardless of sysplex boundaries. The CAE Agent and CAE Server continuously identify, analyze, and correlate alerts for monitored SQL activity. The CAE Server consolidates the information from one or multiple CAE Agents and performs additional analysis for presentation via a single graphical user interface called the CAE Browser Client.

CAE Agent

The CAE Agent provides TCP/IP access to all DB2 Query Monitor subsystems on the local z/OS image. The CAE Agent is a non-Java™ address space that runs under z/OS and uses no ZFS/HFS facilities. The CAE Agent can run either as a started task or as a batch job under the control of JES. One CAE Agent is required on every z/OS image that hosts a DB2 Query Monitor subsystem.

The CAE Agent collects alerts from DB2 Query Monitor subsystems and sends a notification to the Alerts Browser for each alert. If multiple alerts are generated by separate executions of the same SQL, then the Alerts Browser reports one entry for the multiple alerts. The entry indicates a repetition count equal to the number of times the alert occurred for the SQL.

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 DB2 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. After the CAE Server connects to the CAE Agent, the CAE Agent discovers all of the DB2 Query Monitor subsystems on the local z/OS image.

CAE Browser Client

The CAE Browser Client enables you to view data and exceptions for one or more DB2 subsystems, regardless of z/OS and Sysplex boundaries. The CAE Browser Client also provides you with powerful filtering and browsing capabilities for both data and alerts.

CAE processes and services

The CAE components that run on a PC are controlled by a set of CAE processes and services.

DB2 Query Monitor's CAE processes and services include:

cqmservice

The CAE Server process. This process starts automatically when you boot the PC on which it is installed. If necessary, this process can be started and stopped manually.

cqmservice.exe

The service that controls the cqmservice process.

cqmwatchdog

The Watchdog process that runs in high-availability fault-tolerance implementations of the CAE. This process starts automatically when you boot the PC on which it is installed. If necessary, this process can be started and stopped manually.

cqmwatchdog.exe

The service that controls the cqmwatchdog process.

cqmserver

The Backup CAE Server process that runs in high-availability fault-tolerance installations of the CAE. If necessary, this process can be started and stopped manually.

High-availability fault-tolerance

DB2 Query Monitor's high-availability fault-tolerance (HAFT) capability enables you to assign a CAE Server as a backup for a Primary CAE Server. The Backup CAE Server ensures that the monitoring of queries continues if the Primary CAE Server fails. If the Primary CAE Server fails, the Backup CAE Server starts automatically and provides all the functionality that was provided by the Primary CAE Server, including the monitoring of SQL statements.

To accomplish this, the Primary CAE Server continuously stores event and alert information in a shared file system that is accessible to the Backup CAE Server. This enables the Backup CAE Server to access the DB2 Query Monitor data if a 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.

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

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

Note:

- The Primary CAE Server and the Backup CAE Server must be installed on a separate PCs.
- 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 deployment on USS involves fewer steps than HAFT deployment on Windows.
- 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). For example, you cannot set up a Primary CAE Server on USS and a Backup CAE Server on Windows (or vice versa).
- 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.

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, and access information about negative SQLCODES and DB2 commands.

Integration points

This topic describes the integration points between DB2 Query Monitor and other products.

IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS

This topic describes the integration of DB2 Query Monitor with IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS.

IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS provides both real-time and historical performance and availability management capabilities for your IBM z[™]/OS operating system, networks, storage subsystems. This integration enables you to join the data offloaded in DB2 Query Monitor's performance history database table CQM32_EXCEPTIONS column with data in IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS.

The integration points between DB2 Query Monitor and IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS include:

Performance history database

DB2 Query Monitor's performance history database table CQM32_EXCEPTIONS includes a column, CLIENT_ENDUSER, that is a 128-byte field that enables the data offloaded in that column (from DB2 Query Monitor) to be easily joined with data in IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS tables.

ISPF Client

No integration

CAE Browser Client

No integration

IBM DB2 SQL Performance Analyzer for z/OS

This topic describes the integration of DB2 Query Monitor with IBM DB2 SQL Performance Analyzer for z/OS.

IBM DB2 SQL Performance Analyzer for z/OS is performance tuning tool that enables you to analyze SQL queries without running them and to make tuning decisions and minimize cost. This integration enables you to export SQL statements from DB2 Query Monitor to a data set member that can then be analyzed by IBM DB2 SQL Performance Analyzer for z/OS.

The integration points between DB2 Query Monitor and IBM DB2 SQL Performance Analyzer for z/OS include:

Performance history database

No integration

ISPF Client

DB2 Query Monitor supports integration with IBM DB2 SQL Performance Analyzer for z/OS V2.1 and higher.

CAE Browser Client

No integration

IBM DB2 Analytics Accelerator for z/OS

This topic describes the integration of DB2 Query Monitor with IBM DB2 Analytics Accelerator for z/OS.

IBM DB2 Analytics Accelerator for z/OS is an appliance that helps you query data at high speeds, extend the capabilities of DB2 for z/OS, and lower operating costs. DB2 Query Monitor provides information about accelerator-eligible SQL to users who want to determine their potential return on investment if they were to use IBM DB2 Analytics Accelerator for z/OS. DB2 Query Monitor reports the true CPU and elapsed time savings that would occur if the queries were run on IBM DB2 Analytics Accelerator for z/OS. DB2 Query Monitor can report on the potential savings from the DB2 subsystem level down to the SQL statement and call level.

The integration points between DB2 Query Monitor and IBM DB2 Analytics Accelerator for z/OS include the following:

Performance history database

DB2 Query Monitor's performance history database table CQM_SUMM_METRICS includes the columns ACCEL_ELIGIBLE_ELAPSED, ACCEL_ELIGIBLE_CPU, and ACCEL_ELIGIBLE_ZIIP which contain information about accelerator-eligible SQL.

ISPF Client

DB2 Query Monitor indicates whether a query ran in IBM DB2 Analytics Accelerator for z/OS from within **View Summaries > Operational Summaries**. 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.

CAE Browser Client

DB2 Query Monitor indicates whether a query ran in IBM DB2 Analytics Accelerator for z/OS from within **View Summaries > Operational Summaries**.

Related tasks:

“Displaying IBM DB2 Analytics Accelerator for z/OS information” on page 232
Follow these steps to display IBM DB2 Analytics Accelerator for z/OS (IDAA) information.

Query tuning clients

This topic describes the integration of DB2 Query Monitor with query tuning clients such as IBM Optim™ Optim Query Workload Tuner for DB2 for z/OS and IBM DataStudio.

IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS provides advanced guidance and recommendations to help you improve the performance of query workloads. IBM DataStudio provides database you with an integrated, modular environment for development and productive administration of IBM DB2 for Linux, UNIX and Windows databases.

The integration points between DB2 Query Monitor and query tuning clients such as IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS and IBM DataStudio include the following:

Performance history database

The following columns in the CQM32_SUMM_METRICS table support the tuning client integration: EXECUTION_COUNT and CURRENT_SCHEMA.

ISPF Client

No integration

CAE Browser Client

Integrates with:

- IBM DataStudio V3.2 (or higher)

Service updates and support information

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

To find service updates and support information, see the following website:

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

Product documentation and updates

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

Information on the web

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

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

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

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

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

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

<http://www.redbooks.ibm.com>

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

<http://www.ibm.com/software/data/db2imstools/solutions/index.html>

Receiving documentation updates automatically

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

To register with the My Notifications service:

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

How to send your comments

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

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

Accessibility features

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

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

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

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

ISPF panel and column help

DB2 Query Monitor's ISPF Client provides help tutorials and context-sensitive column help.

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 1. No Additional Panels message

Column help

DB2 Query Monitor's ISPF Client supports context-sensitive column help. To access column help, type CHELP in the option line, place the cursor on the column of interest, and press Enter. A help panel displays a definition of the column. The CHELP command is valid on any DB2 Query Monitor ISPF panel that displays data in columns. If a panel does not contain columns (for example, a panel can contain a list of information or options) then the CHELP command is not valid for that panel.

Chapter 2. Requirements

To use DB2 Query Monitor, your site must meet the requirements described in this section.

Topics:

- “Operating system and environment requirements”
- “Other requirements” on page 21

Operating system and environment requirements

The following are the operating system and environment requirements for DB2 Query Monitor's mainframe and CAE components.

Mainframe requirements

The following are the operating system and environment requirements for DB2 Query Monitor's mainframe 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 for DB2.

The DB2 Query Monitor monitoring agent, DB2 Query Monitor subsystem, ISPF client, and CAE Agent run on a mainframe system and require the following operating system and environment:

- IBM z/OS Version 1.9 and later
- DB2 Version 10 and 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.

Calculating DB2 Query Monitor CPU usage

DB2 Query Monitor CPU overhead is not reflected in the DB2 Query Monitor started tasks. Overhead for DB2 Query Monitor started tasks is normally insignificant and consistent. DB2 Query Monitor use intercepts into the DB2 address space to monitor and collect the SQL performance metrics. This method is efficient but because it takes place in the DB2 Address Space you must look in the DB2 Application CPU to visualize any CPU overhead caused by DB2 Query Monitor's collection of SQL performance metrics. This can be done by collecting DB2 accounting and statistics traces and report the DB2 class 2 CPU time. Collect the tracing when DB2 Query Monitor is active and when it is inactive. Compare the results to calculate the cost of running DB2 Query Monitor.

CAE requirements

The following are the operating system and environment requirements for DB2 Query Monitor's CAE components. These requirements are guidelines, actual requirements might vary depending on the types of equipment in use.

The CAE Server requires:

- One of the following supported releases of Windows operating system (32-bit or 64-bit):
 - Windows 2000 SP4 (GA)
 - Windows XP (GA)
 - Windows Vista (GA)
 - Windows 7 (SR6)
 - Windows 8 (SR12)
 - Windows Server 2003 (GA)
 - Windows Server 2003 R2 (SR1)
 - Windows Server 2008 (SR1)
 - Windows Server 2012 (SR12)
 - Windows Server 2012 R2 (SR15)
- 1 GB RAM
- 1 GB free disk space

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.

- Pentium IV, 1 GHz
- LAN, T1, DSL, or cable modem
- TCP/IP
- The CAE Server must not be made available on the public internet. Users should only access the CAE Server from outside your network using a VPN connection.
- The use of HTTP for the CAE Server is not recommended because it exposes mainframe usernames and passwords across the network in clear text. The preferred solution is to obtain a valid certificate for the CAE Server and install the certificate in the CAE Server using the `cqm_import_certs.bat` script from the product bin directory. The CAE Server uses standard Java keystore handling of certificates. The CAE Server contains an embedded Web server, and that is where the certificate handling takes place.
- The user ID that the CAE Agent runs under must have an OMVS segment. For more information see “Setting up an MVS user ID to run the CAE Agent” on page 49.

The CAE Server must be active before you can use the CAE Browser Client. Other than this, there are no requirements for starting the CAE or its constituent tools in any particular order. The CAE Agent must be running on a z/OS system if you want to:

- Use the CAE Browser Client to view DB2 Query Monitor data on that system.
- Gather information about alerts and issue responses to those alerts.
- Use the CAE Browser Client to administer the CAE Agent on the system.

If you choose to run the CAE Server under USS, the following requirements apply:

- The most current maintenance of (31 bit) Java 1.6 (including all prerequisites) must be installed on your mainframe. 64-bit Java is not supported. Java builds are available at: <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 the 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 fail over server capability.
- Typically, when running the CAE Server on USS, memory usage requirements are:
 - A 500MB Java Heap
 - A REGION that is 300MB greater than the Java Heap size
 - A setting of _BPX_SHAREAS=NO
- The CAE Server userid 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 the files in the recursive descent of the directory specified by the CQM_VAR_HOME environment variable and read, write, and execute permissions to all the directories therein.

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

- Firefox 2.0.0.13 or later, Internet Explorer V8 or later
- Adobe Flash Player 10

Related concepts:

“Memory usage requirements - USS” on page 28

The following memory usage considerations apply to the operation of the CAE Server on USS.

Other requirements

The following 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 users 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 accelerator-eligible SQL

The following are required for displaying information about accelerator-eligible SQL.

To evaluate static SQL statements using this feature, you must verify 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 IDAA Accelerator Modeling APAR PM90886 for additional information.

You must also issue a BIND or REBIND PACKAGE for the DB2 packages. You may use option APREUSE(ERROR) with the REBIND PACKAGE command to make sure 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/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.

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

Accounting class 1

(Default) Accounting class 1 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

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. This accounting class must be activated in order 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. The DB2 statistics classes used by DB2 Query Monitor are:

Statistics class 1

(Default) Statistics class 1 provides information about system services and database statistics.

Statistics class 3

Statistics class 3 provides information about deadlocks and time-outs.

Statistics class 4

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 multi-cast 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

This topic describes the requirements for the ports used by the CAE Agent, 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

You must ensure the following default ports (or any custom ports you have defined in their place) are available:

Table 1. Default ports required by CAE components

Default Port Number / IP Address	Description
3448	CAE Agent System - CAE Server Access Listener Port
0.0.0.0	CAE Agent System - CAE Agent Access Listener Addresses

You must also ensure these required, user-specified ports are available:

Table 2. User-specified ports required by CAE components

Default Port Number(s)	Description
None, must be specified by user	CAE Agent System - CAE Agent Access Listener Port Range

Port usage for the CAE Server on USS

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

Table 3. Default ports required to run the CAE Server on USS

Default Port Number	Description
25	SMTP Port
443	HTTPS Port
1112	JDBC Port
3444	Java Agent System - Local Portal Port
3444	Java Agent System - Remote Portal Port
3445-3455	RMI Port Range

Port usage for high-availability fault-tolerance (HAFT)

If you are using any Backup CAE Servers in a HAFT environment, you must ensure the following user-specified ports are available:

Table 4. User-specified ports required by CAE components for HAFT

Default Port Number / IP Address	Description
3448	CAE Agent System - Backup CAE Server Access Listener Port
0.0.0.0	CAE Agent System - Backup CAE Server Access Listener Address

Related concepts:

“Firewall requirements”

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.

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

The DB2 Query Monitor Windows service, **cqmservice.exe**, requires full access to your network. The **cqmservice.exe** executable file is used by the CAE Server for normal installations, used by the Primary CAE Server in high-availability and fault-tolerant installations, and is also used by the watchdog service on the Backup CAE Servers.

You must configure your firewall to provide **cqmservice.exe** with full access to your network. The **cqmservice.exe** executable file is located in the `bin\jre\bin` folder of the DB2 Query Monitor installation, for example: `C:\Program Files\IBM\DB2 Query Monitor V3.2\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.

Related concepts:

“Port usage requirements” on page 23

This topic describes the requirements for the ports used by the CAE Agent, CAE Server, and CAE Browser Client.

High-availability fault-tolerance requirements

The following requirements apply when deploying CAE components using high-availability fault-tolerance.

- You must specify a Windows account under which the DB2 Query Monitor Windows service will log on.
- The Windows account on the PC where the Primary CAE Server or Backup CAE Server is installed must have sufficient privilege to start a Windows service.
- The Windows account must have the read/write authority to the mapped network drive on which the Primary CAE Server or the Backup CAE Server is being installed.

- The PC must be a member of a Windows domain. The Windows account must belong to the same windows domain and have administrator privileges on the machine on which the Primary CAE Server or Backup CAE Server is to be started.

Certificates requirements - USS and Windows

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

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

For a certificate to be valid, the website host name must match the certificate name. Since each customer's host name is unique, a valid certificate cannot be included with the DB2 Query Monitor product. Instead, each site must obtain its own valid certificate.

DB2 Query Monitor offers three certificate scenarios:

Use default localhost certificate

This option causes the browser to warn users about the host name mismatch with the certificate. The browser will also warn users that it is being self-signed.

Create certificate

This option enables you to specify the host name (DB2 Query Monitor attempts to present a good default). If the browser user specifies that host the only warning should be about the self-signing.

Import certificate

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

Related concepts:

"Creating and importing a hostname-based, self-signed certificate - Windows" on page 110

This topic describes how to create and import a hostname-based, self-signed certificate for a CAE Server on Windows.

Related tasks:

"Installing a single CAE Server - Windows" on page 99

The steps described in this topic are required for the standard installation of the CAE Server on Windows.

Using certificates and keys that are stored in 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*.

Related concepts:

"CAE Server parameters - USS" on page 579

These parameters are available for use with USS installations of the CAE Server and are defined in the STDENV DD statement of SAMPLIB member CQMCAESV.

Memory usage requirements - USS

The following memory usage considerations 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."

Related concepts:

"CAE requirements" on page 19

The following are the operating system and environment requirements for DB2 Query Monitor's CAE components. These requirements are guidelines, actual requirements might vary depending on the types of equipment in use.

Capacity requirements - USS

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

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

Real Frames

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

Aux Storage

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

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

Real Frames

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

Aux Storage

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

SMP/E cross-zone requisite checking requirements

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

For example, the installation of software service to DB2 Query Monitor, InfoSphere Guardium S-TAP for DB2 on z/OS, or InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS, often requires the synchronization of service levels. Those products may be installed across multiple SMP/E zones. For example, service for software in the DB2 Query Monitor zone may require related service for the STP zone to permit all software within the system image to operate properly.

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

Dispatch priority requirements

The DB2 Query Monitor dispatching priority should be equal to or above DB2.

Chapter 3. Compatibility, Maintenance, and Upgrading

These topics provide information about DB2 Query Monitor compatibility, maintenance, and upgrading.

Topics:

- “Compatibility”
- “Maintenance - APARs and PTFs” on page 34
- “Upgrading” on page 36
- “Reverting to a previous version” on page 39

Compatibility

Review the following information to ensure the compatibility of the DB2 Query Monitor components with your environment.

Important: Do not use DB2 Query Monitor and similar SQL monitoring products to monitor the same DB2 subsystem because this might result in unpredictable results for DB2.

Compatible releases and maintenance levels

The following matrix shows the compatible version and release combinations of IBM DB2 Query Monitor for z/OS, DB2 Audit Management Expert for DB2 on z/OS, InfoSphere Guardium S-TAP for DB2 on z/OS, and InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS.

The following product abbreviations are used:

- IBM DB2 Query Monitor for z/OS V3.2: **CQM V3.2**
- IBM DB2 Query Monitor for z/OS V3.1: **CQM V3.1**
- DB2 Audit Management Expert for DB2 on z/OS: **ADH V2.1**
- InfoSphere Guardium S-TAP for DB2 on z/OS V9.1: **ADH V9.1**
- InfoSphere Guardium S-TAP for DB2 on z/OS V9.0: **ADH V9.0**
- InfoSphere Guardium S-TAP for DB2 on z/OS V8.1: **ADH V8.1**
- InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS V2.1: **CQR V2.1**
- InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS V1.1: **CQR V1.1**

Table 5. Compatible releases and maintenance levels

	CQM V3.1	CQM V3.2	ADH V2.1	ADH V8.1	ADH V9.0	ADH V9.1	CQR V1.1	CQR V2.1
CQM V3.1	---	LPAR	LPAR(1)	DB2	DB2	DB2	DB2	DB2
CQM V3.2	LPAR	---	N	DB2	DB2	DB2	DB2	DB2
ADH V2.1	LPAR(1)	N	---	LPAR(2)	N	N	N	N
ADH V8.1	DB2	DB2	LPAR(2)	---	N	LPAR	DB2	N
ADH V9.0	DB2	DB2	N	LPAR	---	LPAR	DB2	DB2
ADH V9.1	DB2	DB2	N	LPAR	LPAR	---	DB2	DB2
CQR 1.1	DB2	DB2	N	DB2	DB2	DB2	---	LPAR
CQR V2.1	DB2	DB2	N	N	DB2	DB2	LPAR	---

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.
- (1) ADH V2.1 and CQM V3.1 are compatible on the same LPAR until APAR PM85050 or later is applied to CQM V3.1. After that, ADH V2.1 and CQM V3.1 cannot operate on the same LPAR.
- (2) ADH V2.1 and ADH V8.1 are compatible on the same LPAR until APAR PM85117 or later is applied to ADH V8.1. After that, ADH V2.1 and ADH V8.1 cannot operate on the same LPAR.

Compatible minimum maintenance levels

The following are the compatible minimum maintenance levels for the various products.

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

CQM V3.1 with PM95549 is compatible with:

- ADH V8.1 with PM95765
- ADH V9.0 with PM95765
- ADH V9.1 with PM98906
- CQR V1.1 with PM95769
- CQR V2.1 with PM98901
- CQM V3.2 with PM95549

CQM V3.2 with PM95549 is compatible with:

- CQM V3.1 with PM95549
- ADH V8.1 with PM95765
- ADH V9.0 with PM95765
- ADH V9.1 with PM98906
- CQR V1.1 with PM95769
- CQR V2.1 with PM98901

ADH V8.1 with PM95765 is compatible with:

- CQM V3.1 with PM95549
- CQM V3.2 with PM95549
- CQR V1.1 with PM95769
- CQR V2.1 with PM98901

ADH V9.0 with PM95765 is compatible with:

- CQM V3.1 with PM95549
- CQM V3.2 with PM95549
- CQR V1.1 with PM95769
- CQR V2.1 with PM98901

ADH V9.1 with PM98906 is compatible with:

- CQM V3.1 with PM95549
- CQM V3.2 with PM95549
- CQR V1.1 with PM95769
- CQR V2.1 with PM98901

CQR V1.1 with PM95769 is compatible with:

- CQM V3.1 with PM95549
- CQM V3.2 with PM95549
- ADH V8.1 with PM95765
- ADH V9.0 with PM95765
- ADH V9.1 with PM98906

CQR V2.1 with PM98901 is compatible with:

- CQM V3.1 with PM95549
- CQM V3.2 with PM95549
- ADH V8.1 with PM95765
- ADH V9.0 with PM95765
- ADH V9.1 with PM98906

Important restrictions and considerations

- **ADH V2.1 and ADH V8.1 cannot run on the same DB2 subsystem at the same time.**
- **CQM V3.1 and CQM V3.2 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 CQM V3.1 and CQM V3.2 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 CQM V3.1 and CQM V3.2 start-up parameters.
- The MASTER_PROCNAME parameter is required for the following:
 - CQM V3.1
 - CQM V3.2
 - ADH V2.1 with PK78935
 - ADH V8.1 with PM34436

Other compatibility restrictions

This topic provides information about other compatibility restrictions that apply to DB2 Query Monitor.

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.htm

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 SERVER AT ADDRESS 2001:21:21:55:25 AND
PORT 35000
```

CAE component compatibility

CAE components are only compatible with components of the same version.

- A V3.2 CAE Agent only retrieves data from V3.2 DB2 Query Monitor subsystems.
- A V3.2 CAE Server only shows data from V3.2 CAE Agents.
- A V3.2 CAE Browser Client can only communicate with a V3.2 CAE Server.

If you need to use two different versions of DB2 Query Monitor subsystems on the same LPAR, you must run two CAE Agents, one of each of the two different versions. 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 you need to run two different versions of the CAE Server at the same time, you will need to run them on different PCs. However you can install two versions on the same PC and use the migration steps.

If your site has both V3.1 and V3.2 collectors on the same LPAR, you must run a V3.1 CAE Agent and a V3.2 CAE Agent on that LPAR, and each CAE Agent must pointing to a separate CAE Server.

The CAE Agent for DB2 Query Monitor V3.1 must be installed in a separate ZFS/HFS from the CAE Agent for DB2 Query Monitor V3.2.

Maintenance - APARs and PTFs

DB2 Query Monitor requires that maintenance (APARs and PTFs) be applied. Before applying maintenance, exit all instances of the DB2 Query Monitor. If your site is configured to use CAE components, shut down all instances of your CAE Agents and CAE Servers.

FEC common code maintenance

DB2 Query Monitor requires that the following FEC common code maintenance be applied.

- UK92133 / PM76410 (FEC 1.3 DB2 V11 support PTF)
- PK04738 (APAR for the new call attach)
- PK02787 (APAR for the build-on-demand-compression)
- PK52221 (APAR for proper invocation of NBRCNVRT service)
- PI16526 (APAR to resolve cancel threads problem)

CAE Server maintenance - Windows

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

PTFs that affect SCQMTRAN

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

About this task

SCQMTRAN(CQMCAEPT) is used for providing maintenance to the other DB2 Query Monitor components, after initial installation of DB2 Query Monitor.

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

To apply maintenance:

Procedure

1. Open a command prompt and change directories to the location to which you want to download the installers.
2. Establish an FTP connection using the ftp command and log in with your TSO username and password.
3. Specify a binary transfer using the bi command.
4. Transfer *highlevel*.SCQMTRAN member CQMCAEPT using the following binary FTP get command:

```
get 'CQMCAEPT' cqmcaept.exe
```
5. Execute the file and follow the installation instructions and recycle DB2 Query Monitor and all CAE components (CAE Agent and CAE Server). This step only needs to be completed for the most current SCQMTRAN(CQMCAEPT) because maintenance is cumulative.

Restoring the CAE Server - Windows

If you need to restore the CAE Server to a previous level of maintenance, you must perform the following steps.

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 47.
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. Rollback SMPE/E to the desired level.
4. Un-install the CAE Server and select the option **Keep my changes**.

5. Install the CAE Server using the CQMCAEAL installer you transferred (for example, cqmcaegl.exe).
6. Install CAE Server maintenance using the CQMCAEPT installer you transferred from desired SMP/E level (for example, cqmcaept.exe).

CAE Server maintenance - USS

SCQMSAMP member CQMCUPPT extracts updates from CQMCPXPT to the configuration and data files that were installed to the CQM_VAR_HOME directory during the original DB2 Query Monitor installation.

Procedure

To apply CAE Server updates, edit and run CQMCUPPT according to the instructions in the member.

Restoring the CAE Server - USS

If, after running CQMCUPPT, you need to restore to a previous level of maintenance, you must first re-run the base-level unpax job, CQMCUNPX and work forward to the desired PTF level.

About this task

By default, re-running the base-level unpax job CQMCUNPX generates the following error message:

```
CQMC1004E CQMCUNPX has already been run. If you want to overwrite all maintenance, use CQM_FORCE_UNPAX=Y
```

To restore the CAE Server to a previous level of maintenance:

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. Apply any PTFs as appropriate to reach the desired PTF level.
6. Run the CQMCUPPT to bring the CAE_VAR_HOME to the same maintenance level as the SMP/E environment.

Upgrading

When upgrading from previous versions of DB2 Query Monitor to the current version, consider the following information.

Considerations

Data collected by DB2 Query Monitor V3.1 can be read by DB2 Query Monitor V3.2.

Prior versions cannot read data collected by later versions of DB2 Query Monitor. For example, DB2 Query Monitor V3.1 cannot read data from V3.2.

If you are installing DB2 Query Monitor over an existing version (for example, V3.2 over V3.1) and want to create HFS paths to install into, you must copy the contents from the previous version into your new directories prior to applying the base function. Failure to do so can produce SMP/E errors during apply processing and cause the function to fail to install.

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

Upgrading from V3.1 to V3.2

When upgrading from DB2 Query Monitor V3.1 to V3.2, the following steps must be followed.

Before you begin

Note:

- To ensure a smooth transition between versions, both V3.1 and V3.2 must be at the most recent GA maintenance levels prior to upgrading, to ensure that supporting maintenance and HIPERS are applied.
- If you are also running other products that use the IBM DB2 Data Access Common Collector for z/OS, review the information in “Compatible releases and maintenance levels” on page 31 for the required maintenance levels for these products to ensure that they are running on compatible code levels and upgrade as needed.
- To monitor the same DB2 subsystem and to share a common MASTER address space, DB2 Query Monitor and other products that use the IBM DB2 Data Access Common Collector for z/OS must use a common MASTER_PROCNAME parameter.

Procedure

1. Install DB2 Query Monitor V3.2.

Note: If you want to retain your V3.1 customizations for use in V3.2, you can reuse the following data sets: CQMINTER, CQMCNTFL, CQMPARMS, CQMPROFS.

2. Shut down the existing DB2 Query Monitor V3.1 subsystem.
3. Stop all instances of DB2 Query Monitor and other products that use the IBM DB2 Data Access Common Collector for z/OS that are running on the z/OS image, and then shut down the V3.1 CQMMSTR address space. For an example of the 'SM,STOP' parameters, see the SCQMSAMP member CQMMSTR.
4. Specify the MASTER_PROCNAME parameter in your V3.2 start-up parameters.
5. Start the V3.2 DB2 Query Monitor subsystem. The data collected in V3.1 can now be read by V3.2.

CAE upgrading considerations

The following conditions apply to CAE upgrading.

- If there is a need to see two different DB2 Query Monitor collector versions on the same LPAR, you must run two CAE Agents (one each of the appropriate version). If you only run one CAE Agent on an LPAR with two collector versions, you will only be able to see the collectors that match the version of the CAE Agent.
- To run CAE Servers at the same time, they must be run on different machines. If your site is in the process of rolling-out an upgrade, you will be able to see the subset of the LPARS whose CAE Agent version matches the version of the server you are connected to.
- If you upgrade the CAE Server (rather than use a gradual roll-out), the configurations (such as users, message boards, scopes, param overrides) will automatically migrate to the new version. If you do a gradual roll-out (and therefore have two installs of the CAE Server at different versions), you will have to copy over the `site` and `userconfigurations` folders from the old install to the new install. Any changes to configuration in the old install after that point will not automatically migrate to the new install.

For information, see “Retaining and migrating CAE customizations” on page 115.

Related tasks:

“Retaining and migrating CAE customizations” on page 115

Many aspects of the CAE can be customized to best suite your preferences and site's needs. For example, depending on your authority, you can set-up users, configure message boards, define scopes, create parameter overrides, define filters, and much more.

Off-load upgrading

The conversion of offload repository data from DB2 Query Monitor V3.1 to V3.2 is performed 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.

- The offload upgrading process assumes that you define a separate DB2 database to contain the data from each DB2 Query Monitor subsystem. If multiple DB2 Query Monitor subsystems are loaded into a single database, the process will not be able to resolve the data and it will be migrated as if it were off-loaded from the first DB2 Query Monitor subsystem encountered in the tables.
- Because DB2 Query Monitor V3.2 automatically supports all V3.1 data sets, V3.2 is capable of offloading V3.1 data sets. Any V3.2 data that is not present is offloaded as null values.
- Default table names change for each DB2 Query Monitor release. For example, the default table name for DB2 Query Monitor V3.1 is `CQM31*` whereas the default table name for DB2 Query Monitor V3.2 is `CQM32*`.
- Upgrades might be required between DB2 Query Monitor releases to accommodate the addition or removal of offload columns.

Offload migration

To perform the conversion of offload repository data from V3.1 to V3.2 tables, customize and run *highlevel.SCQMSAMP* members CQM@CNVT and CQM@UPDT according to the instructions in the members.

CQM@CNVT

This is a LOAD utility job to load the data from the DB2 Query Monitor V3.1 repository tables to the DB2 Query Monitor V3.2 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.

CQM@UPDT

This job updates the new columns in the DB2 Query Monitor V3.2 tables with data from the DB2 Query Monitor V3.1 tables using standard SQL UPDATE statements. There is a separate job step for each UPDATE statement. This job must be run after CQM@CNVT and can be run repeatedly with no issues. If a failure occurs on one of the job steps, the job can be restarted at the proper step with a RESTART= parameter on the JOB statement.

Reverting to a previous version

Reverting to a previous version - DB2 Query Monitor subsystem

To revert from the current version of DB2 Query Monitor to a previous version, following these steps.

Procedure

1. Shut down the current version of the DB2 Query Monitor subsystem.
2. Stop all instances of DB2 Query Monitor and other products that use the IBM DB2 Data Access Common Collector for z/OS that are running on the z/OS image.
3. Shut down the Master Address Space that the current version of the DB2 Query Monitor subsystem was using.
4. Start the previous version of the DB2 Query Monitor subsystem.

Backing-off changes - CAE components on Windows

These scenarios describe how to back-off changes to CAE components on Windows.

Procedure

- **Scenario 1: Install base components and any number of PTFs. Now you want to go back to base components.** Un-install via the **Add/Remove Programs** option from your Windows **Start** menu. You will be prompted that the pinpoint.jar and pinpoint.blob files have been modified and asked if you still want to delete them. Answer **Yes** (not **Yes to all**). Reinstall the base components.
- **Scenario 2: Install "base", PTF1, then PTF2. Now you want to go back to PTF1.** After 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**.

- **Scenario 3: Install "base", and a fixtest. Now you want to install the real PTF from the tape.** Download the SCQMTRAN(CQMCAEPT) and install it. The installation wizard may ask you if you want to replace the pinpoint.jar and pinpoint.blob files . Answer **Yes**.

What to do next

Note: When un-installing components, choose to keep changes when prompted unless you are permanently deleting the product from the computer and you do not mind if any scopes or thresholds are deleted.

Chapter 4. Preparing to customize DB2 Query Monitor

Before you start to customize DB2 Query Monitor for the first time, determine all of the customization values that you need to specify during the customization process, and familiarize yourself with all of the customization tasks.

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

Tip: Print the following the checklists and use them to record your values. Refer to them during the 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 723	
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 43	
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 43	
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 43	
Security requirements		
Make sure that you have the required authorizations to use DB2 Query Monitor.	"Verify that your environment meets security requirements" on page 43	
Prepare to customize collector, ISPF, and CAE components		
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 44 and "Preparing to customize CAE components" on page 46 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 49	

Task	Link to detailed instructions	Status
APF authorization		
The following data sets must be APF authorized: • SCQMLoad • SFECLOAD	“APF authorizing load libraries” on page 52	
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 53	
Customize DB2 Query Monitor		
Start Tools Customizer by running a REXX EXEC from the ISPF Command Shell panel.	“Starting Tools Customizer” on page 75	
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 76	
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 79	
Customizing a different version of DB2 Query Monitor Follow this roadmap if you have already customized a version of DB2 Query Monitor and you want to use the same parameter values to customize a different version.	“Roadmap: Customizing a new version of DB2 Query Monitor from a previous customization” on page 80	
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 81	

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.

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

If you are using DB2 Query Monitor in a data sharing environment, the data sharing group attach name must be added to the DB2 control file (DB2PARMS).

To add the data sharing group attach name, edit SCQMSAMP member CQM#CTLF. Tailor 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#, and #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.

Set up your environment prior to customization

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

Verify that your environment meets software requirements

Ensure that your environment meets the software requirements described in Chapter 2, “Requirements,” on page 19.

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 31 and “Maintenance - APARs and PTFs” on page 34.

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” and “Preparing to customize CAE components” on page 46.

Preparing to customize collector and ISPF components

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

About this task

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 31 and “Maintenance - APARs and PTFs” on page 34.
2. Gather information about the authorizations you will need to set. For more information, see “Reviewing and setting proper authorizations.”

Reviewing and setting proper authorizations

The proper authorizations are required to perform various tasks relating to DB2 Query Monitor installation, customization, and use.

Procedure

1. **Review the required authorizations.**

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

Table 6. Required authorizations

Description	Auth type
The installation of DB2 Query Monitor requires DBADMN authority or higher.	SYSADM

Table 6. Required authorizations (continued)

Description	Auth type
Running DB2 Query Monitor requires that the DB2 Query Monitor load library is APF-authorized.	APF
Running DB2 Query Monitor requires users to have EXECUTE authority for the DB2 Query Monitor plan requires.	DB2
Creation and use of monitoring profiles requires users to have UPDATE authority on the CQMPROF data set.	RACF
Creation and use of the DB2 control file (DB2PARMS).	RACF

2. Configure RACF Facility Class Profiles to restrict or grant authority to perform DB2 Query Monitor functions.

Secure DB2 Query Monitor's functions by configuring the RACF Facility Class Profiles as appropriate for your site. A function is not secured if the corresponding RACF Facility Class Profile does not exist. If the specific RACF Facility Class Profile does not exist, then the most granular generic RACF Facility Class Profile will be applied in its place.

For example, if CQM.ACCESS.qmid does not exist for a given DB2 Query Monitor subsystem, but a generic RACF Facility Class Profile name CQM.ACCESS.* exists, then the generic profile will be used. Only authorization IDs with READ access to the profile employed will be cleared by RACF.

Table 7. RACF profiles and authorities

Function	Description of authority	Profile
Access	Enables user to access to the DB2 Query Monitor subsystem.	CQM.ACCESS.qmid
Dynamic activate	Enables user to activate monitoring on DB2 subsystem.	CQM.ACTIVATE.qmid.ssid
Dynamic deactivate	Enables user to deactivate monitoring on DB2 subsystem.	CQM.DEACTIVATE.qmid.ssid
Monitoring profile refresh	Enables user to refresh a monitoring profile used by the DB2 subsystem.	CQM.REFRESH.PROFILE.ssid
Monitoring profile change	Enables user to change the monitoring profile used by the DB2 subsystem.	CQM.CHANGE.PROFILE.ssid

3. Configure RACF Facility Class Profiles and RACF Data Set Profiles to protect data throughout DB2 Query Monitor. Two RACF protection measures are used to secure data throughout DB2 Query Monitor:

- **Securing data in prior intervals and exceptions**—If you want to secure data in prior intervals and exceptions, you must configure a RACF Data Set Profile for the appropriate backstore data sets that hold the data you intend to protect (for example, a RACF Data Set Profile might be QMPROD.CQM1.EHSTV.**).

Table 8. RACF profiles and authorities

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: QMPROD.CQM1.EHSTV.**

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

Note: To protect host variables in exceptions, you'll need a RACF Data Set Profile configured (as described in Table 8).

Table 9. RACF profiles and authorities

Function	Description of authority	Profile
HOSTVAR viewing	Enables users to view host variable information in current activity and summaries.	CQM.HOSTV.qmid
SQLTEXT viewing	Enables users to view SQLTEXT information in current activity and summaries.	CQM.SQLTEXT.qmid

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

4. **To control access to the dynamic LPA facility, you must set up the following RACF FACILITY class profiles:**

- DB2 Query Monitor requires UPDATE access to the following RACF FACILITY class profile: CSVDYLPA.ADD.CQM*
- InfoSphere Guardium S-TAP for DB2 on z/OS requires UPDATE access to the following RACF FACILITY class profile: CSVDYLPA.ADD.ADH*

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

Preparing to customize CAE components

The following steps are required to prepare your CAE components for customization.

About this task

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 34.

2. For new and existing installations, review network and firewall requirements. For more information, see “Network and firewall requirements” on page 23.
3. If you are running on USS, review the capacity guidelines. For more information, see “Capacity requirements - USS” on page 29.
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 25.
5. Review integration point information and CAE component compatibility requirements. For more information, see “Integration points” on page 12 and “CAE component compatibility” on page 34.

Transferring the necessary set up executable files to a Windows PC

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

About this task

Procedure

1. Open a command prompt and change directories to the location to which you want to download the installers.
2. Establish an FTP connection using the `ftp` command and log in with your TSO username and password.
3. Specify a binary transfer using the `bi` command.
4. Transfer the necessary files from *highlevel.SQMTRAN* to a Windows PC using the binary FTP get command of the following format:

```
get 'membername' filename.exe
```

where:

membername

The *highlevel.SQMTRAN* member to be transferring. For example:

CQMCAEAL

Installs the CAE Server.

CQMCAEPT

Installs any applicable maintenance for the CAE Server.

CQMCAEWI

Installs the Watchdog on a Backup CAE Server.

filename

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

For example:

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

Transfer *highlevel.SQMTRAN* member **CQMCAEAL** using the following command:

```
get 'CQMCAEAL' cqmcaea1.exe
```

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

- “Installing a single CAE Server - Windows” on page 99
- “Installing the CAE Server on USS - Procedure” on page 101
- “Installing the Primary CAE Server and Watchdog - Windows” on page 105
- “Installing the Primary CAE Server and Watchdog - USS” on page 110

For installation of maintenance for the CAE Server:

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

```
get 'CQMCAEPT' qmqcaept.exe
```

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

- “CAE Server maintenance - Windows” on page 35
- “CAE Server maintenance - USS” on page 36

For installation of the watchdog on Backup CAE Servers:

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

```
get 'CQMCAEWI' qmqcaewi.exe
```

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

- “High-availability fault-tolerance” on page 11
- “Installing the Primary CAE Server and Watchdog - Windows” on page 105
- “Installing the Primary CAE Server and Watchdog - USS” on page 110

Reviewing and setting proper authorizations - CAE

To restrict the functions users can access in the CAE, a RACF FACILITY class profile must be added of the form CQM.CAE*.

About this task

The role a user receives is determined by their access to the CQM.CAE* facility classes, which include:

- CQM.CAE.ADMINISTRATOR
- CQM.CAE.OPERATOR

A user is assigned the first role for which they have update authority (roles are checked in the order they are listed above).

If the user has UPDATE access to CQM.CAE.ADMINISTRATOR or CQM.CAE.OPERATOR, they will receive the access privileges associated with the Administrator or Operator role respectively.

If the user has READ access to CQM.CAE.OPERATOR, then they will have privileges associated with the viewer role.

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.

Setting up an MVS user ID to run the CAE Agent

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

Procedure

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

Notes:

1. Only those CAE Browser Client users who have administrative privileges have access to the Configuration Browser.
2. 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).

Worksheets: Gathering required data set names

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

Data set names for Tools Customizer

Identify and record the following Tools Customizer data set names:

Table 10. Data set names for Tools Customizer

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.

Table 11. Data set names for DB2 Query Monitor

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		
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 12. 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 13. 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.DATASTOR. You can change the default value on the Tools Customizer Settings panel.</p>	You must have write access to this data set.	

Table 13. 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> <p><i>hlq</i>.\$<i>LPAR-name</i>\$.<i>xyzvrm</i></p> <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 and *highlevel*.SFECLOAD be APF authorized.

About this task

Procedure

To APF authorize the libraries:

1. Include the *highlevel*.SCQMLOAD and *highlevel*.SFECLOAD libraries as part of your system APF-authorized list. Contact your systems administrator if you encounter difficulties starting DB2 Query Monitor.
2. Add the program FEC\$TSOC to the AUTHPGM and AUTHTSF sections of member IKJTSO00 in SYS1.PARMLIB. For more information on IKJTSO00, refer to the *z/OS MVS Initialization and Tuning Reference* (SA22-7592).

- Changes you make to SYS1.PARMLIB require an IPL command for the PARMLIB updates to take effect. Perform an IPL for the PARMLIB updates to take effect.

Worksheets: Gathering parameter values for DB2 Query Monitor

During the customization process, you will need to provide parameter values for DB2 Query Monitor, for DB2, and for your LPAR.

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

Product to customize section

Description

The parameters that are listed in the Product to Customize section on the Product Parameters panel (CCQPPRD) are read-only. They contain information that was provided on other panels, by Tools Customizer, or by the DB2 Query Monitor metadata data set.

Table 14. Product to customize section

Parameter	Sample or default value	Your value
Product metadata library This value is the library that you specified on the Specify the Product to Customize panel. This field is scrollable. Place your cursor anywhere on the field and press PF11 to view its full contents.	No	This value is specified on the Specify the Product to Customize panel (CCQPHLQ).
LPAR The LPAR field displays the LPAR on which you are customizing DB2 Query Monitor.	No	This value is provided by Tools Customizer.
Product name This value displays the product that is being customized. In this example, IBM DB2 Query Monitor should be displayed in this field. This field is scrollable. Place your cursor anywhere on the field and press PF11 to view its full contents.	No	This value is provided by the product metadata file.
Version The Version field displays the version, release and maintenance of the product you are customizing in the format <i>Vn.Rn.nn</i> .	No	This value is provided by the product metadata file.

Table 14. Product to customize section (continued)

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).

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 CCQPDISC.

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

Table 15. 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.	
DB2 Query Monitor for z/OS parameters location The location of the DB2 Query Monitor parameters file.	CQM.SCQMLOAD	

Required 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 16. 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	Yes	None	
Started Task Proclib The started task proclib.	Yes	Yes	None	
FEC data set high-level qualifier The high-level qualifier for the FEC data sets.	Yes	Yes	None	
CQC data set high-level qualifier The high-level qualifier for the CQC data sets.	Yes	Yes	None	
DB2 control file The data set name of the DB2 control file.	Yes	Yes	None	
DB2 interval file The data set name of the interval file.	Yes	Yes	None	
DB2 profile file The data set name of the DB2 profile file.	Yes	Yes	None	
Parameter file name The name of your CQMPARMS file name.	Yes	Yes	None	
CAE Server address The CAE Agent System - CAE Server Access Listener Address.	No	Yes	3448	
DB2 Query Monitor Subsystem name The DB2 Query Monitor subsystem name.	Yes	Yes	None	
Startup CLIST library The library for the DB2 Query Monitor CLIST.	Yes	Yes	None	
Startup CLIST 1 The name of the first startup CLIST. This CLIST allocates the libraries used by DB2 Query Monitor.	Yes	Yes	CQM	

Task: Create customized DB2 Query Monitor for z/OS jobs

Description

This task creates customized DB2 Query Monitor jobs. During the customization process, you will enter these values on panel CCQPPRD.

This task is *required*.

Jobs generated

This task generates the following jobs: A0CNTFL, A1#CTLAA, A2INTER, A3PROFS, and A4BINDAA,

Table 17. Customized DB2 Query Monitor jobs

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	Yes	None	
Update the DB2 SSID entries in the DB2 Control File This subtask updates the DB2 control file.	Yes	Yes	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	Yes	None	
Allocate and initialize the profile file This subtask allocates and initializes the profile file using the specified storage class and volume name.	Yes	Yes	None	
Bind DB2 Query Monitor packages and plan This subtask binds the plan for the DB2 Query Monitor packages and plans.	Yes	Yes	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.

Table 18. DB2 Query Monitor jobs for offload

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	

Table 18. DB2 Query Monitor jobs for offload (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
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 Query Monitor 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..

Table 19. DB2 Query Monitor batch reports

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	

Table 19. DB2 Query Monitor batch reports (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
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.

Table 20. DB2 Query Monitor started task

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 shut down script for the master address space.	Yes	No	-	

Task: Customize the DB2 Query Monitor for z/OS CAE CAE Server or CAE Agent

Description

This task customizes the DB2 Query Monitor CAE Server or CAE Agent. During the customization process, you will enter these values on panel CCQPPRD.

This task is *Optional*.

Jobs generated

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

Table 21. Customize the CAE Server or CAE Agent

Step or parameter	Required?	Discovered?	Default value	Your value
<p>Create the CAE agent for DB2 Query Monitor for z/OS This subtask creates the CAE Agent. The following parameters are available for this subtask:</p> <p>CAE Server address The CAE Agent System - CAE Server Access Listener Address.</p> <p>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.</p> <p>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.</p>	No	No	-	

Table 21. Customize the CAE Server or CAE Agent (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
<p>Create the USS CAE server for DB2 Query Monitor for z/OS This subtask creates the CAE Agent. The following parameters are available for this subtask:</p> <p>USS VAR_HOME Path (Required) The USS VAR_HOME path.</p> <p>USS JAVA Path (Required) The USS Java path.</p> <p>USS LOG Path (Required) The USS log path.</p> <p>Listener Port (Optional) Specifies the port the CAE Agent will listen for incoming connections from the CAE Server.</p> <p>HTTPS Port Number (Optional) Specifies the HTTPS port on the CAE Server that the CAE Browser Client connects to (the default port is 443). Note: This parameter applies only for deployment of the CAE Server on USS.</p> <p>USS Binary File Path (Required) The USS binary file path.</p>	No	No	-	
<p>UNPAX configuration and data files This subtask unboxes the configuration and data files using the specified USS Binary File Path and USS VAR_HOME Path values.</p>	Yes	No	The default USS Binary File Path is /proj/cqmv3r2/bin. The default USS VAR_HOME Path is /proj/cqmdata.	
<p>UNPAX CAE PTF This subtask unboxes the CAE PTF using the specified USS Binary File Path and USS VAR_HOME Path values.</p>	Yes	No	The default USS Binary File Path is /proj/cqmv3r2/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 22. Create the parameter file

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	No	Defaults to the user ID under which the started task will run.	
CAE Server port The CAE Agent System - CAE Server Access Listener Port.	No	No	3448	
Master address space name The Support Services Address Space PROCNAME.	Yes	No	None.	
DB2 Query Monitor for z/OS Group Specifies the name (8-byte, character) of group to which this DB2 Query Monitor subsystem belongs.	No	No	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	No	10	
Collect DB2 Catalog Objects Indicates whether or not object statistics are collected for catalog objects.	No	No	Y	
Data set full Instructs DB2 Query Monitor what to do when a backstore data set cannot be extended.	No	No	IGNORE	
Interval The length of the recording interval in minutes.	No	No	720	
Interval Midnight Creates intervals for which the starting times are aligned to midnight.	No	No	N	
Maximum SQLCODE detail The limit on the number of times detailed information for each occurrence of an SQLCODE is collected.	No	No	0	

Table 22. Create the parameter file (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
Maximum SQLCODES The limit on the number of unique SQLCODES for which information is collected.	No	No	0	
Maximum memory allocations The maximum amount of global shared memory that will be allocated by DB2 Query Monitor for internal Integrated Storage Managerspaces.	No	No	2048	
Summarization OPTKEYS The level of granularity for summary buckets.	No	No	None	
Interval RETAIN count How many prior intervals are to be retained on DASD after interval processing is complete.	No	No	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		
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	No	5	
SMS Data Class The SMS data class for the allocation of the performance history files.	No	No	Null	
SMS Management Class The SMS management class for the allocation of the performance history files.	No	No	Null	
SMS Storage Class The SMS storage class for the allocation of the performance history files.	No	No	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	No	Null	
Volume Name The VOLUME parameter enables you to specify a volume for the backstore data sets.	No	No	Null	

Table 22. Create the parameter file (continued)

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

Table 22. Create the parameter file (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	No	None	
EXCPDATA SMS Management Class The SMS management class for the EXCPDATA performance history file.	No	No	None	
EXCPDATA SMS Storage Class The SMS storage class for the EXCPDATA performance history file.	No	No	None	
EXCPDATA Unit Name An esoteric name, generic device type or a device address for the EXCPDATA performance history file.	No	No	None	
EXCPDATA Volume Name The volume for the EXCPDATA performance history file.	No	No	None	
EXCPHSTV DSN mask The data set name for the EXCPHSTV performance history file.	Yes	No	None	
EXCPHSTV primary allocation The primary space quantity for the EXCPHSTV performance history file.	No	No	5	
EXCPHSTV secondary allocation The secondary space quantity for the EXCPHSTV performance history file.	No	No	2	
EXCPHSTV allocation space units The space units (CYLS or TRKS) for allocation of the EXCPHSTV performance history file.	No	No	CYLS	
EXCPHSTV SMS Data Class The SMS data class for the EXCPHSTV performance history file.	No	No	None	
EXCPHSTV SMS Management Class The SMS management class for the EXCPHSTV performance history file.	No	No	None	
EXCPHSTV SMS Storage Class The SMS storage class for the EXCPHSTV performance history file.	No	No	None	
EXCPHSTV Unit Name An esoteric name, generic device type or a device address for the EXCPHSTV performance history file.	No	No	None	

Table 22. Create the parameter file (continued)

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

Table 22. Create the parameter file (continued)

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

Table 22. Create the parameter file (continued)

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

Table 22. Create the parameter file (continued)

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

Table 22. Create the parameter file (continued)

Step or parameter	Required?	Discovered?	Default value	Your value
TEXTDATA SMS Management Class The SMS management class for the TEXTDATA performance history file.	No	No	None	
TEXTDATA SMS Storage Class The SMS storage class for the TEXTDATA performance history file.	No	No	None	
TEXTDATA Unit Name An esoteric name, generic device type or a device address for the TEXTDATA performance history file.	No	No	None	
TEXTDATA Volume Name The volume for the TEXTDATA performance history file.	No	No	None	
Max Host Variables per Alert The size of the storage allocation for the ALERT HOST VARIABLE SPACE inside the DB2 Query Monitor subsystem.	No	No	16	
Max Objects per Alert The size of the storage allocation for the ALERT EXCP OBJECTS SPACE inside the DB2 Query Monitor subsystem.	No	No	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	No	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	No	N	
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	No	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	No	256	

Table 22. Create the parameter file (continued)

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

Task: Configure the Product Startup 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 23. Configure the startup CLISTS

Step or parameter	Required?	Discovered?	Default value	Your value
Configure Startup CLISTS This subtask configures the startup CLISTS.	Yes	-	Selected	
SQL Performance Analyzer CLIST library The SQL Performance Analyzer CLIST library.	No			
Startup CLIST 2 The startup CLIST 2.	Yes			

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 24. 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 highlevel qualifier.	Yes	No		
DB2 Admin Tool Library The DB2 Admin Tool library.	Yes	No		

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 25. DB2 Parameters section

Parameter	Required?	Discovered?	Default value	Your value
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.	Yes	Yes	None	
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.	Yes	Yes	None	

Table 25. DB2 Parameters section (continued)

Parameter	Required?	Discovered?	Default value	Your value
<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 except DB2 10.</p> <p>CM8 Conversion mode from DB2 V8 on DB2 V10.</p> <p>CM9 Conversion mode from DB2 V9.1 on DB2 V10.</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 810, 910, 101, and 111. Note: For DB2 V11 CM or ENFM, you can use a mode of "NFM" and a Level Number of 101.</p>	Yes	Yes	None	
<p>DB2 Libraries</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>Bootstrap data set The data set name of the DB2 bootstrap data set.</p>	Yes	Yes	None	
<p>DB2 Utilities</p> <p>Plan name for the DSNTEP2 utility The plan name for the DSNTEP2 utility.</p>	Yes	Yes	None	

Table 25. DB2 Parameters section (continued)

Parameter	Required?	Discovered?	Default value	Your value
DB2 Query Monitor for z/OS Collector Parameters Monitoring profile The monitoring profile.	Yes	Yes	None	
DB2 Query Monitor for z/OS Configuration Parameters BIND Owner ID The BIND owner ID. DB2 Query Monitor for z/OS PLAN name The plan name. DB2 ZPARMS member name The DB2 ZPARMS member name.	Yes	Yes	None	
DB2 Control File Parameters Update DB2 control file? Indicates whether or not to update the DB2 control file.	Yes	Yes	None	
DB2 Subsystem Parameters DSNTEP2 plan name The DSNTEP2 plan name.	Yes	Yes	None	
DB2 Query Monitor for z/OS Database Objects Create the DB2 Query Monitor Database? Indicates whether or not to create the DB2 Query Monitor database. SET CURRENT SQLID The current SQLID. DB2 Query Monitor database name The database name. Query Monitor table space bufferpool The table space bufferpool. STOGROUP The storage group.	Yes	Yes	None	

Chapter 5. Starting and preparing Tools Customizer for use

Use the provided REXX EXEC to start Tools Customizer. The first time that you use Tools Customizer, you must modify the settings that Tools Customizer uses to customize DB2 Query Monitor.

Starting Tools Customizer

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

Before you begin

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

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'

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 - Save user settings

Product Customization Settings
Customization library qualifier . .DB2TOOL.PRODUCT.CUST
Use DB2 group attach . . . . .YES (YES/NO)

Tools Customizer Library Settings
Metadata library . . . .DB2TOOL.CCQ110.SCCQDENU
Discover output data set .DB2TOOL.CCQ110.DISCOVER
Data store data set . . .DB2TOOL.CCQ110.DATASTOR

User Job Card Settings for Customization Jobs
==>> //          JOB
==>>
==>>
==>>
==>>
```

Figure 2. The Tools Customizer Settings panel (CCQPSET)

2. Review the values for the following required fields. Use the default value or specify your own value. You must have appropriate READ and WRITE access to the data sets that are specified.

Customization library qualifier

The high-level qualifier that is used as the prefix for the customization library. The customization library is a data set in which the generated jobs to customize DB2 Query Monitor are stored. WRITE access to this qualifier is required.

For each product to be customized, the first value that is specified for the qualifier is always used, even if you change it after you have generated the customization jobs. For example, if you customize a

product and then specify a new qualifier for recustomization, although the new qualifier is saved and displayed, the original value is used.

To maintain multiple instances of Tools Customizer, specify a unique customization library qualifier for each instance of Tools Customizer. Data set names that exceed 42 characters must be enclosed in single quotation marks (').

Use DB2 group attach

DB2 Query Monitor does not support DB2 group attach names. You must specify NO in the **Use DB2 group attach** field.

Tools Customizer metadata library

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

Discover output data set

The name of the data set in which the output from the DB2 Query Monitor Discover EXEC is stored. Each product has its own Discover EXEC. The Discover EXEC retrieves the product and DB2 parameters from a previously customized product. WRITE access to this data set is required. Data set names that exceed 42 characters must be enclosed in single quotation marks (').

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 (').

User job card settings for customization jobs

The job card information to be inserted into the generated jobs for customizing a product. The default value is the job statement information from the ISPF Batch Selection panel.

The first line of the job card automatically begins with the following information:

```
//          JOB
```

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

3. Press End to save and exit. If the Discover output data set and the data store data set that you specified do not exist, Tools Customizer creates them.

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

Results

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

What to do next

You are ready to customize or recustomize DB2 Query Monitor or to change parameter settings.

Chapter 6. Customizing DB2 Query Monitor

Using Tools Customizer to customize DB2 Query Monitor consists of identifying the product to customize; defining any required DB2 Query Monitor and DB2 parameters; generating the customization jobs; and submitting the jobs.

Customization roadmaps describe the steps that you must complete to customize DB2 Query Monitor. Separate roadmaps are provided for the three most common types of customizations.

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

Table 26. 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"
You have already customized a version of DB2 Query Monitor, and you want to use the same parameter values to customize a different version.	"Roadmap: Customizing a new version of DB2 Query Monitor from a previous customization" on page 80
You have a customized version of of DB2 Query Monitor, but you want to change one or more parameter values.	"Roadmap: Recustomizing DB2 Query Monitor" on page 81

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.

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 27. Steps for customizing DB2 Query Monitor for the first time

Step	Description	Instructions
1	Specify the metadata library for the product that you want to customize.	"Specifying the metadata library for the product to customize" on page 82
2	Create new DB2 entries and associate them with DB2 Query Monitor.	"Creating and associating DB2 entries" on page 85
3	Define the required parameters.	"Defining parameters" on page 87

Table 27. Steps for customizing DB2 Query Monitor for the first time (continued)

Step	Description	Instructions
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 91
5	Submit the generated customization jobs.	"Submitting customization jobs" on page 92

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

Table 28. Administrative tasks

Description	Instructions
Browse the different types of parameters.	"Browsing parameters" on page 94
Copy an existing DB2 entry to the list of DB2 entries on which DB2 Query Monitor can be customized.	"Copying DB2 entries" on page 94
Remove one or more DB2 entries from the associated list.	"Removing DB2 entries" on page 95
Delete one or more DB2 entries from the master list.	"Deleting DB2 entries" on page 96
Display a list of customization jobs that have been previously generated.	"Displaying customization jobs" on page 96
Maintain the customization jobs in the customization library.	"Maintaining customization jobs" on page 97

Roadmap: Customizing a new version of DB2 Query Monitor from a previous customization

This roadmap lists and describes the steps for customizing a new version of DB2 Query Monitor based on the existing customization values of a previous version of the same product.

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 29. Steps for customizing a new version of DB2 Query Monitor from a previous customization

Step	Description	Instructions
1	Specify the metadata library for the product that you want to customize.	"Specifying the metadata library for the product to customize" on page 82

Table 29. Steps for customizing a new version of DB2 Query Monitor from a previous customization (continued)

Step	Description	Instructions
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 84
3	Define the required parameters.	"Defining parameters" on page 87
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 91
5	Submit the generated customization jobs.	"Submitting customization jobs" on page 92

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

Table 30. Administrative tasks

Description	Instructions
Browse the different types of parameters.	"Browsing parameters" on page 94
Copy an existing DB2 entry to the list of DB2 entries on which DB2 Query Monitor can be customized.	"Copying DB2 entries" on page 94
Remove one or more DB2 entries from the associated list.	"Removing DB2 entries" on page 95
Delete one or more DB2 entries from the master list.	"Deleting DB2 entries" on page 96
Display a list of customization jobs that have been previously generated.	"Displaying customization jobs" on page 96
Maintain the customization jobs in the customization library.	"Maintaining customization jobs" on page 97

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 31. Required steps for recustomizing DB2 Query Monitor

Step	Description	Instructions
1	Specify the metadata library for the product that you want to recustomize.	"Specifying the metadata library for the product to customize"
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 88 • "Defining DB2 parameters" on page 89
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 91
4	Submit the new generated customization jobs.	"Submitting customization jobs" on page 92

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

Table 32. Administrative tasks

Description	Instructions
Browse the different types of parameters.	"Browsing parameters" on page 94
Copy an existing DB2 entry to the list of DB2 entries on which DB2 Query Monitor can be customized.	"Copying DB2 entries" on page 94
Remove one or more DB2 entries from the associated list.	"Removing DB2 entries" on page 95
Delete one or more DB2 entries from the master list.	"Deleting DB2 entries" on page 96
Display a list of customization jobs that have been previously generated.	"Displaying customization jobs" on page 96
Maintain the customization jobs in the customization library.	"Maintaining customization jobs" on page 97

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

After DB2 Query Monitor has been SMP/E installed, the default name of the product metadata library is *high_level_qualifier*.SCQMDENU, where *high_level_qualifier* is all of the segments of the data set name except the lowest-level qualifier.

Procedure

1. Specify option 1 on the Tools Customizer for z/OS panel. The Specify the Metadata Library panel is displayed. This panel contains a list of the 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          15:12:22
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 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.PRD0320.SCQMDENU

Name              Version  Metadata Library
=>
=>
=>
```

Figure 3. 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 **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 on the library name in the Recent Metadata Libraries list, and press Enter.

Results

If you are customizing DB2 Query Monitor for the first time, the Run Discover EXEC panel is displayed. Otherwise, the Customizer Workplace panel is displayed.

What to do next

- Complete the steps that correspond to your environment:

Customizing DB2 Query Monitor for the first time

Do not run the DB2 Query Monitor Discover EXEC. Press End. The Customizer Workplace panel is displayed. If your environment requires associated DB2 entries, ensure that they are created and associated. If your environment does not require associated DB2 entries, skip this step, and edit DB2 Query Monitor parameters.

Customizing DB2 Query Monitor from a previous or current customization

Press Enter to run the DB2 Query Monitor Discover EXEC. The Discover Customized Product Information panel is displayed. Specify the required information for running the EXEC.

Discovering DB2 Query Monitor information automatically

You can use the DB2 Query Monitor Discover EXEC to discover information from a previous or current customization of DB2 Query Monitor.

About this task

Tip: Using the DB2 Query Monitor Discover EXEC to discover information from a previous or current customization saves time and reduces errors that can occur when parameters are specified manually.

DB2 Query Monitor provides the Discover EXEC that you will run. Therefore, the information that can be discovered depends on DB2 Query Monitor.

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

Procedure

1. On the Customizer Workplace panel, issue the DISCOVER command. If you chose to run the DB2 Query Monitor Discover EXEC on the pop-up panel after you specified the product to customize, skip this step.

Tip: You can run any Tools Customizer primary command by using either of the following methods:

- Place the cursor on the name of the primary command, and press Enter.
- Type the primary command name in the command line, and press Enter.

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

```
CCQPDCS          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, and press Enter to run the Discover EXEC. Press End to cancel.

Product to Customize
Product metadata library : CQM.PRD0320.SCQMDENU          > LPAR. . . : RS25
Product name . . . . . : IBM DB2 Query Monitor > Version . : 3.2.0
Configuration ID: CQM Description: IBM DB2 Query Monitor >

More: +
Discover EXEC for Extracting Information from an Already Customized Product
Discover EXEC library . . . CQM.PRD0320.SCQMDENU
Discover EXEC name . . . . . CQMDISC
Discover output data set . . CQM.TCZ.DISCOVER

Information for Discover EXEC
Current CQM LOAD library . . . . . CQM.SCQMLoad          >
Current CQM ISPM library . . . . . CQM.SCQMISPM         >
Discover from this CQM control file . . . CQM.CONTROL    >
Discover from this CQM CLIST library . . . CQM.SCQMCLST  >
Discover from this BIND JCL library and member
CQM.SCQMSAMP(CQMBIND)          >
```

Figure 4. The Discover Customized Product Information panel

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

Discover EXEC library

The fully qualified data set name that contains the DB2 Query Monitor Discover EXEC.

Discover EXEC name

The name of the DB2 Query Monitor Discover EXEC.

Discover output data set

The fully qualified data set where output from the DB2 Query Monitor Discover EXEC is stored.

3. Either accept or change the default values in the **Information for Discover EXEC** fields. These fields are generated by DB2 Query Monitor. They show the information that is required to run the DB2 Query Monitor Discover EXEC.
4. Issue the RUN command to run the DB2 Query Monitor Discover EXEC. Alternatively, save your information without running the DB2 Query Monitor Discover EXEC by issuing the SAVE command. If you issue the RUN command to run the DB2 Query Monitor Discover EXEC, the parameter information is discovered for DB2 Query Monitor, and the Customizer Workplace panel is displayed.

Results

The discovered parameter values for DB2 Query Monitor replace any existing values.

What to do next

The next step depends on your environment:

- If DB2 entries were not discovered, or if you need to customize DB2 Query Monitor on new DB2 entries, create and associate the entries.
- If DB2 entries were discovered and you want to customize DB2 Query Monitor on only these entries, define the parameters.

Related tasks:

“Creating and associating DB2 entries”

You can create new DB2 entries and associate them with DB2 Query Monitor.

“Defining parameters” on page 87

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:

```

CCQPDDAD          Associate DB2 Entry for Product          10:07:28
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 a new DB2 entry

Product to Customize
Product metadata library : CQM.PRD0320.SCQMDENU > LPAR . . : RS25
Product name . . . . . : IBM DB2 Query Monitor
Product version . . . . : 3.2.0

Line commands: A - Associate C - Copy

Cmd SSID GrpAttch
----- End of DB2 entries -----

```

Figure 5. The Associate DB2 Entry for Product panel

2. Create DB2 entries. If you need to associate DB2 entries that are already in the master list, skip this step and go to step 3.
 - a. Issue the CREATE command. The Create DB2 Entries panel is displayed, as shown in the following figure:

```

CCQPDCR          Create a DB2 Entry
Command ==>>>

Specify a DB2 subsystem ID, a DB2 group attach name, or both for the
new DB2 entry. Press Enter to continue or End to cancel.

New DB2 Entry Information
DB2 subsystem ID . . . . .
DB2 group attach name . .

```

Figure 6. The Create a DB2 Entry panel

- b. In the appropriate columns, specify a DB2 subsystem ID 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 master list, as shown in the following figure:

```

CCQPDAD          Associate DB2 Entry for Product          Row 1 to 1 of 1
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 a new DB2 entry

Product to Customize
Product metadata library : CQM.PRD0320.SCQMDENU > LPAR . . . : RS25
Product name . . . . . : DB2 Query Monitor
Product version . . . . . : 3.2.0

Line commands: A - Associate C - Copy

Cmd SSID GrpAtch
  DB02  --
----- End of DB2 entries -----

```

Figure 7. The Associate DB2 Entry for Product panel with a new DB2 entry in the master list

- 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 master 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 723
 Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

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

DB2 Query Monitor parameters are specific to DB2 Query Monitor.

About this task

If you ran the DB2 Query Monitor Discover EXEC, you must review the parameters that were discovered.

Procedure

1. Specify E next to the **Product parameters** field on the Customizer Workplace panel, and press Enter. The Product Parameters panel is displayed, as shown in the following figure. If other steps must be completed in a specific sequence before you define the DB2 Query Monitor parameters, a note labeled **Important** will display the correct sequence on this panel.

```
CCQPPRD                               Product Parameters                               13:51:14
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

Product to Customize
  Product metadata library . : TSUSER.CQM.TCZ.SCQMDEN > LPAR . . : RS25
  Product name . . . . . : DB2 Query Monitor for > Version . : 3.2.0

Product customization library . : TSUSER.CQM.TCZ.CUST.$RS25$.CQM320
More: +

IMPORTANT:
Before you configure DB2 Query Monitor for z/OS, you must APF-authorize
all of the load libraries.
A DB2 subsystem ID must be specified. DB2 Query Monitor for z/OS cannot
monitor an implicitly defined subsystem specified using a group attach
name.
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.

Required parameters
DB2 Query Monitor for z/OS data set high-level qualifier
CQM.HLQ >
Started Task Proclib . . . . . TASK.PROCLIB >
FEC data set high-level qualifier . . . . . FEC.HLQ >
CQC data set high-level qualifier . . . . . CQC.HLQ >
DB2 control file . . . . . CONTROL.FILE >
DB2 interval file . . . . . INTV.FILE >
DB2 profile file . . . . . PROFILE.DATASET >
Parameter file name . . . . . CQMPARM >
CAE Server Port . . . . . 3448
DB2 Query Monitor for z/OS Subsystem name
DBQM
Startup CLIST library . . . . . CQM.CLISTLIB >
Startup CLIST 1 . . . . . CQM
```

Figure 8. The Product Parameters panel

2. Select any required tasks and steps, and specify values for any parameters. After you select a task or step with a slash (/), put the cursor in the selected field and press Enter. If tasks, steps, and parameters are required, they are preselected with a slash (/). Otherwise, they are not preselected.

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

Tips:

- In the command line, specify the KEYS command, and map EXPAND to one of the function keys.
 - For a detailed description of all input fields, put the cursor in the field, and press F1 or the key that is mapped to Help.
 - The following elements apply to specific fields:
 - **Add...** is displayed when parameters can have multiple values but currently have only one value. To specify multiple values in these fields, place the cursor on **Add...**, and press Enter. Use the displayed panel to add or delete additional values.
 - **List...** is displayed when the complete list of valid values for the fields is too long to be displayed on the panel. To see the complete list of values, place the cursor on **List...**, and press F1 or the key that is mapped to Help.
 - **More...** is displayed when input fields contains multiple values. To see all of the values in the field, place the cursor on **More...**, and press Enter.
3. Optional: Select other tasks and steps with a slash (/) and press Enter to activate the input fields. Either accept or change the default values that are displayed.
 4. Press End to save your changes and exit, or issue the SAVE command to save your changes and stay on the Product Parameters panel.

Results

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

What to do next

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

Related tasks:

“Defining DB2 parameters”

DB2 parameters are parameters for a DB2 entry.

Defining DB2 parameters

DB2 parameters are parameters for a DB2 entry.

About this task

If you did not run the DB2 Query Monitor Discover EXEC, you must create and associate one or more DB2 entries before you can define the DB2 parameters. For more information, see “Creating and associating DB2 entries” on page 85.

Procedure

1. Specify E next to one or more DB2 entries in the associated list, which is in the Associated DB2 Entries and Parameter Status section on the Customizer Workplace panel, and press Enter. The DB2 Parameters panel is displayed, as shown in the following figure:

```

CCQPDDB2                DB2 Parameters                HH:MM:SS
Command ==>>>                Scroll ==>> CSR

Enter values for all of the DB2 parameters. Press End to save and exit.

Commands: SAVE - Save parameter values

Product to Customize
Product metadata library : CQM.PR0320.SCQMDENU      > LPAR. . . : RS25
Product name . . . . . : IBM DB2 Query Monitor > Version . : 3.2.0
Configuration ID: CQM      Description: IBM DB2 Query Monitor >

More:      +

DB2 subsystem ID . . . . . : Q91A
Group attach name . . . . . :

General DB2 Information
Mode . . . . . NFM (CM,CM8,CM9,NFM)
Level Number . . . . . (810,910,101)

DB2 Libraries
Load Library . . . . . DSN.SDSNLOAD      > Add...
Run Library . . . . . DSN.RUNLIB.LOAD    > Add...
Exit Library . . . . . DSN.SDSNEXIT     > Add...
Bootstrap data set . . . . . DSN.SDSNBSDS > Add...

DB2 Bufferpools
Name of the 4 KB bufferpool . . . . . BP0

DB2 Utilities
Plan name for the DSNTIAD utility . . . . DSNTIAD

CQM DB2 Parameters
Model DSN for GDG base . . . . . >
DB2 ZPARMs member . . . . . DSNZPARM
Plan for DB2 Query Monitor . . . . . CQMP3201
Use DB2 SORT when possible . . . . . N (Y,N)
Database for CQM objects . . . . . DLCDB
CQM storage group . . . . . SYSTOOLS
Drop repository database first . . . . . D (Y,N,D)

CQM Shared Profile Packages
Catalog package list . . . . . CQMV320C
Shadow catalog package list . . . . . CQMV320S
Repository package list . . . . . CQMV320

```

Figure 9. The DB2 Parameters panel

2. Specify values for all parameters that are displayed.

Tips:

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

- Many parameters have default values, which you can either accept or change.
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 panel is Ready to Customize.

What to do next

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

Related tasks:

“Defining DB2 Query Monitor parameters” on page 88

DB2 Query Monitor parameters are specific to DB2 Query Monitor.

Generating customization jobs

To generate customization jobs for DB2 Query Monitor and any associated DB2 entries, issue the GENERATEALL command, or select one or more DB2 entries on which to customize DB2 Query Monitor.

Procedure

Generate the customization jobs by using one of the following methods.

- If you want to generate customization jobs at the product level and for any associated DB2 entries, issue the GENERATEALL command, and press Enter.
- If you want to generate customization jobs for specific DB2 entries, select the DB2 entries by specifying the G line command against them, and press Enter. The available DB2 entries are in the associated list in the Associated DB2 Entries and Parameter Status section.

Important: Regenerating customization jobs will replace any existing jobs, including jobs that you might have manually modified after they were generated.

Results

If the status is Incomplete or Discovered for DB2 Query Monitor parameters or DB2 parameters, Tools Customizer automatically starts an editing session for the types of parameters that are required. The session continues until the panel for each type of required parameter has been displayed.

What to do next

If an automatic editing session is started, accept the displayed parameter values or define values for the required types of parameters, select optional parameters, tasks, or steps for your environment, and save the parameter values. Otherwise, the customization jobs are generated, and you can submit them.

Tip: If the customization jobs are generated, but you are not ready to submit them, you can see them later by issuing the JOBLIST command on the Customizer Workplace panel. The JOBLIST command displays the Finish Product Customization panel, which you can use to submit the jobs.

Submitting customization jobs

Submit the customization jobs to customize DB2 Query Monitor.

Before you begin

Ensure that the correct jobs are generated.

About this task

The following figure shows part of the Finish Product Customization panel. The table on this panel shows the customization jobs that are generated by Tools Customizer. They are grouped by job sequence number.

```
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.PRD0320.SCQMDENU                > LPAR . . : RS22
Product name . . . . . : IBM DB2 Query Monitor > Version . : 3.2.0
Configuration ID: CQM > Description: IBM DB2 Query Monitor >

Line Commands: E - Edit  B - Browse

Product customization library . : PDUSER.TCZ.$RS22$.CQM320                >

Cmd Member  SSID GrpAttch Template Date      Description
-----
A0V3AA    --  --          CQMV32  2011/10/25  Configure Startup CLIST 1
A1V3AA    --  --          CQM32C  2011/10/25  Configure Startup CLIST 2
A2#DAAAA  DB01  --          CQM#DDL  2011/10/25  Create DB2 Objects
A9#BAAAA  DB01  --          CQM#BD1N 2011/10/25  V8 NFM V9 CM Binds
B3GRAAAA  DB01  --          CQMGRAN1 2011/10/25  Grant Execute Authority
B4CNAA    --  --          CQMCNTFL 2011/10/25  Create Control File
B5CFAAAA  DB01  --          CQMCF2UP 2011/10/25  Update CQM Control File
-----
End of customized jobs -----
```

Figure 10. The Finish Product Customization panel

The member-naming conventions depend on whether the customization jobs are for DB2 entries, and LPAR, or the product.

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 XYZBNDDDB2_entry_ID_1 and XYZBNDDDB2_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 against a customization job or the product customization library, and press Enter. An ISPF browsing 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 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 723

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

Removing DB2 entries

You can remove DB2 entries from the associated list.

About this task

When you remove DB2 entries from the associated list, any customization jobs for the entries are removed from the list of jobs on the Finish Product Customization panel, and they are deleted.

Procedure

On the Customizer Workplace panel, specify R next to one or more DB2 entries that you want to remove, and press Enter. The selected DB2 entries are removed from the associated list and added to the master list on the Associate DB2 Entry for Product panel, and the customization jobs are deleted.

Related concepts:

“Tools Customizer terminology” on page 723

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

Deleting DB2 entries

You can delete DB2 entries from the master list.

About this task

When you delete DB2 entries from the master list, any associations and all customization jobs for products that are customized on the entries will be deleted.

Procedure

1. On the Customizer Workplace panel, issue the ASSOCIATE command. The Associate DB2 Entry for Product panel is displayed.
2. Specify D next to one or more DB2 entries that you want to delete, and press Enter. If the entry is associated with any products, the Delete Associated DB2 Entry panel for the first DB2 entry that you selected is displayed. Otherwise, the Delete DB2 Entry panel is displayed.
3. To delete the DB2 entries, press Enter. If the DB2 entries are associated with any products in the table on the Delete Associated DB2 Entry panel, any associations and all customization jobs for the products that are customized on it are deleted. Otherwise, only the DB2 entries are deleted. If you selected multiple DB2 entries to delete, the next DB2 entry that you selected is displayed on either the Delete Associated DB2 Entry panel or the Delete DB2 Entry panel. Otherwise, the Associate DB2 Entry for Product panel is displayed.

What to do next

If you selected multiple DB2 entries to delete, repeat step 3 until all selected entries are deleted. Then, continue the customization process.

Displaying customization jobs

You can view a list of the members that contain the customization jobs before or after you submit the jobs.

About this task

The customization jobs that you generate for one DB2 entry are also displayed when you customize DB2 Query Monitor for another DB2 entry later.

Procedure

On the Customizer Workplace panel, issue the JOBLIST command. The Finish Product Customization panel is displayed. This panel shows the list of jobs that you have previously generated. They are grouped by job sequence number. Use this panel to browse or edit the generated jobs before you submit them.

Maintaining customization jobs

Instead of deleting customization jobs outside of Tools Customizer, you can maintain the correct jobs for DB2 Query Monitor by completing the steps for recustomization.

About this task

You cannot delete or rename customization jobs from the customization library by starting an ISPF browse or edit session from the Finish Product Customization panel. If you try to delete customization jobs by using this method, the CCQC034S message is issued. If you try to rename customization jobs, the CCQC035S message is issued.

If you delete or rename customization jobs from the customization library by using ISPF outside of Tools Customizer, Tools Customizer will not recognize that the jobs were deleted, and the Finish Product Customization panel will still display them. If you browse or edit jobs that were deleted from the library outside of Tools Customizer, the CCQC027S message is issued.

Procedure

To maintain the correct customization jobs in the customization library, complete the steps for recustomization.

Using Tools Customizer in a multiple-LPAR environment

Currently, Tools Customizer supports only the local LPAR; however, you can propagate customizations to additional LPARs by using either of two different methods.

About this task

In a multiple-LPAR environment, Tools Customizer identifies the LPAR to which you are logged on. Tools Customizer uses this LPAR name for several different parameter settings, one of which is the data store. When you use the data store during the customization of DB2 Query Monitor that is on a different LPAR, Tools Customizer issues message CCQD586S, which indicates that the product has already been customized based on values from the data store on the first LPAR. This message is issued to prevent the data store from becoming corrupted.

This behavior occurs in the following conditions:

- Tools Customizer is installed on a DASD device that is shared by multiple LPARs.
- After a product is customized by using Tools Customizer, the data store is copied to another LPAR.

Procedure

To customize products running against a DB2 subsystem on an LPAR where Tools Customizer is not installed, consider using one of the following methods:

Install one instance of Tools Customizer on one LPAR

If you intend to reuse the customization values for all the instances of your products on all LPARs, use this method.

1. Associate all the DB2 entries in this one instance of Tools Customizer. The LPARs on which the DB2 subsystems reside do not matter.
2. Generate the customization jobs for each DB2 entry.
3. 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.

Chapter 7. Installing DB2 Query Monitor's CAE components

These topics describe how to customize DB2 Query Monitor's CAE components.

Note: If you are migrating from a previous version of DB2 Query Monitor, refer to “Upgrading” on page 36 for additional information.

Topics:

- “Installing the CAE Server”
- “Accessing the CAE Browser Client” on page 113

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.”
- 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 105.
- To install a single CAE Server on USS, see “Installing the CAE Server on USS - Procedure” on page 101.
- 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 110.

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

The steps described in this topic are required for the standard installation of the CAE Server on Windows.

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 47.
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 **cqmcael.exe**.
4. Click **Next**.
5. Specify the location to which you would like to install DB2 Query Monitor and click **Next**.
6. Specify where you would like to create product icons and click **Next**.

Valid options include:

In a new program group

Creates a new program group (accessible via the **Start > Programs** menu) to hold your product icons. Specify the new program group label in the box.

In an existing program group

Places product icons into an existing program group (accessible from the **Start > Programs** menu). Select the program group from your existing program groups.

In the Start menu

Places product icons in the **Start** menu.

On the desktop

Places product icons on the desktop.

In the Quick Launch bar

Places product icons in the Quick Launch bar.

Other Places product icons in a location of your choosing.

Don't create icons

No product icons are created.

Create icons for all users

Icons are created for all users in the chosen location.

7. Choose whether to import a secure socket certificate file, allow DB2 Query Monitor to create a host-based certificate or use a default localhost certificate.

The following options are available:

Import certificate

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

Create certificate

This option enables you to specify the hostname (DB2 Query Monitor attempts to present a good default). If the browser user specifies that host the only warning should be about the self-signing.

Use default localhost certificate

This option causes the browser to warn users about the hostname mismatch with the certificate. The browser will also warn users that it is being self-signed.

Note:

- Contact your network and or security administrators if you need assistance obtaining certificates for the CAE Server.

8. Click **Next**.

If you specified **Import Certificate**, you will be prompted to enter the certificate file location.

If you specified **Create Certificate**, you will be prompted to enter the host name for the certificate.

If you specified **Use Default Localhost**, you will receive a warning message about the self-signed certificate request.

To clear the message click **OK**.

9. If you have a prior installation of DB2 Query Monitor from which you wish to import data, click **Yes** and specify the location of the prior installation. Click **Next**.

10. A pre-installation summary displays a list of the location, features, and size of the intended installation.

Verify that all items are correct and, if so, click **Install**. If corrections are required, click **Previous** to re-specify installation parameters.

11. When the installation has completed, an Install Complete panel displays a summary of the installation. Click **Done** to quit the installer.

Related concepts:

“Certificates requirements - USS and Windows” on page 26

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.

“Creating and importing a hostname-based, self-signed certificate - Windows” on page 110

This topic describes how to create and import a hostname-based, self-signed certificate for a CAE Server on Windows.

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.

About this task

Important:

1. Read the topic, “About FS locations for the CAE Server on USS” on page 440 before you begin the installation of the CAE Server to ensure that you fully understand the required configuration.

2. 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.
3. The CAE Server is typically deployed on Windows in order to reduce resource consumption on the mainframe.
4. 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 53.

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 install the CAE Server on USS manually:

1. After you complete the SMP/E installation, if you want to run the CAE Server on USS, you must customize and run SCQMSAMP library member CQMCUNPX to UNPAX the USS installation.

There are two environment variables that must be customized: CQM_VAR_HOME and CQM_CAE_CFG_PAX.

CQM_VAR_HOME

The value for CQM_VAR_HOME environment variable must match that 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. 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.CQM0320.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.CQM0320.SCQMTRAN(CQMCPXPT)

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 pool 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/J1.6
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/J1.6
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.

Verifying the SMP/E installation of the CAE Server on USS

DB2 Query Monitor's SMP/E installation process, by default, installs the CAE Server components to USS in the /usr/lpp/cqmv3r2/ directory in USS. Prior to further customization and use, you must verify that the runjava executable and all the shared objects (ending in .so) in the /bin directory are APF-authorized.

Procedure

1. Identify the location of the DB2 Query Monitor /bin directory in ZFS/HFS. The default installation location of this directory is: /usr/lpp/cqmv3r2/bin.
2. Verify that the runjava and *.so files within the /bin folder are APF-authorized. If the files are not APF-authorized, run the following from within the /bin folder:

```
extattr +a runjava *.so
```
3. **If you ran the CAE Server under USS in DB2 Query Monitor V3.1** - If you ran the CAE Server under USS previously, you can customize and use the CQMCMGRT member of SCQMSAMP to import all your configurations from V3.1 to V3.2.

Note: DB2 Query Monitor does not support a direct upgrade of the CAE Server under USS from V2.3 to V3.2.

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.

About this task

If you cannot connect to your CAE Browser Client to the CAE Server immediately following initial CAE Server start-up, wait several minutes and retry.

High-availability fault-tolerance

DB2 Query Monitor's high-availability fault-tolerance (HAFT) capability enables you to assign a CAE Server as a backup for a Primary CAE Server. The Backup CAE Server ensures that the monitoring of queries continues if the Primary CAE Server fails. If the Primary CAE Server fails, the Backup CAE Server starts automatically and provides all the functionality that was provided by the Primary CAE Server, including the monitoring of SQL statements.

To accomplish this, the Primary CAE Server continuously stores event and alert information in a shared file system that is accessible to the Backup CAE Server. This enables the Backup CAE Server to access the DB2 Query Monitor data if a 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.

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

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

Note:

- The Primary CAE Server and the Backup CAE Server must be installed on a separate PCs.
- 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 deployment on USS involves fewer steps than HAFT deployment on Windows.
- 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). For example, you cannot set up a Primary CAE Server on USS and a Backup CAE Server on Windows (or vice versa).
- 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.

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

The following steps provide details about the installation of the Primary CAE Server.

Before you begin

Note: For failover to work when the PC of the Primary CAE Server is unavailable, the installation folder must be on a storage device that is independent of the CAE Server's PC. 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 47.
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 **cqmcael.exe**.
4. Click **Next**.
5. Specify the location to which you would like to install DB2 Query Monitor and click **Next**.
6. Specify where you would like to create product icons and click **Next**.

Valid options include:

In a new program group

Creates a new program group (accessible via the **Start > Programs** menu) to hold your product icons. Specify the new program group label in the box.

In an existing program group

Places product icons into an existing program group (accessible from the **Start > Programs** menu). Select the program group from your existing program groups.

In the Start menu

Places product icons in the **Start** menu.

On the desktop

Places product icons on the desktop.

In the Quick Launch bar

Places product icons in the Quick Launch bar.

Other Places product icons in a location of your choosing.

Don't create icons

No product icons are created.

Create icons for all users

Icons are created for all users in the chosen location.

7. Choose whether to import a secure socket certificate file, allow 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.

Note: To import the a certificate, edit and run SCQMSAMP library member CQMICERT.

Create certificate

This option enables you to specify the hostname (DB2 Query Monitor

attempts to present a good default). If the browser user specifies that host the only warning should be about the self-signing.

Note: To create a certificate, edit and run SCQMSAMP library member 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 26. For more information about certificates, see “Certificates requirements - USS and Windows” on page 26.

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.

8. Click Next.

If you specified **Import Certificate**, you will be prompted to enter the certificate file location.

If you specified **Create Certificate**, you will be prompted to enter the host name for the certificate.

If you specified **Use Default Localhost**, you will receive a warning message about the self-signed certificate request.

To clear the message click **OK**.

9. If you have a prior installation of Query Monitor from which you wish to import data, click **Yes** and specify the location of the prior installation. Click **Next**.
10. A pre-installation summary displays a list of the location, features, and size of the intended installation.
Verify that all items are correct and, if so, click **Install**. If corrections are required, click **Previous** to re-specify installation parameters.
11. When the installation has completed, an Install Complete panel displays a summary of the installation. Click **Done** to quit the installer.

Specifying the account that the service will log on as

You must specify the account under which the DB2 Query Monitor Windows Service will log on.

About this task

The following requirements apply to that account:

- The account must have sufficient privilege to start a Windows Service on the PC which the Primary CAE Server or Backup CAE Server is installed (one way to achieve this is to add the user to the Administrators group on the machine that the service will run on).
- The account must have authority to read from and write to the mapped network drive into which the Primary CAE Server or the Backup CAE Server is being installed.

Additionally:

- We strongly recommend that the PC in question be a member of a Windows domain. We also recommend that the user belong to the same windows domain and have administrator privileges on the machine on which the Primary CAE Server or Backup CAE Server is to be started.
- We recommend that the PC providing the share be in the same Windows domain. The share in question must have read/write authority for the Primary CAE Server and Backup CAE Server.

Procedure

1. Right-click the **My Computer** icon on your desktop and select **Manage**. The Computer Management window displays.
2. Expand the **Services and Applications** node of the tree structure displayed in the left panel.
3. Highlight the **Services** node to display Windows Services in the right panel of the Computer Management window.
4. Select the **This account** option.
5. Type the account name in the box to the right of the **This account** option.
6. Type the password in the **Password** and **Confirm password** boxes.
7. Click **OK**.

Installing the Watchdog

The Watchdog ensures CAE data is not lost or made unavailable if the Primary CAE Server fails.

About this task

Procedure

1. Obtain the necessary setup executable files. For more information, see “Transferring the necessary set up executable files to a Windows PC” on page 47.
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: 120 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)

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)

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

This topic describes how to create and import a hostname-based, self-signed certificate for a CAE Server on Windows.

Note: If you are using Windows 7 or Windows Vista and intend to create or import a secure socket certificate file using `qcm_cert_install.bat` or `qcm_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`

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

-addedcerts directory

Specifies the *directory* into which added certificates are placed. The default value is `addedcerts`.

-certs directory

Specifies the *directory* into which created certificates are placed. The default directory to which the certificate is placed is `cae_install_dir\certs`.

-importincacerts password

Import the certificates into `\DB2 Query Monitor v3.2\bin\jre\lib\security\cacerts` without requiring you to specify the `-truststore -storepass` parameters. You can optionally specify a password for `-importincacerts`.

-srcstorepass password

The *password* for the imported file. There is no default password for the imported file.

Note: The generated hostname-based and localhost self-signed certificates require a password, but the script defaults to that password so it is not required when importing a certificate that was created using `cqm_cert_install.bat`.

-storepass *password*

The *password* to the default keystore. There is no default password for the default keystore.

-truststore *default_keystore*

Specifies the *default_keystore*, the Java KeyStore (JKS), which is your repository of certificates. The default value is `defaultKeystore.jks`.

-override

Overrides an existing certificate of the same name in `defaultKeystore.jks`.

The import script updates the `defaultKeystore.jks` file with the new certificate, and, if successful, places the imported certificate file in the `cae_install_dir\addedcerts` directory, by default.

Examples

Install a certificate to a custom directory:

```
cqm_cert_install my_hostname -certs my_directory
```

Specifying a password for a certificate you are importing

```
cqm_import_certs my_hostname -srcstorepass my_password
```

Related concepts:

“Certificates requirements - USS and Windows” on page 26

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.

Related tasks:

“Installing a single CAE Server - Windows” on page 99

The steps described in this topic are required for the standard installation of the CAE Server on Windows.

Creating and importing a hostname-based, self-signed certificate - USS

This topic describes how 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. The script creates a new certificate inside the `certs` directory of the directory defined by `CQM_VAR_HOME`.

After you use SCQMSAMP member CQMCCERT to create a hostname-based, self-signed certificate, you can enable your CAE Server on USS to use the new certificate by doing the following:

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 SCQMSAMP member CQMICERT according to the instructions in the member and run.
3. Restart the CAE Server.

Accessing the CAE Browser Client

About this task

After installing the CAE Server, 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 26 and “Installing a single CAE Server - Windows” on page 99 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 associate with the Activity Browser, the Alerts Browser, and Configuration Browser, you must log in to the CAE Server to establish a web session.

Stopping and starting CAE Server and Watchdog processes

The Primary CAE Server and Backup CAE Servers start automatically. If you need to stop or restart the Primary CAE Server or Backup CAE Server, follow the instructions in this section.

About this task

Note: Once the Backup CAE Server starts, 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.

Starting and stopping the Primary CAE Server

The following steps outline how to properly start and stop the primary CAE Server.

Procedure

1. Stop the service using the Windows Services application. From the **Control Panel**, select **Administrative Tools > Services**. Select the **Standard** tab.
2. Right-click the line for the **DB2 Query Monitor Server** and select **Stop** to shutdown the CAE Server. You can start the service later by selecting **Start**. The **Restart** option stops and starts the service in one operation.

Starting and stopping the Watchdog

The Watchdog is a process that monitors the state of the Primary CAE Server and starts a Backup CAE Server, if necessary.

About this task

Stopping the Watchdog cancels the ability to monitor the presence of the Primary CAE Server.

Note: The following names and descriptions apply to the Watchdog (these names are the names used to describe the Watchdog service names, log names, and names that display in menus or as descriptions):

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

Based on your environment, do one of the following to stop and start the Watchdog:

Procedure

1. Stop the service using the Windows Services application. From the control panel, select **Administrative Tools > Services**. Select the **Standard** tab.
2. The service name is **DB2 Query Monitor Watchdog Server**. Right-click on the service name to display the menu.
3. Select **Stop** to shutdown the service. You can start the service later by selecting **Start**. The **Restart** option stops and starts the service in one operation.

Note: You can also open a dos prompt, cd to the *<install folder>/bin* directory and enter the command `watchdog_install.bat start` to start the watchdog, `watchdog_install.bat stop` to stop the watchdog or `watchdog_install.bat restart` to restart the watchdog.

Starting and stopping the Backup CAE Server

At some point, you might encounter the situation where the Primary CAE Server has failed, the Watchdog detected this and started a Backup CAE Server.

About this task

Now you want to stop all DB2 Query Monitor processing. The Backup CAE Server is not a true system service, instead it is started by the Watchdog service. Stopping

the Watchdog cancels the ability to monitor the presence of the CAE Server.

Procedure

1. Open a command shell.
2. Change the directory to the shared installation folder and issue the server shutdown script with an additional argument that names the Agent Group. The Agent Group is the value you specify in the agent start-up JCL via the CQM_AGRP parameter. This is the name of the primary server. For example:

```
cd C:\Program Files\IBM\DB2 Query Monitor\bin  
shutdown_cqm_server.bat -agentGroup primary-name
```

Retaining and migrating CAE customizations

Many aspects of the CAE can be customized to best suite your preferences and site's needs. For example, depending on your authority, you can set-up users, configure message boards, define scopes, create parameter overrides, define filters, and much more.

About this task

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).

Related concepts:

“CAE upgrading considerations” on page 38
The following conditions apply to CAE upgrading.

Migrating CAE customizations - Windows

If you want to migrate CAE customizations from one CAE Server installation (on Windows) to a new installation of the DB2 Query Monitor CAE Server (on Windows), you should review the following steps and select the appropriate procedures based on your version of the CAE Server.

Procedure

- If you currently have DB2 Query Monitor V3.1 CAE Server installed and want to migrate the customizations created for that CAE Server to a new installation of the DB2 Query Monitor V3.2 CAE Server, you can do so by selecting the appropriate options during the V3.2 installation process. Refer to “Installing a single CAE Server - Windows” on page 99 for details.

Note:

- You must specify **Install to a new location while keeping changes from V3.1 installation** when prompted.
- Be aware that if you first un-install V3.1, the V3.2 installer won't provide the option to keep changes from the V3.1 installation.

The V3.2 installation process, by default, installs V3.2 to a different location than your V3.1 installation. You are not required to un-install V3.1 prior to installing V3.2. The installation process is set up to enable you to retain your V3.1 installation while trying out V3.2, providing you with the option of copying over your V3.1 customizations.

- If you install V3.2 while retaining V3.1 on your machine, the **Add/Remove Programs** dialog will only display V3.2 in the list of programs that can be changed/removed. You will therefore not be able to un-install V3.1 via the Add/Remove Programs dialog.

Note: The V3.2 installation will be accessible via the **Add/Remove Programs** list and will also have its own un-install folder, `_cqm32uninst`.

To un-install V3.1 under these circumstances, you must go to the `V3R1_uninst` folder (located in the directory in which V3.1 is installed) and run the un-install executable in that folder. We do not recommend that you install V3.2 directly over a V3.1 installation (that is, overwriting the files in the V3.1 installation directories) by specifying the V3.1 path in the process of the V3.2 installation. If you want to have V3.2 (and no V3.1), then the recommended procedure is to un-install V3.1 (keeping changes, if desired) and to then install V3.2.

Note: You cannot migrate from V2.3 to V3.2. You must first migrate to V3.1 and then to V3.2.

Migrating CAE customizations - USS

If you want to migrate CAE customizations from a previous version of the CAE Server (on USS) to a newer version of the CAE Server (on USS), you should review the following steps and select the appropriate procedures based on your version of the CAE Server.

About this task

To migrate your CAE customizations from a previous version of the CAE Server (on USS) to a newer version of the CAE Server (on USS), edit and run SCQMSAMP library member CQMCMGRT according to the instructions in the member.

You can tailor the migration of your CAE customizations using the `CQMMGRT_EXCLUDE_HISTORY` and `CQMMGRT_REPLACE` options in CQMCMGRT.

CQMMGRT_EXCLUDE_HISTORY

Specifies whether or not to migrate historical data such as the messages on the message board from your previous version to the new version. Valid values are:

CQMMGRT_EXCLUDE_HISTORY=TRUE

Do not migrate historical data from the previous version to the new version of the CAE Server (on USS).

CQMMGRT_EXCLUDE_HISTORY=FALSE

Migrates historical data from the previous version to the new version of the CAE Server (on USS).

CQMMGRT_REPLACE

Specifies whether or not to replace any customizations that might exist in the new version with customizations that are being retained from the previous version of the CAE Server (on USS). Valid values are:

CQMMGRT_REPLACE=TRUE

Replace any customizations that are present in the new version with customizations that are being migrated from the previous version of the CAE Server (on USS).

CQMMGRT_REPLACE=FALSE

Do not replace any customizations that are present in the new version with customizations that are being migrated from the previous version of the CAE Server (on USS).

Example 1

This example results in retaining email actions, responses and historical data from the previous version:

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

Specifies that:

- Historical data (such as messages on the message board) from the previous version of the CAE Server (on USS) **is migrated** to the new version, and
- Customizations (such as e-mail actions and responses) present in the previous version **replace** any that might exist in the new version.

Example 2

This example results in retaining e-mail actions and responses from the previous version but not retaining historical data:

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

Specifies that:

- Historical data (such as messages on the message board) from the previous version of the CAE Server (on USS) **is not migrated**, and
- Customizations (such as e-mail actions and responses) present in the previous version **do not replace** any that might exist in the new version.

Retaining customizations

All CAE customizations are stored on the CAE Server.

About this task

If for some reason, you need to uninstall/reinstall CAE components, selecting the **Keep my Changes** option ensures that the customizations you've made will be retained in the new installation.

No migration tasks are required when replacing or upgrading client-only installations.

Un-installing CAE components and Backup CAE Server

When un-installing CAE components, you can optionally retain customizations and logs for use with future installations of CAE components.

About this task

For additional information about retaining, reusing, or migrating CAE customizations and logs, see "Retaining and migrating CAE customizations" on page 115.

Note: If you install the current version of DB2 Query Monitor while retaining the previous version of DB2 Query Monitor on your machine, the **Add/Remove Programs** dialog will only display the current version in the list of programs that can be changed/removed. You will therefore not be able to un-install the previous version via the **Add/Remove Programs** dialog. To un-install the previous version under these circumstances, you must go to the un-install folder (located in the directory in which the previous version is installed) and run the un-install executable in that folder.

Un-installing CAE components

If you want to un-install CAE components, follow these steps.

Procedure

1. On the machine where the server is installed, launch the **Add or Remove Programs** option from the **Control Panel**.
2. In the list of currently installed programs, locate **IBM DB2 Query Monitor for z/OS**.
3. Click the **Change/Remove** button. The DB2 Query Monitor un-installation launches and displays a Welcome screen.
4. Click **Next**.
5. Select **Keep my changes** to remove the application but retain any logs or customizations or **Delete changes** to remove the application, logs, and customizations. Click **Next**.
6. Review the summary information and click **Next**.
7. When un-installation has finished, restart your computer.

Un-installing Backup CAE Servers

If you decide you no longer want to use the High Availability/Fault Tolerance feature of DB2 Query Monitor, you must un-install the Primary CAE Server and any Backup CAE Servers.

Procedure

1. Un-install all Backup CAE Servers by first stopping the Watchdog service and then using **Add or Remove Programs** menu to access the DB2 Query Monitor un-install. Follow the instructions to un-install the components.
2. Un-install the Primary CAE Server using **Add or Remove Programs** menu to access the DB2 Query Monitor un-install. Follow the instructions to un-install the components.

Chapter 8. Getting started with DB2 Query Monitor

After configuring DB2 Query Monitor, you must perform several steps to enable the product to collect SQL activity as appropriate for your site.

Note: These steps serve as an overview. Where applicable, additional topics are provided with more-detailed information.

Topics:

- “DB2 Query Monitor concepts”
- “Creating an implementation strategy” on page 123
- “Configuring the DB2 Query Monitor subsystem” on page 124
- “Using DB2 Query Monitor in a data sharing environment” on page 134

DB2 Query Monitor concepts

Familiarize yourself with these DB2 Query Monitor concepts before getting started with the product.

Data collection

DB2 Query Monitor uses the CQMPARMS data set and the monitoring profile to determine what performance data to collect for a DB2 subsystem. A DB2 Query Monitor monitoring agent collects performance data for a monitored DB2 subsystem. DB2 Query Monitor stores this data in z/OS data spaces until a DB2 Query Monitor interval is completed, at which time the data is written to performance history files.

SQL workloads

An SQL workload (also referred to as a *workload*) provides a way of identifying a group of applications to DB2 Query Monitor so that performance data can be collected and summarized for the SQL statements executed by those applications. SQL workloads are defined in the monitoring profile that is used by DB2 Query Monitor to monitor a DB2 subsystem.

SQL workloads have the following characteristics:

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

Summary data, exception data, alert data

The DB2 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.

Negative SQLCODE data is not collected by default. The collection of negative SQLCODE data must be activated using the CQMPARMS startup 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 DBA 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 DBA 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 analyses. 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.

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

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

OPTKEYS

The OPTKEYS parameter enables you to specify additional levels of summarization. Since the additional levels of summarization OPTKEYS offer can significantly increase both the volume of data that is collected by DB2 Query Monitor and the amount of data DB2 Query Monitor stores in data spaces, you should be careful when adding OPTKEYS.

DB2 Query Monitor collects and summarizes SQL activity using the following basic key:

Plan + Program + Section

Note: It is recommend that you specify OPTKEYS in monitoring profiles, not in CQMPARMS.

Evaluating the use of OPTKEYS

This topic describes using OPTKEYS for an ad-hoc query-based DB2 and using OPTKEYS for an On-Line Transaction Processing (OLTP)-based DB2.

Using OPTKEYS for an ad-hoc query-based DB2

For an ad-hoc DB2, 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

In an OLTP-based DB2, 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.

MAX_SQLCODES and MAX_SQLCODE_DETAIL

The MAX_SQLCODES and MAX_SQLCODE_DETAIL parameters control the summary data collection for negative 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 a negative 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 negative 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 negative 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.

Creating an implementation strategy

The following sample scenarios help you to identify the most appropriate implementation strategy for DB2 Query Monitor at your site.

Configuration Example 1

Objective

To monitor one DB2 on a single LPAR.

Solution

To monitor one DB2 on a single LPAR in a non-data sharing environment, the following are required:

- A DB2 Query Monitor subsystem
- One Support Services Address Space

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

- CAE Agent
- CAE Server

Configuration Example 2

Objective

To monitor two DB2s across two LPARS in a non-data sharing environment.

Solution

To monitor two DB2s across two LPARS in a non-data sharing environment, the following are required:

- One DB2 Query Monitor subsystem installed on each LPAR
- One Support Services Address Space installed on each LPAR

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

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

Configuration 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 DB2 Query Monitor subsystem installed on each LPAR
- One Support Services Address Space installed on each LPAR

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

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

Configuring the DB2 Query Monitor subsystem

The sections that follow provide a series of steps that describes how to configure a DB2 Query Monitor subsystem. These steps help you to ensure that DB2 Query Monitor uses a minimal amount of resources for its collection process yet still provides you with access to the data you need to tune your SQL.

Important: The proper configuration of DB2 Query Monitor subsystem to collect SQL data ensures that you do not incur excessive overhead when using DB2 Query Monitor.

Step 1: Gather and analyze performance data

This step describes how to gather performance data about your system and use that data to decide how to best setup monitoring profiles and define reasonable exception and alert thresholds.

Question: Do you have an existing base of SQL metrics?

Yes: If you already have existing base of SQL metrics (such as average elapsed time, average CPU time, number of SQL calls), then you can use these metrics to determine a good initial monitoring profile workload. You can often obtain a base of SQL metrics from SMF data using a tool such as IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS. The base profile you derive from this data can be in place the first time the DB2 Query Monitor subsystem is started.

No: If you do not have an existing base of SQL metrics, then you can use DB2 Query Monitor to gather information about SQL volume, average CPU use, average elapsed time, and negative SQLCODEs throughout your systems. This process requires at least 2.5 days, as described below:

- **Customize DB2 Query Monitor and initiating the DB2 Query Monitor subsystem (requires at least 0.5 days)**

The initial setup and configuration should have the DB2 Query Monitor subsystem monitoring one or more DB2 subsystems without specifying a monitoring profile. In this configuration the DB2 Query Monitor subsystem started task gathers summary data only. There will not be any data in exceptions, alerts, or current activity. Set MAX_SQLCODES and MAX_SQLCODE_DETAIL in CQMPARMS to 250 and between 50 and 100 as recommended in the section on CQMPARMS below, ensuring that data about negative SQLCODEs is collected. The DB2 Query Monitor subsystem issues the following message (where *ssid* is the DB2 subsystem name), which can be ignored:

```
CQM3302I **WARNING** MONITORING AGENT FOR ssid WILL NOT COLLECT EXCEPTION  
DATA OR CURRENT ACTIVITY
```

- **Run DB2 Query Monitor to collect summary data (requires 24 hours)**

After DB2 Query Monitor is configured to collect summary data, let it run for 24 hours, if possible.

- **Analyze and review data to determine appropriate thresholds (requires 1 day)**

After collecting summary data for 24 hours, you should have enough data to enable you to determine the appropriate thresholds. Review the data (using the Activity Summaries and SQLCODE options in DB2 Query Monitor) to determine the appropriate thresholds to use for the monitoring profile lines in your monitoring profile.

Question: How many DB2 Query Monitor subsystems does your site need?

Recommendation: A DB2 Query Monitor subsystem can monitor up to 64 DB2 subsystems on a single z/OS LPAR. In general, one DB2 Query Monitor subsystem for each z/OS LPAR is recommended.

Exceptions: The following scenarios describe situations in which the one DB2 Query Monitor subsystem per z/OS LPAR does not apply. In the situations described below, more than one DB2 Query Monitor subsystem per LPAR is appropriate:

- **Different DB2 subsystems might have different monitoring requirements.**

A DB2 subsystem used by development might have a longer interval length or retention period than a DB2 subsystem that is used by QA or in a production environment. You can use the INTERVAL and RETAIN parameters to specify the interval length and retention period appropriate for these cases.

- **The DB2 Query Monitor user's view of DB2 subsystems being monitored should be limited.**

Access to the DB2 Query Monitor data from a given DB2 Query Monitor subsystem can be restricted using an external security system such as RACF. If an installation decides to setup a specific DB2 Query Monitor subsystem for each DB2 subsystem to be monitored, users could be restricted to only being allowed to access DB2 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.

Step 2: Configure the CQMPARMS file

DB2 Query Monitor uses a set of startup parameters that define how DB2 Query Monitor is implemented, including the DB2 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 DB2 Query Monitor subsystem must have its own set of startup parameters. Using a PDS allows all of the startup parameters for the various DB2 Query Monitor subsystems to be stored in a single data set. In addition, the individual members can be edited while the DB2 Query Monitor subsystem is active. If a sequential data set is used for each DB2 Query Monitor subsystem, the parameters can only be changed while the DB2 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 763 for instructions on calculating the space for these data sets. You will need to know the volume and mix of SQL being executed in order to perform the calculations. This can be determined from several sources such as:

- IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS statistical reports
- Data from an SQL monitor product (such as DB2 Query Monitor)

- Other DB2 capacity planning products.

If the volume and mix of SQL in the workload cannot be easily determined, a simple method is to use the default allocations in whole cylinders. Track the number of extents used by the data sets during the first few days or weeks that DB2 Query Monitor is running. If the data sets take multiple extents during every interval, then increase the primary allocation until the data will fit in a single extent during intervals when the SQL volume is low.

During intervals when SQL volume is highest, the performance history files should always be allowed to take multiple extents. This helps to minimize the DASD used for the performance history files because it avoids over-allocation of the performance history files for intervals when SQL volumes are low.

SMS management is highly recommended for the performance history files. There are nine unique data sets created for each interval. Using a RETAIN parameter of 96 will result in 864 performance history files being created and retained.

Step 3: Configure a monitoring profile

Monitoring profiles perform the following basic functions in DB2 Query Monitor.

- Define exception or alert thresholds for particular SQL workloads
- 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

Related tasks:

“Creating a monitoring profile” on page 305

These topics outline the steps necessary to create a monitoring profile.

“Adding a monitoring profile line” on page 311

Follow these steps to add a monitoring profile line.

“Updating a monitoring profile” on page 323

Follow these steps to update a monitoring profile.

Step 3.1 Determine how many monitoring profiles to create

It is recommended that you create a separate monitoring profile for each DB2 subsystem that you want to monitor. This approach reduces the number of monitoring profile lines in each monitoring profile and might reduce overhead.

The exception to this recommendation is when you create a monitoring profile for a data sharing group. When using data sharing, you should use one monitoring profile for all members of the data sharing group, because thresholds, OPTKEYS settings, and negative SQLCODE exclusions will usually be the same for all data sharing group members.

Step 3.2 Create a monitoring profile

Monitoring profiles enable you to tailor how DB2 Query Monitor monitors specific workloads.

Refer to Chapter 16, “Work with monitoring profiles,” on page 295 for a description of how to create a monitoring profile. After you have created a monitoring profile, refer to the sections below for information about how to configure monitoring profile lines to a monitoring profile.

Step 3.3 Configure one or more monitoring profile lines

A monitoring profile consists of one or more monitoring profile lines. Each monitoring profile line applies to one workload and consists of the following elements.

- Line type (Include or Exclude)
- Miscellaneous flags
- Workload definition
- Exception thresholds
- Exception limit
- SQLCODEs excluded from exceptions
- Alert thresholds
- SQLCODEs excluded from alerts
- SQLCODEs excluded from summary collection
- OPTKEYS overrides

A sample of the Update Profile Line Panel is shown below.

```

----- Update Profile Line for PROF1 -----
Option ==> _____ Scroll ==> PAGE
                                         More:  +

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             _____
Exception CPU             00 : 00 : 00 . 000000
Exception Elapsed         00 : 00 : 00 . 000000
Exception Getpages        0 _____
Exception SQL Calls       0 _____
Exception Limit           0 _____
Generate SQLCODE Exceptions Y  (Y/N)
Exclude Exception SQLCODEs N  (Y/N)
Alert CPU                 00 : 00 : 00 . 000000
Alert Elapsed             00 : 00 : 00 . 000000
Alert Getpages            0 _____
Alert SQL Calls           0 _____
Generate SQLCODE Alerts  N  (Y/N)
Exclude Alert SQLCODEs   N  (Y/N)
Exclude Summary SQLCODEs N  (Y/N)
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(WSUSER)         N  (Y/N)
  OPTKEYS(WSTRAN)         N  (Y/N)
  OPTKEYS(WSNAME)         N  (Y/N)
  OPTKEYS(CALLS)          N  (Y/N)
  OPTKEYS(PTEXT)          N  (Y/N)

```

Figure 11. Update Profile Line panel

The techniques described below enable you to efficiently create individual monitoring profile lines.

Excluding SQLCODEs from exception and alert processing

Most negative SQLCODEs are excluded from exception and alert processing. Only the first matching profile line is used for evaluating the SQLCODEs to be excluded. This means that the list of exclude alert SQLCODEs must be included on every profile line in order to ensure that the SQLCODEs are excluded for all workloads. In general, the following rules apply to the alert and exception processing of negative SQLCODEs.

- In general, negative 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 negative SQLCODEs should be excluded from alert processing (they should not be allowed to produce alerts). Alerts should only be generated for negative SQLCODEs that are important enough to require that a DBA take immediate action. An exception to this would be the case where the DB2 Query Monitor user wants to use the alert message board as a management technique for storing negative SQLCODEs.

Question: What negative SQLCODEs should be excluded from exception and alert processing?

Collect summary data about the negative 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 negative SQLCODE data for 24 hours.
2. Load the collected SQLCODE data into the performance history database.
3. Query the performance history database to get a list of all the distinct negative SQL codes collected.
4. Build the most generic line profile line first. In the example shown above, that means the last line.
 - a. Specify Y for **Exclude Exception SQLCODEs** and for **Exclude Alert SQLCODEs**.
 - b. Enter the list of SQLCODEs from item 3 on the Exception SQL Code Exclusion List panel, and then hit F3.
 - c. Enter the same list on the Alert SQL Code Exclusion List panel.
 - d. Save the workload definition line.

When you have created a single monitoring profile line that has the SQLCODE exclusion list, you can copy and edit that line as needed:

1. Replicate the generic line.
2. Edit the new line and change the workload definition, thresholds and exclude SQLCODEs as appropriate. Remember, you started with a complete list of excludes when the line was replicated.
3. Move the new line to the appropriate place in the monitoring profile.

Setting alert and exception thresholds

This topic describes how to set alert and exception thresholds.

During the creation of an INCLUDE monitoring profile line, you can specify the conditions that, when exceeded, cause the generation of an exception or an alert. These conditions include CPU time, elapsed time, getpages, SQL calls, and exception limit.

The purpose of alerts is to bring unusual activity to the attention of a human operator. There is some overhead associated with an alert, so you should set thresholds that are high enough to avoid too much resource consumption by the CAE Agent and CAE Server.

A good approach to use when setting alert thresholds is to assess whether your site's operators and DBAs can respond to each individual alert that is generated. Another way to evaluate an alert threshold is to consider that if an email is sent for each alert generated, would the resulting alerts be generated faster than you would want to receive e-mails? If so, the alert threshold is probably too low.

The best thresholds vary depending on the kinds of workloads they target. Another way of thinking about the alert threshold is this: if an SQL section exceeds the alert threshold, a human operator would want to take the time to look at this SQL section and consider whether or not to cancel it. For example, > 5 seconds of CPU, or > 20 seconds elapsed.

With regard to SQL codes, you should evaluate whether an error requires human intervention. For example, would an application developer or DBA actually take some action as a result of knowing that this individual SQL error occurred?

While the alert system can handle 5 alerts a second or more (per CAE Agent) for short periods, if you are averaging more than 5 alerts a minute in the CAE Server, the CAE Server will start to consume too much memory over the course of a day.

The most common reasons for receiving too many alerts are:

- Not having a good list of SQL codes in the **SQL Codes excluded** for alerts. Many sites should exclude -803, since it is a fairly common coding technique to insert first, update if necessary based on a -803.
- Setting alert thresholds too low for CPU, Elapsed, Getpages, and/or SQL Calls. If you want to look at the activity after the fact, you can set thresholds to store the activity as an exception. Alerts are for immediate attention. The profiles facility in CQM allows you to set different thresholds for different workloads (e.g. 5 seconds elapsed may be cause for concern for a transactional workload, but not for a batch workload).

Determining OPTKEYS overrides

This topic describes how to determine the OPTKEYS overrides you should create. This involves first determining the environments in which a monitoring profile is to be used and the resulting OPTKEYS overrides settings.

Sandbox DB2 subsystem

Monitoring profiles intended to be used for a sandbox DB2 subsystem are typically created to verify the installation of the DB2 Query Monitor. These monitoring profiles typically consist of a single profile line with very low exception and alert thresholds. In addition, all OPTKEYS override settings are normally specified as Y. This results in summarizing all the SQL by all possible OPTKEYS and generating exceptions for most, if not all, of the SQL executed in the DB2 subsystem. This is typically not a problem as the sandbox DB2 subsystem is an extremely well controlled and the low-volume environment.

Development DB2 subsystem

In a development DB2 subsystem, DB2 Query Monitor is typically used in a problem determination mode, instead of a true performance profile

mode. Since the volume is typically much lower than production, OPTKEYS settings may be dramatically different than a production environment.

- CALLS is almost universally specified in a development DB2 environment.
- TEXT or PTEXT is typically activated in a development DB2 environment where dynamic SQL is used by the applications. TEXT is used when the application uses parameter markers in their SQL, and PTEXT is used when literal values are used in dynamic SQL.
- AUTHIDS is frequently used in a development environment in order to attract what SQL each programmer is executing.
- CORRID is not normally used in the development DB2 system.
- CORRNAME is usually specified even in development for CICS® applications. CORRNAME strips the CORRID and uses the transaction name.
- The OPTKEYS specific to distributed applications (WSUSER, WSTRAN, WSNAME) are typically used if they are being coded by the applications. If the application is not supplying those fields, the OPTKEYS are typically not specified.

QA DB2 subsystem

Monitoring profiles that are intended for use with a QA DB2 subsystem are typically mirror images of the production monitoring profiles. An exception might be that the exception and alert thresholds are set lower than they would be in a production environment. This lower setting might compensate for a lower transaction rate or volume of data in a QA DB2 subsystem.

Production DB2 subsystem - single application

For a production DB2 subsystem with a single application, the monitoring profile, often consists of a single profile line. An exception to this might be the use of one monitoring profile line for batch work and a second monitoring profile line for online transactions. There might also be good reason to add additional monitoring profile lines to the monitoring profile when using different exceptions and alert thresholds or OPTKEYS overrides.

Production DB2 subsystem - multiple applications

For a production DB2 subsystem shared by multiple applications, there will usually be at least one monitoring profile line per application. This allows for different exceptions and alert thresholds, based on the individual application requirements. It also allows for tailoring the OPTKEYS overrides to the individual applications.

Setting production OPTKEYS

All of the OPTKEYS described in this section are optional, none are required for the proper function of DB2 Query Monitor. All OPTKEYS increase the volume of data collected by DB2 Query Monitor and should be used with caution.

Setting the TEXT and PTEXT OPTKEYS

Use the TEXT and PTEXT OPTKEYS to collect more detailed data about applications that use dynamic SQL.

Question: Does this application use dynamic SQL?

Yes: Does the SQL use parameter markers?

Yes: Set the override OPTKEYS(TEXT) to Y.

No: Set the override of OPTKEYS(PTEXT) to Y.

No: The OPTKEYS settings of TEXT or PTEXT have no effect on data collection.

Setting the AUTHIDS OPTKEY

The AUTHIDS OPTKEY should be used with caution. It has the potential of causing DB2 Query Monitor to exponentially expand the volume of detail collected. There are situations where the AUTHIDS OPTKEY can provide a useful navigation path into the application SQL. (for example, when a single AUTHID represents an entire application). Distributed applications which use an application gateway server are typically good candidates for using the AUTHIDS override.

If the application uses a unique AUTHID for each end user, then the AUTHIDS OPTKEY will most likely generate excessive data volumes. Examples of this usage are typically TSO based applications.

Note: Exception and alert records will always contain the primary AUTHID regardless of the AUTHIDS OPTKEY setting for the workload causing the exception or alert to be generated.

Question: Is this DB2 subsystem in development or production?

Development DB2 subsystem

For a development DB2 subsystem, consider setting the override OPTKEYS(AUTHID) to Y. This provides a summary of all of the SQL executed by each individual user. This level of summarization is useful in a development environment for debugging purposes.

Production DB2 subsystem

For a production DB2 subsystem, consider setting the override OPTKEYS(AUTHID) to N. Unless there is a compelling reason to collect a summary of the SQL statements for each AUTHID, this OPTKEY should be used with extreme caution in a production environment. In some production environments there may be literally thousands of AUTHIDs all executing the same SQL statements. This can result in very high memory usage in DB2 Query Monitor and excessive DASD utilization in the performance history files. On the other hand, in some DB2 subsystems, this can be a very useful OPTKEY. If a single unique AUTHID is used for each application then the AUTHID OPTKEY can be very useful.

Setting the CORRID and CORRNAME OPTKEYS

The CORRID OPTKEY is the unaltered Correlation ID used by DB2 for the SQL statement. The CORRNAME OPTKEY indicates whether or not the CORRNAME field will be added to the uniqueness criteria for all future DB2 SQL statements.

The CORRNAME OPTKEY directs DB2 Query Monitor to move only certain subsets of bytes from the originating DB2 correlation ID to the target summarization record during the collection process. These subsets of bytes vary depending on the type of connection to DB2 (for example, TSO, BATCH, RRSAF, CICS, IMS). The bytes that will be moved for the various connection types are shown below (the remaining right-most bytes will be space padded with EBCDIC blanks):

- TSO, CAF, RRSAF - Bytes 1-8 of the originating correlation ID
- CICS - Bytes 5-8 of the correlation ID (Transaction ID)
- IMS - Bytes 5-8 of the correlation ID (IMS PST#)

Note: OPTKEYS(CORRNAME) and OPTKEYS(CORRID) are mutually exclusive (only one or the other can be specified at any time). If OPTKEYS(CORRID) is used, the regular CORRID is collected, if OPTKEYS(CORRNAME) is coded, the field is filled in according to the TSO/CAF/RRSAF/CICS/IMS descriptions above.

Question: Is this a CICS application?

Yes Set the override of OPTKEYS(CORRNAME) to Y. In the CICS environment, the CORRNAME OPTKEY is a translation of the CORRID to the four-character CICS transaction code. This allows for CICS transactions which use pool threads to summarize into a single bucket based on the transaction code.

No Set the override OPTKEYS(CORRNAME) to N.

Setting the CALLS OPTKEY

Use the CALLS OPTKEY to collect more detailed performance metrics about the component parts of individual SQL statements.

Question: Do you need the ability to measure the performance metrics of the component parts of an individual SQL statement (such as PREPARE, OPEN, FETCH)?

Yes Set the override OPTKEYS(CALLS) to Y. This enables the collection of performance metrics down to the individual call component of every unique SQL statement.

No Set the override OPTKEYS(CALLS) to N.

Setting the WSTRAN, WSUSER, and 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.

Step 3.4: Arrange monitoring profile lines in the proper sequence

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

The first matching monitoring profile line (and only the first matching monitoring profile line), is used to evaluate what to do with the SQL statement. Therefore, the sequence of the lines in the monitoring profile is very important. Only fields in the workload definition section of the monitoring profile line are used for matching criteria.

The search is ended once a monitoring profile line is matched, whether or not the SQL statement qualifies for an exception or alert based on the thresholds in that profile line. An SQL statement is evaluated against the thresholds on one, and only one, workload definition line.

The workload definition lines are arranged in the monitoring profile so that the most frequently matched line is first and the workload definition lines follow are ordered by their decreasing frequency of use.

There are exceptions to this rule. If there is a catch-all line with an asterisk (“*”) for all matching criteria, that line must be placed last in the sequence. If there are lines with more specific criteria, then these should be placed before those with less specific criteria. For example, a profile line that matches on plan name DSNTEP71 should be placed before one that matches on the more generic plan name of DSN*. Or, a profile line that matches on program name DSN* and AUTHID FRED should be placed before one that matches only on program name DSN*. Once a workload definition line in the monitoring profile is matched, the search is over and subsequent lines in the profile will not be checked for the SQL statement.

A sample profile is shown below:

```

YYYY/MM/DD HH:MM:SS ----- Update Monitoring Profile ----- Row 1 of 10
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  JOBNAME  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

Using the monitoring profile shown above, the following are true:

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

- All other work will use thresholds set in the eighth profile line.

Another sample profile is shown below:

```

YYYY/MM/DD HH:MM:SS ----- Update Monitoring Profile ----- Row 1 of 10
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  JOBNAME  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

In the profile above, only the first line of the profile is used. Because every SQL statement will match the workload definition specified in the first line, the search will always end with that line.

Recommendation when activating or refreshing monitoring profiles

After updating, activating, or refreshing a monitoring profile, it is recommended that you start a new interval.

Using DB2 Query Monitor in a data sharing environment

DB2 Query Monitor can monitor DB2 subsystems both within and outside a data-sharing environment.

Data sharing enables applications to run on one or more DB2 subsystems in a parallel sysplex environment. A data-sharing group is a group of DB2 subsystems that can share data. Each individual DB2 subsystem in a data-sharing group is referred to as a member. Each data-sharing group has one DB2 catalog (this being the DB2 catalog established with the originating member of the data sharing group). As new members are added to the data-sharing group, their definitions are added to the pre-existing catalog for the group.

Notes:

1. DB2 Query Monitor operates at the individual DB2 SSID level and does not exploit the facilities of DB2 data sharing across LPARS, nor does it monitor activity based upon a group-attach single domain.
2. If SQL statement text on one LPAR spawns parallel work in a DB2 data sharing member on another LPAR, DB2 Query Monitor is unable to track back to the originating SQL statement text.
3. The only DB2 Query Monitor data set that can be shared in a data sharing configuration is the monitoring profiles data set. Interval data sets cannot be shared.

Configuring DB2 Query Monitor for data sharing

The following example describes how to implement DB2 Query Monitor in a sample data sharing environment.

Procedure

This example uses two instances of DB2 Query Monitor to monitor five DB2 SSIDs, three of which (D9A, D9B and D9C) belong to a data sharing group 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 SSIDs are DB2 V9 systems. There is one instance of DB2 Query Monitor on each LPAR.

Notes:

1. A DB2 Query Monitor instance refers to the data collection task of the DB2 Query Monitor product.
2. In this example, a DB2 Query Monitor instance running on any DB2 subsystem on LPAR SYSA would not be able to display activity from DB2 SSID D9B, even though D9B is part of the same data sharing group as D9A and D9C. The same restriction applies to any DB2 Query Monitor instance executing on LPAR SYSB: only activity on SSID D9B would display on the DB2 Query Monitor instance executing on that LPAR.
3. The QM_GROUP parameter enables users to logically connect multiple DB2 Query Monitor instances and, in turn, view remote DB2 data sharing group members via the DB2 Query Monitor ISPF user interface on their local LPAR.

DB2A These descriptors apply to the DB2A SSID:

- **LPAR:** SYSA
- **CQM instance:** CQMA
- **Description:** Stand-alone DB2 subsystem
- **Package/Qualifier:** CQMDB2A
- **PLAN Name:** CQMPLANA

DB2B These descriptors apply to the DB2A SSID:

- **LPAR:** SYSA
- **CQM instance:** CQMA
- **Description:** Stand-alone DB2 subsystem
- **Package/Qualifier:** CQMDB2B
- **PLAN Name:** CQMPLANA

D9A These descriptors apply to the DB2A SSID:

- **LPAR:** SYSA
- **CQM instance:** CQMA
- **Description:** Member of data sharing group GRP1 with group attach name GRPA
- **Package/Qualifier:** CQMD9A
- **PLAN Name:** MEMBD9A

D9B These descriptors apply to the DB2A SSID:

- **LPAR:** SYSB
- **CQM instance:** CQMB
- **Description:** Member of data sharing group GRP1 with group attach name GRPA
- **Package/Qualifier:** CQMD9B
- **PLAN Name:** MEMBD9B

D9C These descriptors apply to the DB2A SSID:

- **LPAR:** SYSA
- **CQM instance:** CQMA
- **Description:** Member of data sharing group GRP1 with group attach name GRPA
- **Package/Qualifier:** CQMD9C
- **PLAN Name:** MEMBD9C

To configure DB2 Query Monitor in this data sharing environment, the following steps are required for each DB2 SSID:

1. **Determine which DB2 Query Monitor instance will monitor activity from individual DB2 SSIDs.** This decision might not be based solely on the initial decision of which DB2 subsystems will be used for association with the DB2 Query Monitor instance. There might be occasions when an installation might use DB2 Query Monitor to display activity from a particular DB2 SSID in isolation.

Note: A single DB2 Query Monitor instance can monitor activity only on a single LPAR.

2. **Determine the PLAN name(s) for the application PLANs used by DB2 Query Monitor instances.** DB2 Query Monitor uses the DB2 catalog to retrieve data pertaining to SQL text that has been monitored. To retrieve this information application packages and plans have to be bound for this access. Sample BIND job streams are supplied in member CQMBIND. It is imperative that the naming conventions pertaining to the package names and qualifiers be followed. This is dictated by Query Monitor's application architecture. We strongly recommend that unique PLAN names be used for each member of a data sharing group that will be monitored by DB2 Query Monitor. In the examples, we chose plan names of CQMPLANA for SSIDs DB2A and DB2B, and plan names of MEMBD9A, MEMBD9B and MEMD9C for data sharing group members D9A, D9B and D9C. The use of the same PLAN names for SSIDs DB2A and DB2B is not a problem because these two SSIDs each have their own DB2 catalog.
3. **Bind the application plan(s) for use by DB2 Query Monitor.** Customize and run the job streams in SCQMSAMP library member CQMBIND. Specify the DB2 SSID name within the package names and in the SYSTEM operand on the DSN command. For SSIDs that are members of a data sharing group, the following restrictions apply:
 - The DB2 SSID member name is specified in the SYSTEM parameter of the DSN SYSTEM command, not the group attach name.
 - When customizing the PACKAGE and QUALIFIER names for the PACKAGE binds, specify the DB2 SSID member name, not the group attach name.
 - Do not use the same PLAN name for independent binds of two or more members of a data sharing group. For example, you might execute a bind with the plan name of CQMPLANX for member SSID D8A in the data sharing group. A subsequent bind with a plan name of CQMPLANX for member SSID D8C, in the same data sharing group, would invalidate the previous BIND across member D8A.
 - In the SETUP panels in DB2 Query Monitor, where the DB2 SSID is entered, use the SSID member name, not the group attach name.

Example

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.

Note the correspondence between PACKAGE and QUALIFIER names and the SYSTEM identifier. For the members of the data sharing group, use the SSID member name, not the group attach name.

The PLAN name selected can be arbitrary. The format of the PACKAGE and QUALIFIER names ("CQMxxx" where "xxx" is the DB2 SSID) is dictated by Query Monitor's architecture.

```
DSN SYSTEM(DB2A)
  BIND PACKAGE      (CQMDB2A) -
    QUALIFIER      (CQMDB2A) -
    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      (CQMDB2B) -
    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(D9A)
BIND PACKAGE      (CQMD9A) -
  QUALIFIER       (CQMD9A) -
  MEMBER          (CQM@STXT) -
  OWNER           (USERID) -
  ACTION          (REPLACE) -
  DYNAMICRULES   (RUN) -
  ENCODING        (EBCDIC) -
  EXPLAIN         (NO) -
  ISOLATION       (CS) -
  VALIDATE        (RUN)
.
.
BIND PLAN  (MEMBD9A) -
  PKLIST  (CQMD9A.* -
          )
          ACTION      (REPLACE) -
          RETAIN      -
          DYNAMICRULES (RUN) -
          ENCODING     (EBCDIC) -
          EXPLAIN      (NO) -
          ISOLATION    (CS) -
          SQLRULES     (DB2) -
          VALIDATE     (RUN)
END
DSN SYSTEM(D9B)
BIND PACKAGE      (CQMD9B) -
  QUALIFIER       (CQMD9B) -
  MEMBER          (CQM@STXT) -
  OWNER           (USERID) -
  ACTION          (REPLACE) -
  DYNAMICRULES   (RUN) -
  ENCODING        (EBCDIC) -
  EXPLAIN         (NO) -
  ISOLATION       (CS) -
  VALIDATE        (RUN)
.
.
BIND PLAN  (MEMBD9B) -
  PKLIST  (CQMD9B.* -
          )
          ACTION      (REPLACE) -
          RETAIN      -
          DYNAMICRULES (RUN) -
          ENCODING     (EBCDIC) -
          EXPLAIN      (NO) -
          ISOLATION    (CS) -
          SQLRULES     (DB2) -
          VALIDATE     (RUN)
END

DSN SYSTEM(D9C)
BIND PACKAGE      (CQMD9C) -
  QUALIFIER       (CQMD9C) -
  MEMBER          (CQM@STXT) -
  OWNER           (USERID) -
  ACTION          (REPLACE) -
  DYNAMICRULES   (RUN) -
  ENCODING        (EBCDIC) -
  EXPLAIN         (NO) -
  ISOLATION       (CS) -
  VALIDATE        (RUN)

```

```

.
.
BIND PLAN (MEMBD9C) -
PKLIST (CQMD9C.* -
)
ACTION (REPLACE) -
RETAIN -
DYNAMICRULES (RUN) -
ENCODING (EBCDIC) -
EXPLAIN (NO) -
ISOLATION (CS) -
SQLRULES (DB2) -
VALIDATE (RUN)

END

```

What to do next

Additional information on the subjects covered in this document can be found in the following IBM publications (document numbers for the non-Query Monitor publications are dependent upon version of DB2):

- 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).

Chapter 9. General ISPF tasks and tips

These topics provide information about using the DB2 Query Monitor main menu, configuring column display, creating and using filters, navigating intervals, and other basic tasks that enable you to use the DB2 Query Monitor ISPF interface efficiently.

Topics:

- “Using the DB2 Query Monitor main menu”
- “Primary commands” on page 148
- “Column display functions” on page 150
- “Sorting by SQLTEXT” on page 163
- “Configuring filters” on page 164
- “Interval selection and navigation” on page 181
- “Modifying PF key settings” on page 184
- “Exporting SQL text to a data set” on page 184
- “Exporting the ISPF log to a data set” on page 185
- “Batch control file loader” on page 185
- “Maintaining performance history files” on page 186
- “Configuring commands in CQMCMDS” on page 187
- “Setting MEMLIMIT” on page 187
- “Starting the DB2 Query Monitor subsystem” on page 191
- “Configuring DB2 system parameters” on page 188

Using the DB2 Query Monitor main menu

The IBMDB2 Query Monitor main menu provides you with access the product's main functions.

Procedure

When you execute the DB2 Query Monitor CLIST, the IBM DB2 Query Monitor main menu displays:

```

YYYY/MM/DD HH:MM:SS ---- IBM DB2 Query Monitor for z/OS -----
Option ==> _____
DB2 QM Subsystem ID: QM01____ (? to Select)                User: USERID
                                                           Release: CQM V3R2M0
-----
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. IBM DB2 Query Monitor main menu

The fields that display on the IBM DB2 Query Monitor main menu include:

DB2 QM Subsystem ID

The DB2 Query Monitor subsystem ID being used with the current ISPF session. You can either type a DB2 Query Monitor subsystem ID directly into this field or select from a list of available DB2 Query Monitor subsystems. To select from a list, type a ? in the **DB2 QM Subsystem ID** field and press Enter.

User (Display only) The user ID of the user who is currently operating the product.

Release

(Display only) The version and release of DB2 Query Monitor currently running.

The options available on the **IBM DB2 Query Monitor** main menu include:

0 - Settings

Set ISPF dialog options (whether or not to allow letter-style options, issue sort warnings, unstack to prior level in summaries, or dump on first error).

1 - View Activity Summaries

Access and refine your view of your system's query activity.

2 - View SQLCODEs

View the expanded text description for an SQLCODE that is supplied by the IBM utility program DSNTIAR.

3 - View Current Activity

Display active statements that DB2 is currently executing.

4 - View DB2 Command Activity

View information about the execution of DB2 commands throughout monitored systems.

5 - View Exceptions

View collected information about your system's SQL-related exceptional events (SQL text, object details, lock events, delay events, calls, and buffer pools).

6 - Work with Monitoring Agents

Activate and deactivate monitoring agents for the current DB2 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 commands available on the **IBM DB2 Query Monitor** main menu include:

CLEARCAE

Clear the previously selected CAE Server. After issuing the CLEARCAE command, you can access the CAE Selection panel and select another CAE Server by typing a ? in the **DB2 QM Subsystem** field.

Selecting a CAE Server for ISPF view of data sharing group

When you access the QM Subsystem Discovery panel (by typing ? in the **DB2 QM Subsystem** field on the DB2 Query Monitor main menu) 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 DB2 Query Monitor subsystem with another DB2 Query Monitor subsystem using the CAE Server and TCP/IP. The CQMPARMS start-up parameters CAE_SERVER_ADDRESS and CAE_SERVER_PORT instruct the DB2 Query Monitor subsystem to connect to the CAE Server. Once the DB2 Query Monitor subsystem has connected to the CAE Server, data is available for DB2 data sharing members that are being monitored by other DB2 Query Monitor instances that are also connected to that CAE Server.

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 DB2s, it does not support ISPF views of non-data sharing DB2s on other LPARs at this time.

If a DB2 data sharing group is chosen instead of a DB2 Query Monitor subsystem, all the data is displayed as if the data sharing group is a DB2 Query Monitor subsystem that spans multiple z/OS images.

The first time you enter the discovery interface, you will be prompted to select a CAE Server via a pop-up panel. After selecting the CAE Server, this 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 Server for ISPF view of data sharing group via the CAE Selection panel.
- Your previous choice of CAE Server 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 Server.

Note:

- After selecting the CAE Server, your selection will be saved for future ISPF sessions.
- To clear the selected CAE Server, enter the CLEARCAE command on the main menu.
- If no CAE Servers are currently available, you will be directed to the QM Subsystem Discovery panel without first seeing the CAE Selection panel. In this case your previous choice of CAE Server is preserved.

Procedure

To select a CAE Server for use with ISPF view of data sharing group, type a ? in the **DB2 QM Subsystem** field on the Query Monitor main menu and press Enter. The CAE Selection panel displays:

The following columns display on the CAE Selection panel:

```

YYYY/MM/DD HH:MM:SS ----- CAE Selection ----- Row 1 of 4
Option ==>                                     Scroll ==> PAGE

C:S-Select

  CMD QM      SERVER                                     PORT
-----
  QM01      SYS1.YOURCOMPANY.COM                       NNNN
  QM02      SYS2.YOURCOMPANY.COM                       NNNN
***** Bottom of Data *****

```

Figure 15. CAE Selection panel

QM The DB2 Query Monitor subsystem on which the CAE Server resides.

Server The CAE Server.

Port The port for the CAE Server.

The following commands are available on the CAE Selection panel:

S (Select)

Select the CAE Server to use for ISPF view of data sharing group.

Discovering DB2 Query Monitor subsystems

The QM Subsystem Discovery panel shows information about the DB2 Query Monitor subsystems that are available for a z/OS image.

About this task

The DB2 Query Monitor subsystem discovery function displays information about DB2 Query Monitor subsystems activated since the last IPL. The discovery feature assists you in accessing the DB2 Query Monitor subsystems that have been previously defined and started since the last IPL by automatically discovering those DB2 Query Monitor subsystems.

Note: The DB2 Query Monitor subsystem discovery function does not access the control file when performing discovery. The control file is used to facilitate connecting to DB2 subsystems and contains no information about valid DB2 Query Monitor subsystems.

Procedure

1. Type a ? in the **DB2 QM Subsystem** field on the DB2 Query Monitor main menu and press Enter. The QM Subsystem Discovery panel displays:

```

YYYY/MM/DD HH:MM:SS ----- QM Subsystem Discovery ----- Row 1 of 20
Option ==>                                                                    Scroll ==> PAGE

C:S-Select
-----
                                QM Subsystems
-----
CMD  QM      VER DB2  VER      DS GROUP MSTATUS  CURRENT INTERVAL  STRT
-----
   QM01    310      V0 R M      UNAVAIL  DD/MM/YYYY - HH:MM:SS
   QM02    310 DB01  V10R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QM02    310 DB02  V09R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QM03    320 DB03  V08R1M0    DSG1    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QM04    320 DB04  V10R1M0    DSG2    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QM04    320 DB05  V09R1M0    DSG3    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QM04    320 DB06  V08R1M0    DSG4    ACTIVE  DD/MM/YYYY - HH:MM:SS

                                Data Sharing
-----
DS GROUP VER DB2  VER      MSTATUS  CURRENT INTERVAL  STRT
-----
   QDS1    320 DBA6  V08R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QDS1    320 DBB6  V08R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QDS2    320 DBC6  V08R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QDS2    320 DBD6  V08R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QDS3    320 DBE6  V09R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QDS3    320 DBF6  V09R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QDS4    320 DBG6  V10R1M0    ACTIVE  DD/MM/YYYY - HH:MM:SS
   QDS4    320 DBH6  V10R1M0    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 DB2 Query Monitor subsystem ID.

VER The version of DB2 Query Monitor.

DB2 The DB2 subsystem being monitored by the DB2 Query Monitor subsystem. If one DB2 Query Monitor subsystem is monitoring multiple DB2 subsystems, they are listed as consecutive line items (only the first line item shows the DB2 Query Monitor subsystem in the QM column).

VER The version of DB2.

DS GROUP

The data-sharing group attach name for the DB2 subsystem.

MSTATUS

The monitoring status of the DB2 Query Monitor subsystem. Valid values are:

UNAVAIL

The DB2 Query Monitor subsystem is not available for collecting activity information for the DB2 subsystem.

INACTIVE

The DB2 Query Monitor subsystem was started but the DB2 subsystem is stopped or the control file is missing.

ACTIVE

The DB2 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 DB2 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 The DB2 subsystem being monitored by the DB2 Query Monitor subsystem. If one DB2 Query Monitor subsystem is monitoring multiple DB2 subsystems, they are listed as consecutive line items (only the first line item shows the DB2 Query Monitor subsystem in the QM column).

VER The version of DB2 the DB2 subsystem is running.

MSTATUS

The monitoring status of the DB2 Query Monitor subsystem. Valid values are:

UNAVAIL

The DB2 Query Monitor subsystem is not available for collecting activity information for the DB2 subsystem.

INACTIVE

The DB2 Query Monitor subsystem was started but the DB2 subsystem is stopped or the control file is missing.

ACTIVE

The DB2 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 command is available on the DB2 QM Subsystem Discovery panel:

Select (Line command S)

Selects the DB2 Query Monitor subsystem for use with the current session of the ISPF interface.

2. 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 DB2 Query Monitor subsystem.

Setting ISPF dialog options

Follow these steps to set the options that control the behavior of the ISPF dialog.

Procedure

1. On the DB2 Query Monitor main menu, type 0 in the **Option** field and press Enter. The Query Monitor Dialog Options panel is displayed:

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

Figure 17. Query Monitor Dialog Options

These columns display on the Query Monitor Dialog Options panel:

Issue sort warning

When enabled, the sort warning is issued whenever you select sorting by SQL text. The sort warning message enables you to disable the message. Enabling this option is the only way to restore the sort warning message.

Unstack to prior level in summaries

When processing summary data, you can drill down from any level to any level except the one you are currently at. You can also drill down to a level that you have already viewed. When enabled, this option instructs that you are to return to the last occurrence of the specified drill down. For example, if you drill down from summaries with line commands 1,2,3,4 and then drill down by 2 again, you will return to

the previous drill down for option 2. The intent is to allow you to return to a previous point to follow another path. When disabled, you will continue indefinitely.

Dump on 1st error

Use this option only when instructed by IBM Software Support.

2. Type a / next to an option to enable it or remove the / to disable an option.
3. Press Enter to update the dialog option settings.
4. Press PF3 to exit the panel.

Related concepts:

“Recursion in summary reporting” on page 194

When viewing data within the summary displays, you can re-select a particular option. The behavior of DB2 Query Monitor when you re-select an option depends on the settings you specify on the Query Monitor Dialog Options panel (option **0. Settings** on the DB2 Query Monitor main menu).

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 18. 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 19. 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 Cnds: F Fix U Unfix

```

Figure 20. 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 21. 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.

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  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 22. Define Column Size panel

The following fields appear on the Define Column Size panel:

Column Function

Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

Permanent View

Indicate whether the view you define is permanent or temporary. Valid values are:

- Y-View customizations are permanent.
- N-View customizations are temporary.

Reset View

Resets all customizations.

Device_Width

Shows the current display device size (screen width).

Old_Fixed_Width

Shows the sum of the FIXED column widths.

Old_Unfixed_Width

Shows the UNFIXED area.

New_Fixed_Width

Shows the sum of the FIXED column widths.

New_Unfixed_Width

Shows the UNFIXED area.

Cmd Field where you specify the number for column position.

New Displays the new CSIZE view settings.

Old Displays the previous CSIZE view settings.

Min Displays the minimum column length.

Note: If the minimum and maximum column widths are equal, the column cannot be resized.

Max Displays the maximum column length.

Note: If the minimum and maximum column widths are equal, the column cannot be resized.

Fix Displays fixed columns. Valid values are:

- **F**—Indicates the column is fixed.
- **P**—Indicates the column is permanently fixed.

Column_Name

Shows the name of the column.

2. Type the desired column size in the **Cmd** field next to the column you want to resize.

Note: The column size you specify must be between the Min and Max values shown for that column.

3. Press Enter. The new view criteria display in the **New** column.
4. Press **PF3** to return to the display panel.

Sort functionality

CSORT functionality enables you to select one or more columns for sorting and thus modify the order of the rows displayed on many product panels.

Columns are selected by sort priority and direction. Direction is either ascending (default) or descending. When more than one column is selected for sorting, the second column only differentiates when rows have matching data in the first column. Similarly, a third column only impacts the sort when data in both the first two columns are identical.

Defining sort columns

You can sort display data by columns. You can select up to nine columns for sorting.

About this task

A maximum of nine columns can be selected for sorting at one time. Internal requirements may create a smaller maximum. A message is issued if the maximum number of columns selected for sorting is exceeded.

Note: **CSORT** and **SORT** are synonymous.

Procedure

1. Type **CSORT** (or **SORT**) in the option line on any display panel and press Enter. The Define Sort Columns panel displays as shown in the following figure:

```
SORT ----- Define Sort Columns ----- YYYY/MM/DD HH:MM:SS
Option ==>                                     Scroll ==> PAGE
----->
                                           ROW 1 OF 9

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

Cmd Dir New Old Column_Name
-----
  -  -           CMD
  -  -           NAME
  -  -        CREATOR
  -  -         UPDT
  -  -     DESCRIPTION
  -  -       LAST_USER
  -  -   LAST_UPDATED
  -  -     CRTD_USER
  -  -   CREATED_USER

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Ord: 1-9 Dir: A Asc D Desc
```

Figure 23. Define Sort Columns panel

The following fields appear on the Define Sort Columns panel:

- Column Function**
Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.
- Permanent View**
Indicate whether the view you define is permanent or temporary. Valid values are:
- Y–View customizations are permanent.
 - N–View customizations are temporary.
- Stop Sorting**
Indicates whether to stop sorting as specified. Valid values are:
- Y–Stop sorting.
 - N–Continue sorting.
- Cmd** Field where you specify the sort order.
- Dir** Specifies the lexicographic order for the column. Valid values are:
- A–(Default) Values are listed in ascending order, smallest to largest.
 - D–Values are listed in descending order, largest to smallest.
- New** Displays the new CSORT view settings.
- Old** Displays the previous CSORT view settings.
- Column_Name**
Shows the name of the column.

2. Type **A** or **D** in the **Cmd** field next to the columns on which you want to base your sort.
3. Press Enter. The new sort preferences are displayed in the **New** column.
4. Press **PF3** to return to the display panel.

Fast-path SORT command

The SORT command can be used as a primary (fast-path) command by typing the appropriate SORT syntax in the Option line of any report panel and pressing Enter.

The functionality supports both single and multi-column sorting and enables users to specify sort order (ascending or descending) for each column in the sort.

Syntax for single-column sorting

The syntax for single-column sorting is as follows:

```
SORT column_identifier dir
```

Where *column_identifier* is either the **column name** or the **relative column number** and *dir* is the direction in which to sort the column data. Valid values for *dir* are:

asc (Default) Sorts data in ascending order.

desc Sorts data in descending order.

Notes:

1. There must be a space between the *column_identifier* and its *dir* (if used).
2. The **relative column number** for a column is determined based on the column's placement when visible on the screen. Thus, relative column numbers are only available for columns currently visible on the screen. Relative column numbers are determined by counting the displayed columns from left to right, with the leftmost visible column being assigned the number '1' and each successive column (reading left to right) being assigned a relative column number that is incremented by 1. **Hint:** To quickly determine the column number, use the **CNUM** command to toggle on the column numbers for each display column.
3. You can sort on a column that is not displayed if you use the **column name** (instead of the **relative column number**) as the *column_identifier* in the SORT syntax.

Multi-column sorting

The syntax for multi-column sorting is as follows:

```
SORT column_identifier dir column_identifier dir
```

Where *column_identifier* is either the column name or the relative column number and *dir* is an optional indication of the direction in which to sort the column data. Valid values for *dir* are:

asc (Default) Sorts data in ascending order.

desc Sorts data in descending order.

The *column_identifier* and *dir* values must all be separated by spaces. The maximum number of columns that can be sorted at once is 9.

Usage examples

For a report display that has three columns, all of which display on the screen:

Column 1: Name

Column 2 Creator

Column 3: Status

The following examples show how you can sort these columns:

SORT NAME

Sorts display data in ascending order based on the value in the **Name** column (when no dir value is specified, the default sort order is ascending, thus **SORT NAME** and **SORT NAME A** are synonymous).

SORT NAME D

Sorts display data in descending order based on the value in the **Name** column.

SORT NAME DESC

Sorts display data in descending order based on the value in the **Name** column.

SORT NAME A CREATOR D

Sorts display data first in ascending order based on the value in the **Name** column and then sorts data in descending order based on the value in the **Creator** column.

SORT NAME ASC CREATOR DESC

Sorts display data first in ascending order based on the value in the **Name** column and then sorts data in descending order based on the value in the **Creator** column.

SORT 1 A

Sorts display data in ascending order based on the value in the **Name** column.

SORT 1 A CREATOR D

Sorts display data first in ascending order based on the value in the **Name** column and then sorts data in descending order based on the value in the **Creator** column.

SORT 3 2 1

Sorts the display data first in ascending order based on the value in the **Status** column, then in ascending order based on the value in the **Creator** column, and finally in ascending order based on the value in the **Name** column.

Note: When you specify a column name using any of the above formats, you may enclose it in single quotes, double quotes, or be without any quotes. For example, the following are equivalent:

SORT NAME D

SORT 'NAME' D

SORT "NAME" D

Resetting CSET customizations

The **CRESET** option enables you to reset all customizations.

About this task

After **CRESET** is issued, all fixed columns are unfixed (except for any permanently fixed columns), all selected sort columns are deselected and sorting is disabled, all column sizes are set to the initial values or maximum values if no suggested value previously existed, and original column locations are restored.

Procedure

1. To issue the **CRESET** option, access the Setup Primary Option Menu by typing **CSET** in the option line of any report display and pressing Enter. The Setup Primary Option Menu displays.
2. Type **5** in the command line and press **Enter**. **CRESET** is issued and all fixed columns are unfixed (except for any permanently fixed columns), all selected sort columns are deselected and sorting is disabled, all column sizes are set to the initial values or maximum values if no suggested value previously existed, and original column locations are restored.
3. Alternatively, you can issue the **CRESET** command as a primary command using the following syntax:

CRESET

Resets all customizations (unfixes fixed columns, deselects selected sort columns, sorting disabled, column sizes set to initial values, original column locations restored).

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 for resizing, 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 resized, then its current width is treated as its smallest allowable size. When a column is resized 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 resized to 80 bytes or less (assuming no conflicting minimum size associated with the column). If there were two 10-byte fixed columns, for a total fixed area size of 20-bytes, the 128-byte column would be limited to 60 bytes or its minimum allowed size, whichever was smaller.

Sorting by SQLTEXT

The following window message 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 24. 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 specify **N** in the **Display this message again?** field, the warning is disabled and does not display the next time the SORT by SQLTEXT is requested. If you specify **Y** the message is displayed again when issuing the first sort after logging on to a new session.

Note: The value you specify for the **Display this message again?** field is saved in your TSO user profile. If you specify **N** to disable the query, the message is not issued again in current or future DB2 Query Monitor sessions.

Configuring filters

You can use filters to specify the type of information to display for an ISPF session.

For example, if a monitoring profile specifies the collection of only DSN% job names, you can define a filter to view only those jobs submitted by a specified user ID or job name. Then the data the user sees in DB2 Query Monitor is limited to only those DSN% jobs submitted by the user specified by the filter.

Notes:

1. Filters do not affect the data that is collected by DB2 Query Monitor, they only filter data for display purposes.
2. The FILTER command is valid for:
 - View Current[®] Activity - Object subpanel.
 - View Exceptions, - Objects subpanel, Calls subpanel.
 - View DB2 Command Activity
 - View Activity Summaries - All subpanels

Accessing filters

Follow these steps to access and work with filters.

Procedure

1. Type FILTER in the **Option** field of a panel that allows filtering and press Enter. The Active Filters panel is displayed:


```

----- 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 input fields that display on the Active Filters panel include:

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 line commands available on the Active Filters panel include:

Create (Primary command CREATE)

When you enter **CREATE** in the option line and press Enter, the Create

Filter Line panel displays where you can define the column name, operator, and column value for the filter line.

I - Insert

Insert a new filter line below the selected line. The Create Filter Line panel is displayed, where you can define the column name, operator, and column value for the filter line.

U - Update

Update the column name, operator, and column value for a filter line.

V - View

View the column name, operator, and column value for the selected filter line.

R - Repeat

Repeat the selected line, placing a copy directly below the line on which you specified the R line command.

D - Delete

Deletes the filter line.

2. Create or modify active filters as needed and press Enter to save.

Adding filter lines

Follow these steps to add one or more filter lines.

About this task

Filter lines consist of a column name, an operator, and a column value. When filtering data for display, DB2 Query Monitor:

- Examines the contents of the column that is identified in the filter's **Column Name** field (for example, **PLAN**, **PROGRAM**, **CURSOR**, **COLLID**, **CONN**, **CORRID**, **AUTHID**, **JOBNAME**, **SSID**, **WSUSER**, **WSNAME**, **WSTRAN**, **DBNAME**, **OBJNAME**, **CREATOR**, **BUFPOOL**, **OBJTYPE**, **SECTION**, **PAGESET**, or **TABNAME**).
- Compares the content of column to the value you specify for the **Column Value** field using the operator you specify (for example, **EQ**, **GE**, **GT**, **LE**, **LT**, **NE**).

If a match occurs, then the data are filtered according to the value you specify for the **Exclude Filter Data** field on the Active Filters panel. For example, if you specified Y in the Exclude Filter Data field, data are excluded from display when a match occurs. If you specified N in the **Exclude Filter Data** field, data are not excluded from display when a match occurs; instead, data that do not produce a match are excluded from display.

Procedure

1. Issue the **FILTER** command from a panel or subpanel that supports filtering. The Active Filters panel displays.
2. Type CREATE on the command line and press Enter. The Create Filter Line window displays:

```

----- Create Filter Line -----
Option  ==> _____

Column Name  _____ (PLAN,PROGRAM,CURSOR,COLLID,CONN,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. Valid values include **PLAN**, **PROGRAM**, **CURSOR**, **COLLID**, **CONN**, **CORRNAME**, **CORRID**, **AUTHID**, **JOBNAME**, **SSID**, **WSUSER**, **WSNAME**, **WSTRAN**, **DBNAME**, **OBJNAME**, **CREATOR**, **BUFPOOL**, **OBJTYPE**, **SECTION**, **PAGESET**, or **TABNAME**.

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).

3. Specify a column name, operator, and column value for the filter line.
4. Press Enter. The Create Filter Line window closes and the Active Filters panel displays. The filter line you created is listed in the display area at the bottom of the panel:

```

CQM$FILT ----- Active Filters ----- Row 1 of 2
Option ==> _____

Type "CREATE" on command line to create filter line

Enable Filtering..... N (Y/N)  Mixed Case ... Y (Y/N)
Exclude Filtered Data... N (Y/N) Match Case ... N (Y/N)
Display Defined Filters.. N (Y/N)
Filter Dataset Name..... _____

AND/OR between columns... AND (AND/OR)
AND/OR within a column... OR_ (AND/OR)

C:I-Insert,U-Update,V-View,R-Repeat,D-Delete
----- >
CMD Column  OP Value
-----
_  PLAN      EQ PLANA
_  PROGRAM   EQ PROGRAM1
***** Bottom of Data *****
Press Enter/PF3 to update filter variables or CANCEL to exit

```

Figure 27. Active Filters panel

5. Press PF3 to save the filter and exit the Active Filters panel.

Deleting a filter line

Follow these steps to delete a filter line from a filter.

Procedure

1. Issue the **FILTER** command from a panel or subpanel that supports filtering. The Active Filters panel displays.
2. Type D next to the filter line you want to delete and press Enter. The filter line is deleted.

Note: You cannot delete the last line of a filter. A filter requires that at least one line must be present. You can either update the last line in the profile or delete the entire filter.

3. Press PF3 to save the filter and exit the Active Filters panel.

Repeating a filter line

Follow these steps to repeat a filter line.

Procedure

1. Type FILTER in the **Option** field of a panel that allows filtering and press Enter.
2. Type R next to the filter line you want to repeat and press Enter. The filter line is repeated below the original filter line.
3. Press PF3 to save the filter and exit the Active Filters panel.

Updating a filter line

Follow these steps to update a filter line to modify its settings.

Procedure

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

2. Type U next to the filter line you want to update and press Enter. The Update Filter Line panel is displayed:

```

----- Update Filter Line -----
Option  ===> _____

Column Name  PLAN____ (PLAN,PROGRAM,CURSOR,COLLID,CONN,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. Valid values include PLAN, PROGRAM, CURSOR, COLLID, CONN, CORRNAME, CORRID, AUTHID, JOBNAME, SSID, WSUSER, WSNAME, WSTRAN, DBNAME, OBJNAME, CREATOR, BUFPOOL, OBJTYPE, SECTION, PAGESET, and TABNAME.

Operator

The operator used when matching column values and column names. Valid values are EQ (equal to), GE (greater than or equal to), GT (greater than), LE (less than or equal to), LT (less than), and NE (not equal to).

Column value

The value on which to base the match for the filter line.

3. 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 display-only fields that are shown on the View Filter Line panel include:

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

Follow these steps to enable and disable filters.

About this task

Enabling a filter causes DB2 Query Monitor to display data according to the criteria specified within the filter. Disabling a filter causes DB2 Query Monitor to stop using the filter's criteria to control the display of data.

Procedure

1. Type **FILTER** in the **Option** field of a panel that allows filtering and press Enter.
2. Type **Y** in the **Enable Filtering** field:

```
CQM$FILT ----- Active Filters ----- Row 1 of 2
Option ==>> _____

Type "CREATE" on command line to create filter line

Enable Filtering..... Y (Y/N)  Mixed Case Y (Y/N)
Exclude Filtered Data... N (Y/N) Match Case N (Y/N)
Display Defined Filters.. N (Y/N)
Filter Dataset Name..... _____

AND/OR between columns... AND (AND/OR)
AND/OR within a column... OR_ (AND/OR)

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

3. Press PF3 to save your changes and exit the Active Filters panel. The filter is now enabled.

Results

To disable a filter:

1. Issue the **FILTER** command from the View Current Activity or View Exceptions panels. The Active Filters panel displays.

2. Type **N** in the **Enable Filtering** field, as shown in Figure 31:

```

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

3. Press PF3 to save your changes and exit the Active Filters panel. The filter is now disabled.

Defined filters

DB2 Query Monitor enables you to create filters and save them in a filter data set. The filters contained in a filter data set are referred to as defined filters. Through the use of filter data sets and defined filters, DB2 Query Monitor provides you with the flexibility to manage your filters and share filters between DB2 Query Monitor users. You can share individual defined filters by copying their corresponding members from one filter data set to another.

To create and work with defined filters, you must first create an partitioned data set (PDS) with an LRECL 80. After you have created your filter data set, you can then define DB2 Query Monitor filters, which are saved by DB2 Query Monitor as members in your filter data set.

Accessing filter management

Follow these steps to access DB2 Query Monitor's filter management functionality.

Procedure

1. Issue the **FILTER** command from a panel or subpanel that supports filtering. The Active Filters panel displays.
2. Type **Y** in the **Display Defined Filters** field and specify a filter data set name in the **Filter Dataset Name** field. If you specify a fully-qualified data set name, the name must be enclosed in single-quotes, for example:
'TWUSER.CQM.FILTERS'


```

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

Displays 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)

When you enter CREATE in the option line and press Enter, the Create Filter panel displays where you can specify the name and description of a new filter.

U - Update

Displays the Update Filter panel where you can update the description for a selected filter.

V - View

Displays the View Filter panel where you can view the filter name and description for the selected filter.

D - Delete

Displays the Delete Filter panel where you can confirm the deletion of the selected filter.

C - Copy

Copies the filter and displays the Copy Filter panel where you can specify the name of the filter to which the copy is pasted.

R - Rename

Displays the Rename Filter panel where you can specify a new filter name for a selected filter.

N - New Filter

Displays the Create Filter panel where you can specify the name and description of a new filter.

S - Select

Selects 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 displays: The Create Filter panel is displayed:

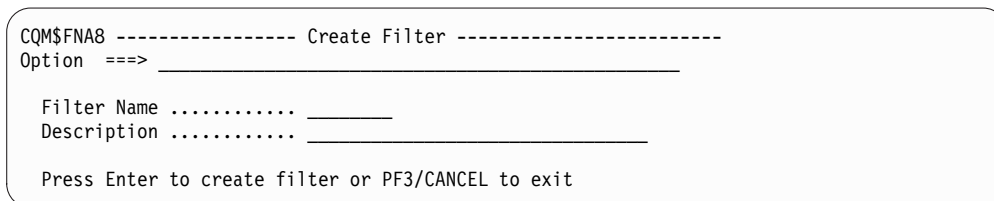


Figure 34. Create Filter panel

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)

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.

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

You can delete a defined filter that you no longer use.

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:

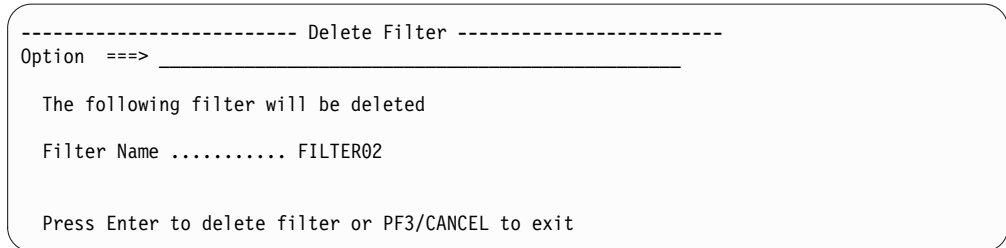


Figure 38. Delete Filter window

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

You can 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:

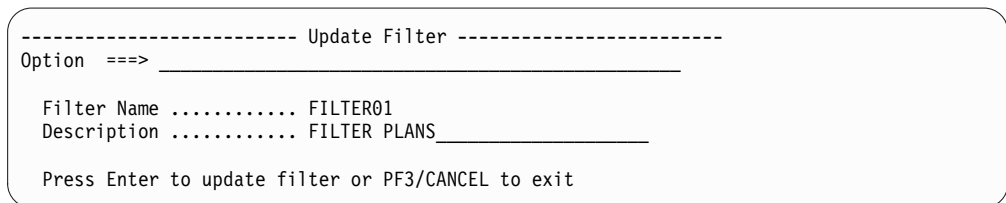


Figure 39. Update Filter window

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

You can rename an existing 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

You must select and enable defined filter to use it.

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

Viewing defined filters enables you to check their current settings and determine if they are appropriate for your display needs.

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

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.

About this task

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.

To filter record ranges:

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 to exit the Filter Record Ranges panel.

Interval selection and navigation

DB2 Query Monitor's interval selection and navigation functionality enables you to select and navigate between interval data sets to display activity of interest.

Note: If the current context is a data sharing group rather than a DB2 Query Monitor subsystem, the list of intervals displayed will logically represent the data sharing group rather than a specific DB2 Query Monitor collector. You will not see interval data sets from all DB2 Query Monitor subsystems involved. But using the provided list of intervals, you will be able to determine the time range for the data that you want to view.

Interval navigation commands

Interval navigation commands enable you to access information about query activity in past and present intervals.

DB2 Query Monitor's interval navigation commands include:

PREV Displays information about the activity that occurred during the interval prior to the interval that is currently displayed.

Note: DB2 Query Monitor initially sets the PF4 key to the PREV command. You can modify the PF key settings DB2 Query Monitor uses by typing KEYS in the option line of any DB2 Query Monitor window, pressing Enter, and modifying the PF key settings as needed.

NEXT Displays information about the activity that occurred during the interval following the interval that is currently displayed.

Note: DB2 Query Monitor initially sets the PF6 key to the NEXT command. You can modify the PF key settings DB2 Query Monitor uses by typing KEYS in the option line of any DB2 Query Monitor window, pressing Enter, and modifying the PF key settings as needed.

CUR Displays information about the activity that occurred during the current interval.

Interval navigation commands are valid when using these DB2 Query Monitor main menu main menu options:

- View Activity Summaries (Option 1)
- View Exceptions (Option 5)
- View SQLCODES (Option 2)
- View DB2 Command Activity (Option 4)

To navigate among intervals using DB2 Query Monitor's interval navigation commands, type the appropriate command (PREV, NEXT, or CUR) in the command line on the View Activity Summaries, View Exceptions, View SQLCODES, or View DB2 Commands panels or their sub-panels and press Enter. The appropriate interval displays.

Note: If the navigational command requested is not valid, for example, if you attempt to view the next interval when viewing the current (last interval), message CQM014E displays indicating that the navigational attempt is invalid.

Selecting one or more intervals for viewing

DB2 Query Monitor enables you to select one or more intervals for viewing.

Procedure

1. Type INTV in the command line on the View Activity Summaries, View Exceptions, View SQLCODES, or View DB2 Commands panels or their sub-panels and press Enter.

```

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

C:S-Select Interval,D-Datasets
-----
CMD  AVAIL   START                               END                               INTERVAL NUMBER
-   -
-   YES    01/31/2015 - 17:26:32              02/01/2015 - 17:00:02             5
-   YES    02/01/2015 - 17:00:02              02/01/2015 - 20:57:26             6
-   YES    02/01/2015 - 20:57:26              02/02/2015 - 11:45:33             7
-   YES    02/02/2015 - 11:58:56              02/02/2015 - 12:11:50             8
-   YES    02/02/2015 - 12:11:50              02/02/2015 - 12:21:27             9
-   YES    02/02/2015 - 12:21:27              02/02/2015 - 12:21:27            10
***** Bottom of Data *****

```

Figure 44. Interval Selection panel

These commands are available on the Interval Selection panel:

D - Datasets

Show information about the selected interval data set(s) including data set name and volume.

S - Select Interval

Selects an interval for display.

These columns display information on the Interval Selection panel:

Avail Indicates whether or not the interval is available for viewing.

Start The date and time that an individual SQL statement started executing its first SQL call.

Offload table name
CQM_INTERVALS

Column name
INTERVAL_START

End The date and time that an individual SQL statement finished executing its last SQL call.

Offload table name
CQM_INTERVALS

Column name
INTERVAL_END

Interval Number
The interval number.

Offload table name
CQM_INTERVALS

Column name

INTERVAL_NUMBER

2. Type an S in the CMD field next to the interval(s) you want to select for display.
3. Press Enter to exit the Interval Selection panel and return to the panel from which you issued the INTV command. The display is updated to show activity for the interval(s) you selected.

Working with interval data sets

DB2 Query Monitor enables you to access information about interval data sets. Additionally, by customizing SCQMSAMP library member CQMCMD5 and placing it in your installation's SYSPROC concatenation, you can define the commands available to users who access the Interval Data Sets panel. Once tailored, CQMCMD5 can possibly contain an unlimited number of commands that your site defines.

Procedure

1. Type **INTV** in the command line on the View Activity Summaries, View Exceptions, View SQLCODES, or View DB2 Commands panels or their sub-panels and press Enter. The Interval Selection panel displays.
2. Type an D in the CMD field next to the interval or intervals for which you want to access data set information.

```
YYYY/MM/DD HH:MM:SS ----- Interval Datasets ----- Row 1 of 15
Option ==>                                         Scroll ==> PAGE
```

CMD	DATASET NAME	VOLUME
-----	-----	-----
_____	CQM.DB01.EDATA.D040131.T1726.I00005	*VSAM*
_____	CQM.DB01.EDATA.D040131.T1726.I00005.DATA	DTP107
_____	CQM.DB01.EINDX.D040131.T1726.I00005	*VSAM*
_____	CQM.DB01.EINDX.D040131.T1726.I00005.DATA	DTP101
_____	CQM.DB01.METRD.D040131.T1726.I00005	*VSAM*
_____	CQM.DB01.METRD.D040131.T1726.I00005.DATA	DTP10A
_____	CQM.DB01.OBJSD.D040131.T1726.I00005	*VSAM*
_____	CQM.DB01.OBJSD.D040131.T1726.I00005.DATA	DTP100
_____	CQM.DB01.TEXTD.D040131.T1726.I00005	*VSAM*
_____	CQM.DB01.TEXTD.D040131.T1726.I00005.DATA	DTP108
_____	CQM.DB01.SQLCD.D040131.T1726.I00005	*VSAM*
_____	CQM.DB01.SQLCD.D040131.T1726.I00005.DATA	DTP109
_____	CQM.DB01.SQLCD.D040131.T1726.I00005.INDEX	DTP109
_____	CQM.DB01.DB2CD.D040131.T1726.I00005	*VSAM*
_____	CQM.DB01.DB2CD.D040131.T1726.I00005.DATA	DTP104
*****	***** Bottom of Data *****	*****

Figure 45. Interval Datasets panel

These columns display on the Interval Data Sets panel:

Dataset Name

The names of the DB2 Query Monitor data sets that were created for the selected interval(s).

Volume

The volume on which the data set is located.

Note: The commands available on this panel can be customized by editing a copy of SCQMSAMP library member CQMCMD5. Once customized, the CQMCMD5 CLIST must be placed into your installation's SYSPROC

concatenation. The Interval Data Sets panel passes the command name and the data set name from the panel to the CQMCMD5 CLIST as parameters.

Modifying PF key settings

DB2 Query Monitor initially sets PF keys PF4, PF5, and PF6 keys to the PREV, RFIND, and NEXT commands, respectively.

PREV (PF4)

Display information about the activity that occurred during the interval prior to the interval that is currently displayed.

RFIND (PF5)

Refind the specified text string.

NEXT (PF6)

Display information about the activity that occurred during the interval following the interval that is currently displayed.

Modifying PF key settings

You can modify the PF key settings used by DB2 Query Monitor. To do so, type KEYS in the option line of any DB2 Query Monitor window and press Enter. The PF Key Definitions and Labels panel displays. Modify the PF key settings as needed and press Enter to save your changes or enter END to save your changes and exit. Your new PF key settings will be retained across DB2 Query Monitor sessions.

Exporting SQL text to a data set

DB2 Query Monitor enables you to export SQL text of interest to a data set via the Export SQL Text to DSN panel.

About this task

Note: The EXPORT command is valid only when viewing the entire SQL. It is not valid on the SQL Activities panel.

Procedure

1. You can export SQL text to a data set from the Display SQL Statement Text panel. The Display SQL Statement Text panel can be accessed from **1. View Activity Summaries**, **3. View Current Activity**, or **5. View Exceptions**. For example, to export SQL text via **1. View Activity Summaries**:
 - a. Select **1. View Activity Summaries** from the IBM DB2 Query Monitor main menu. The Select Summary Level panel displays.
 - b. Select **1 - Plan**. The Operational Summaries panel displays.
 - c. Locate the activity of interest and specify the line command **S-SQL**. The Activity by SQL Text panel displays.
 - d. Locate the SQL text of interest and specify the line command **V - View**. The Display SQL Statement Text panel displays.
 - e. Type **EXPORT** in the **Option** line and press Enter. The Export SQL Text to DSN panel displays.

```

CQM$EXPT----- Export SQL Text to DSN -----
Option ==> _____
Export to data set ... _____
Member. _____ (Required if data set is a PDS)
Execute SQL/PA against exported data set Y/N Y
Press Enter to process request or PF3/CANCEL to exit

```

Figure 46. Export SQL Text to DSN panel

2. Specify the data set to which you want to export SQL text in the **Export to Data Set** field. If the data set is a PDS, then also specify the appropriate member in the **Member** field.
3. Specify **Y** in the **Execute SQL/PA against exported data set** field if you would like to invoke IBM DB2 SQL Performance Analyzer for z/OS against the data set to which you are exporting SQL text.
4. Press Enter to process your request.

Exporting the ISPF log to a data set

To issue the EXPORTLOG command, type EXPORTLOG in the option line of any DB2 Query Monitor panel and press Enter. The EXPORTLOG command has no parameters and is modeled after the SQL text export function.

Procedure

After you issue the EXPORTLOG command the Export CQM ISPF Log to DSN panel displays where a data set name and member can be specified: The following fields display on this panel:

```

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 47. Export CQM ISPF to DSN panel

Export to data set

Indicates the data set to which you want the DB2 Query Monitor ISPF log exported.

Member

Indicates the member of the data set that is to hold exported DB2 Query Monitor ISPF log. If you are exporting to a PDS, you are required to specify a member in this field

Batch control file loader

DB2 Query Monitor supports multiple control files for separate DB2 Query Monitor subsystems. A batch program enables you to add, delete, and update entries in the DB2PARMS control file. 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 the DB2PARMS control file, 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 existing entries in the DB2PARMS control file (thus, updating them). The default value of the REPLACE sub-parameter is N (thus, the default is to not replace existing entries in the DB2PARMS control file).

ZPARMS_MEMBER(*zparm_member*)

(Required) Adds a ZPARMS member to the control file, 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 the control file 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 the control file 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(DB2QM*plan_name*)

(Required) Adds a DB2 Query Monitor plan to the control file for a DB2 subsystem. There is no default for this sub-parameter.

DELETE(*db2subsystem*)

Deletes all information related to the specified DB2 subsystem from the DB2PARMS control file.

Maintaining performance history files

The following 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 backstore data sets:
 - a. Stop the collector.
 - 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 collector.

Configuring commands in CQMCMD5

The commands processed by the Interval Data Sets panel are installation-specific and can be defined in the CQMCMD5 CLIST which installs in your SYSPROC concatenation.

About this task

A sample SCQMSAMP member CQMCMD5 is a sample CLIST member for your reference. A copy of this CLIST can be tailored to contain an unlimited number of commands that your site defines and placed it in your installation's SYSPROC concatenation.

Setting MEMLIMIT

The EXPORTLOG command requires the specification of the MEMLIMIT parameter with a value of 1M or greater.

About this task

MEMLIMIT specifies the maximum amount of 64-bit storage that can be allocated to a single address space. DB2 Query Monitor uses 64-bit storage for two purposes. First, in an ISPF session, DB2 Query Monitor allocates a 1 megabyte log area. Second, when CAE Browser Client users specify the TopN function, 64-bit storage is allocated in the CAE Agent address space for the sorting operation associated with TopN.

For the log function in DB2 Query Monitor's ISPF user interface, a MEMLIMIT of 1 megabyte or greater is required.

For the CAE Browser Client and the TopN function, the amount of storage required to complete this processing is related to the number of UNIQUE SQL STATEMENTS that occur in the interval range that has been selected by the user.

64-bit storage is allocated in 1 megabyte chunks. DB2 Query Monitor will not allocate more than 4 gigabytes of 64-bit storage for the TopN function in the CAE Agent address space.

Approximately 700 unique SQL statements can be represented in 1 megabyte of 64-bit storage for the TopN function.

To estimate the MEMLIMIT setting for “Top N”, the customer can take the maximum number of UNIQUE SQL STATEMENTS that will be included within the interval range selected for “Top N” processing and divide by 700 to get a MEMLIMIT value. If the MEMLIMIT value is set too low, an ABEND 3193 will be generated in the CAE Agent address space. If ABEND 3193 occurs, the following message will be issued in the CAE Browser Client:

```
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 MEMLIMIT is not specified in either of these places, the system default is 0, meaning that no address space can use virtual storage above the bar. If you want to use virtual storage above the bar, you need to set the MEMLIMIT explicitly.

Configuring DB2 system parameters

To complete the configuration of DB2 Query Monitor using the **Setup** option available on DB2 Query Monitor main menu.

Procedure

1. Type the four-character DB2 Query Monitor subsystem ID in the **DB2 QM Subsystem ID** field or type a ? in this field and press Enter to select a DB2 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, as shown in Figure 48 on page 189:


```

-----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 48. 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 data set in use for the QM subsystem you specified in the **DB2 QM Subsystem ID** field on the IBM DB2 Query Monitor main menu.

Note: Setup allocates the control file in use by the Query Monitor subsystem the last time that Query Monitor subsystem was started. You can specify your own control file DSN by first blanking-out the QM Subsystem ID field (on the DB2 Query Monitor 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)

Accesses the Update Parameters for DB2 Subsystem panel where you can specify the DB2 ZPARMs member, the DB2 bootstrap DSNs, and DB2 loadlibs for your Query Monitor system.

DB2 Query Monitor Parameters (Option 2)

Accesses the Update Parameters for DB2 Subsystem panel where you can specify the plan name for your Query Monitor system.

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 displays, as shown in Figure 49 on page 190:

```

----- 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 49. 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). 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's plan information. The Update Parameters for DB2 Subsystem panel displays, as shown in Figure 50:

```

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

Enter or Update Specific DB2 Parameters :

Plan #1 Name          ==> CQMPLAN1

```

Figure 50. 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 control file.

Specifying a DB2PARMS data set

Setup allocates the control file in use by the DB2 Query Monitor subsystem the last time that DB2 Query Monitor subsystem was started.

Procedure

1. On the IBM DB2 Query Monitor main menu, delete all content from the **QM Subsystem ID** field.
2. Type 7 in the option line and press Enter. The Specify DB2PARMS Dataset panel displays:

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

Figure 51. 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 that records DB2 Query Monitor interval data.

Starting the DB2 Query Monitor subsystem

Before starting the DB2 Query Monitor subsystem, ensure that the DB2 subsystem(s) you intend to monitor are up and running. If a DB2 subsystem is not up and running, it will not be monitored.

About this task

You can start DB2 Query Monitor subsystem either as a job or a started task.

Procedure

- To start DB2 Query Monitor as a job, submit the DB2 Query Monitor JCL from TSO or ISPF. For example:

```
//CQMJOB JOB DB2QM,CLASS=A,MSGCLASS=X,NOTIFY=&SYSUID  
//STEP1 EXEC CQMPROC
```

Notes:

1. To stop a DB2 Query Monitor subsystem that is running as a job, issue the **MVS STOP** command to stop the DB2 Query Monitor job. For example, **P CQMPROC**.
2. The **MVS CANCEL** command can be used to terminate a DB2 Query Monitor subsystem. However, the data in the current interval will be lost.
3. Avoid using the **MVS FORCE** command to terminate a DB2 Query Monitor subsystem. Unpredictable results may occur including the termination of any monitored DB2 subsystems.
4. If you must use the **MVS FORCE** command, do so only with the advice of IBM Software Support.

- To start DB2 Query Monitor as a started task, access SDSF from the ISPF Primary Option Menu. For example, if your site uses **S** as the selection character for SDSF, then type **S** from the ISPF Primary Option Menu and press Enter. You can also access SDSF by typing SDSF from TSO.
- To start a monitoring agent, issue the MVS start command **S CQMPROC** and press Enter (where *CQMPROC* is the name of the DB2 Query Monitor started task).

Note: To stop a monitoring agent, issue the MVS stop command **P CQMPROC** and press Enter (where *CQMPROC* is the name of the DB2 Query Monitor started task). When you stop a DB2 Query Monitor started task, DB2 Query Monitor releases all storage that is responsible for allocation and interval processing. Interval processing is scheduled and completes before DB2 Query Monitor is completely terminated.

Chapter 10. View activity summaries

You can use DB2 Query Monitor main menu option **1. View Activity Summaries** to access a wide range of views of your system's query activity.

Topics:

- Activity summary perspectives
- “Recursion in summary reporting” on page 194
- “Selecting a summary level” on page 194
- “Operational summaries” on page 206
- “Structural summaries” on page 235

Activity summary perspectives

There are two overall perspectives from which SQL activity in a system can be summarized, operational summaries and structural summaries. The **operational summaries** perspective allows you to access information about SQL activity from the perspective of the DB2 application program. The **structural summaries** perspective allows you to access information about SQL activity from the perspective of the DB2 objects on which SQL statements act.

Additionally, you can view different summary levels of SQL activity and access reports for those levels using the commands on the Operational Summaries and Structural Summaries panels:

```
YYYY/MM/DD HH:MM:SS ----- Operational Summaries ----- Row 1 of 1
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: Pgm: Authid: Accel:
      Section: Call: Type:
      WSUser: WSName:
      WStran: CorrID:
C: 2-DB2(Op),R-Pgm,U-Auth,5-DB2(St),J-DBase,F-Buff,G-PSet,0-Objs,I-Corr,
T-Sect,C-Call,W-WSUs,M-WSNm,N-WSTr,S-SQL,D-Delay,L-Lock,Q-Misc,B-BStat,
E-Excp,A-CAct,Z-Accl
----- >
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
-- XYZPLAN4 492 1480 0.418683 48.44
***** Bottom of Data *****
```

Figure 52. Operational Summaries panel

Summary navigation actions are cumulative. When you select a row of data for display, the selection criteria is added to the filter that obtains the next set of data. The available summary navigation commands change based on the previous selections you have made. Only the summary navigation commands that are valid for your current view are available. At the top of the panel, the summary navigation fields are displayed as you navigate to the appropriate level. This provides you with a visualization of the path that you took to the currently displayed information. Some commands (such as **O-Objs**, **S-SQL**, **D-Delay**, **B-BStat**, **20-Locks**, **Q-Misc**, **E-Excp**, **CA-CAct**) display detailed reports.

Navigating between operational and structural summaries

There are no boundaries between operational and structural summaries. You can navigate from plans to buffer pools or to databases.

Recursion in summary reporting

When viewing data within the summary displays, you can re-select a particular option. The behavior of DB2 Query Monitor when you re-select an option depends on the settings you specify on the Query Monitor Dialog Options panel (option 0. **Settings** on the DB2 Query Monitor main menu).

If you select **Unstack To Prior Level In Summaries** on the Query Monitor Dialog Options panel, the data is displayed as if you hit PF3 to navigate back to the display where that particular option was last entered. If the **Unstack To Prior Level In Summaries** option is not selected, the key for the particular option in the current drill down path is used.

For example, if you started DB2 Query Monitor and collected two SPUIFI plans DSNESPRR and DSNESPCS and then, on the Operational Summaries panel, select **P-Plan** and subsequently specify **R-Pgm** for the DSNESPRR plan, then enter **P-Plan** again, the two plans (DSNESPRR and DSNESPCS) display as if you PF3-ed back to the plan level display. This is the behavior that occurs if the **Unstack To Prior Level In Summaries** option is selected.

If the **Unstack To Prior Level In Summaries** option is not selected, only the DSNESPRR plan will appear in the list when you re-select the plan option.

Type the KEYMAP command in the option line and press Enter to view the options and values you selected when navigating the summary displays.

Related tasks:

“Setting ISPF dialog options” on page 147

Follow these steps to set the options that control the behavior of the ISPF dialog.

Selecting a summary level

Follow these steps to select an operational or structural summary perspectives by which to view your SQL activity.

Procedure

1. On the DB2 Query Monitor main menu, type 1 in the **Option** field and press Enter. The Select Summary Level panel is displayed:

```
CQM$SUMA----- Select Summary Level -----  
Option  ===>  
  
-- Operational --           -- Structural --  
1) Plan                    5) DB2  
2) DB2                     6) Database  
3) DBRM/Package           7) Buffer Pool  
4) AuthID                 8) Page Set
```

Figure 53. Select Summary Level panel

These options are available:

- 1 - Plan**
The Operational Summaries panel displays SQL activity grouped by plan.
 - 2 - DB2**
The Operational Summaries panel displays SQL activity grouped by DB2 subsystem.
 - 3 - DBRM/Package**
The Operational Summaries panel displays SQL activity grouped by DBRM/Package.
 - 4 - AuthID**
The Operational Summaries panel displays SQL activity grouped by DB2 authorization ID.
 - 5 - DB2**
The Structural Summaries panel displays SQL activity grouped by DB2 subsystem.
 - 6 - Database**
The Structural Summaries panel displays SQL activity grouped by database.
 - 7 - Buffer Pool**
The Structural Summaries panel displays SQL activity grouped by buffer pool.
 - 8 - Page Set**
The Structural Summaries panel displays SQL activity grouped by page set.
2. Select the appropriate summary panel option and press Enter.

Activity summaries - fields

The fields at the top of the activity summary panels show information about the interval being viewed and the navigational sequence taken to view the data.

DB2 QM Subsystem / DB2 DS Group

The active DB2 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.

Note: A value of CURRENT denotes the display interval has not yet ended.

Filters Enabled

Indicates whether or not filters are enabled for the display.

DB2 The DB2 subsystem on which the displayed activity occurred.

Plan The plan name.

Pgm The name of the program.

AuthID

The DB2 authorization ID.

Accel	The name of the accelerator where the SQL activity ran.
Section	The section.
Call	The SQL call.
Type	The SQL call type (such as PREPARE, OPEN, etc.).
WSUser	The workstation user ID.
WSName	The name of the workstation.
WSTran	The workstation transaction.
CorrID	The correlation ID.

Activity summaries - line commands

The following line commands are available for use when refining your view of information displayed on the activity summary panels (the commands that are available for selection vary based on your drill down path).

2 - DB2(Op)

Display the DB2 subsystems for the SQL activity.

P - Plan

Display the plans for the SQL activity.

R - Pgm

Display the programs for the SQL activity.

U - Auth

Display the DB2 authorization IDs for the SQL activity.

5 - DB2(St)

Display the DB2 subsystems for the SQL activity.

J - DBase

Display the databases for the SQL activity.

F - Buff

Display the buffer pools for the SQL activity.

G - PSet

Display the pagesets for the SQL activity.

O - Objs

Display the objects for the SQL activity.

I - Corr

Display the correlation IDs for the SQL activity.

T - Sect

Display the sections for the SQL activity.

C - Call

Display the SQL calls for the SQL activity.

W - WSUs

Display the workstation user ID for the SQL activity.

- M - WSNm**
Display the workstation name for the SQL activity.
- N - WSTr**
Display the workstation transaction for the SQL activity.
- S - SQL**
Display the individual SQL statements for the SQL activity.
- D - Delay**
Display a list of delay events, counts, and delay times for the SQL activity.
- L - Lock**
Display a list of lock events and counts for the SQL activity.
- Q - Misc**
Display additional statistics for the SQL activity.
- B - BStat**
Display buffer pool usage statistics for the SQL activity.
- E - Excp**
Display exception information for the SQL activity.
- A - CAct**
Display current SQL activity information.
- 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 232.

Activity summaries - columns

The columns that display on an activity summary panel depend on whether you are in operational or structural summaries and on the line commands you specify to navigate to the activity summary panel you are viewing.

Accel Elig CPU

The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_SUMM_METRICS

Column name

ACCEL_ELIGIBLE_CPU

Accel Elig Elapsed

The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_SUMM_METRICS

Column name

ACCEL_ELIGIBLE_ELAPSED

Accel Elig ZIIP

The amount of CPU time spent on a specialty engine that would be saved

if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_SUMM_METRICS

Column name

ACCEL_ELIGIBLE_ZIIP

Accelerator

The name of the IBM DB2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the IBM DB2 Analytics Accelerator for z/OS.

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.

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.

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

CONSISTENCY_TOKEN

The hexadecimal value of the consistency token.

Offload table name
CQM_SUMM_METRICS

Column name
CONSISTENCY_TOKEN

Corrname
The correlation ID adjusted by the conventions used by IMS and CICS.

Offload table name
CQM_SUMM_METRICS

Column name
CORRNAME

Corrid The correlation ID.

Offload table name
CQM_SUMM_METRICS

Column name
CORRID

CPU The total amount of CPU time SQL calls spent in DB2.

Offload table name
CQM_SUMM_METRICS

Column name
DB2_CPU

%CPU The percent CPU time SQL calls spent in DB2 relative to the total CPU time that all SQL calls spent in DB2.

Offload table name
not applicable

Column name
not applicable

<%CPU>
The percent CPU usage for the SQL calls relative to the total elapsed time for the SQL calls.

Offload table name
not applicable

Column name
not applicable

Creator
The object creator.

Offload table name
CQM_SUMM_OBJECTS

Column name
OBJECT_CREATOR

Database
The database name.

Offload table name
CQM_SUMM_OBJECTS

Column name
DATABASE_NAME

DB2 The DB2 subsystem on which the activity occurred.

Offload table name
CQM_SUMM_METRICS

Column name
DB2_SUBSYSTEM

Delay The total time SQL calls spent in delays due to lock or latch delays, synchronous I/O delays, read/write delays.

Offload table name
not applicable

Column name
not applicable

%Delay The percent delay time for SQL calls relative to the total elapsed time for those SQL calls.

Offload table name
not applicable

Column name
not applicable

<%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 a the SQL statement has executed. DB2 Query Monitor does not update the execution count for SQL that does not have a

CLOSE call (for example, if the SQL ends with a negative SQLCODE or the SQL is cancelled). In this case, the execution count of the SQL is shown as zero.

Offload table name
CQM_SUMM_METRICS

Column name
EXECUTION_COUNT

Failed The number of times a parallel query failed to find a page in the buffer pool.

Offload table name
CQM_SUMM_METRICS

Column name
GETPAGES_FAILED

GetPages

The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGES of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

Offload table name
CQM_SUMM_METRICS

Column name
GETPAGES

HitRatio

The hit ratio.

Offload table name
not applicable

Column name
not applicable

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

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

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.

Offload table name
CQM_SUMM_METRICS

Column name
CURRENT_SCHEMA

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

SQL Text

The abbreviated view of the SQL text.

Offload table name
CQM_SUMM_TEXT

Column name
SQLTEXT

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_METRICS

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

WriteEvt

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

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.

The Operational Summaries panel displays when you select an operational option from the Select Summary Level panel. For example, if you select 2 (DB2) the

following panel is displayed:

```

YYYY/MM/DD HH:MM:SS ----- Operational Summaries ----- Row 1 of 1
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: Pgm: Authid: Accel:
      Section: Call: Type:
      WSUser: WSName:
      WStran: CorrID:
C: 2-DB2(Op),R-Pgm,U-Auth,5-DB2(St),J-DBase,F-Buff,G-PSet,0-Objs,I-Corr,
T-Sect,C-Call,W-WSUs,M-WSNm,N-WSTr,S-SQL,D-Delay,L-Lock,Q-Misc,B-BStat,
E-Excp,A-CAct,Z-Accl
-----
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
-- XYZPLAN4 492 1480 0.418683 48.44
***** Bottom of Data *****

```

Figure 54. Operational Summaries panel

You can drill down to refine your view of specific query activity of interest and can access detail-reports to view 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 result data. The navigation area of the display is populated as you drill down to the appropriate level. As you back out (drill up), populated fields of the navigational area are unpopulated.

Note:

1. Any column display functions (for example, CSIZE and CFIX) used on any level of the drill down affect all top-level reports.
2. The INTV command can only be used at the top-most level of the operational summaries display.
3. 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.
4. When a dynamic SQL statement runs on more than one DB2 subsystem and you attempt to view information about that SQL statement via operational summaries, DB2 Query Monitor, when necessary, prompts you to specify the DB2 subsystem ID of interest prior to invoking IBM SQL Performance Analyzer.
5. 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.

Related concepts:

“Activity summaries - fields” on page 195

The fields at the top of the activity summary panels show information about the interval being viewed and the navigational sequence taken to view the data.

“Activity summaries - line commands” on page 196

The following line commands are available for use when refining your view of information displayed on the activity summary panels (the commands that are available for selection vary based on your drill down path).

“Activity summaries - columns” on page 197

The columns that display on an activity summary panel depend on whether you are in operational or structural summaries and on the line commands you specify to navigate to the activity summary panel you are viewing.

Viewing activity by SQL text

Follow these steps to view summary information about SQL statements.

Procedure

1. On the DB2 Query Monitor main menu, type 1 in the **Option** field and press Enter.
2. Select the summary level that you want to view.
3. Locate the SQL activity for which you want to view SQL activity information.
4. Type S in the **CMD** field next to the SQL activity of interest and press Enter. The Activity by SQL Text panel is displayed:

```
YYYY/MM/DD HH:MM:SS ---- Activity by SQL Text ---- Row 1 of 2
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: MM/DD/YYYY Time: HH:MM:SS
DB2: Plan: DISTSERV Pgm: Authid: Accel:
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorrID:
C: P-Plan,2-DB2(Op),R-Pgm,U-Auth,5-DB2(St),J-DBase,F-Buff,G-PSet,0-Objs,
  I-Corr,T-Sect,C-Call,W-WSUs,M-WSNm,N-WSTr,V-View,A-Analyze,D-Delay,
  L-Lock,Q-Misc,B-BStat,E-Excp,Z-Accel
----->
CMD SQL Text Calls DB2 Plan
----->
-- select * from sysibm.systables FOR FETC 2
-- DECLARE C1 CURSOR FOR select * from sysi 4 DB01 DISTSERV
***** Bottom of Data *****
```

Figure 55. Activity by SQL Text panel

When you view SQL text for rows that display dynamic text, the **DB2**, **Plan**, **Program**, and **Section number** columns are blank.

Related concepts:

“Activity summaries - fields” on page 195

The fields at the top of the activity summary panels show information about the interval being viewed and the navigational sequence taken to view the data.

“Activity summaries - line commands” on page 196

The following line commands are available for use when refining your view of information displayed on the activity summary panels (the commands that are available for selection vary based on your drill down path).

“Activity summaries - columns” on page 197

The columns that display on an activity summary panel depend on whether you are in operational or structural summaries and on the line commands you specify to navigate to the activity summary panel you are viewing.

Viewing object details

Follow these steps to 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 appropriate summary level.
3. Locate the SQL activity for which you want to view object detail information.

- Type O 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
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: MM/DD/YYYY Time: HH:MM:SS
DB2: Plan: DISTSERV Pgm: AuthID: Accel:
      Section: Call: Type:
      WSUser: WSName:
      WStran: CorrID:
C: P-Plan,2-DB2(Op),R-Pgm,U-Auth,5-DB2(St),J-DBase,F-Buff,G-PSet,I-Corr,
  T-Sect,C-Call,W-WSUs,M-WSNm,N-WSTr,S-SQL,D-Delay,L-Lock,Q-Misc,B-BStat,
  Z-Accel,X-Usage
----- >
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 56. Object Detail panel

Related concepts:

“Activity summaries - fields” on page 195

The fields at the top of the activity summary panels show information about the interval being viewed and the navigational sequence taken to view the data.

“Activity summaries - line commands” on page 196

The following line commands are available for use when refining your view of information displayed on the activity summary panels (the commands that are available for selection vary based on your drill down path).

“Activity summaries - columns” on page 197

The columns that display on an activity summary panel depend on whether you are in operational or structural summaries and on the line commands you specify to navigate to the activity summary panel you are viewing.

Viewing a summary of delay statistics

Follow these steps to view a summary of delay statistics.

Procedure

- On the DB2 Query Monitor main menu, type 1 in the **Option** field and press Enter.
- Select the summary level that you want to view.
- Locate the SQL activity for which you want to view delay information.
- 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:          Plan: PLAN01  Pgm:          AuthID:
              Section:      Call:          Type:
              WUser:        WSName:
              WStran:
              Accel:
              CorrID:

Filters Enabled: N
-----
Delay Event                               Event Count   Delay Time
Lock or Latch Delays                      0             0.00000
Synchronous I/O Delays                    17            0.20933
  Database I/O Delays                      17            0.20933
  Log Write I/O Delays                     0             0.00000
Other Read Delays                          0             0.00000
Other Write Delays                         0             0.00000
Service Task Switch Delays                 1             0.07064
Update Commit Delays                       1             0.07064
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                               18            0.27998

Valid Commands: (End, Filter)

```

Figure 57. Delay Statistics panel

Delay statistics - fields

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
please provide

Column name
please provide

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

Accumulated wait time for commit phase 1 I/O.

Offload table name
CQM_SUMM_METRICS

Column name
COMM_PH1WRT_DLY

Asynch CF Requests Delays

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

DB2:          Plan: PLAN01  Pgm:          AuthID:
              Section:      Call:          Type:
              WSUser:        WSName:
              WStran:
              Accel:
Filters Enabled: N

-----
Buffer Pool: ALL
Buffer Pool Hit Ratio (%)          Total          Average
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 *****
Valid Commands: (End, Filter)
```

Figure 58. Buffer Pool Statistics panel

Buffer pool statistics - fields

This topic describes the statistics that are displayed on the Buffer Pool Statistics panel.

Buffer Pool Hit Ratio (%)

The hit ratio for buffer pools.

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.

Offload table name
CQM_SUMM_METRICS

Column name
BUFFER_UPDATES

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.

- 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:          Plan: PLAN01  Pgm:          AuthID:
              Section:      Call:          Type:
              WSUser:       WSName:
              WSTran:
              Accel:
Filters Enabled: N
-----
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 59. Lock Related Statistics panel

Related concepts:

“Activity summaries - fields” on page 195

The fields at the top of the activity summary panels show information about the interval being viewed and the navigational sequence taken to view the data.

“Configuring filters” on page 164

You can use filters to specify the type of information to display for an ISPF session.

Lock-related statistics - fields

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). The following IBM publication provides a detailed description of service task suspensions and wait times: http://publib.boulder.ibm.com/infocenter/dzichelp/v2r2/index.jsp?topic=%2Fcom.ibm.db2z10.doc.perf%2Fsrc%2Ftpc%2Fdb2z_suspensionwait.htm

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
DB2:          Plan: PLAN01  Pgm:          AuthID:
              Section:    Call:          Type:
              WSUser:     WSName:
              WStran:
              Accel:
Filters Enabled: N
-----
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
Valid Commands: (End, Filter)

```

Figure 60. Miscellaneous Statistics panel

Related concepts:

“Activity summaries - fields” on page 195
The fields at the top of the activity summary panels show information about the interval being viewed and the navigational sequence taken to view the data.
“Configuring filters” on page 164
You can use filters to specify the type of information to display for an ISPF session.

Miscellaneous statistics - fields

This topic describes the statistics that 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 total elapsed time spent by the SQL activity in user-defined functions. A user-defined function might invoke a stored procedure or initiate a trigger. The time spent there is not included in this counter.

Offload table name

CQM_SUMM_METRICS

Column name

UDF_APP_ELAPSED

UDF Application CPU Time

The accumulated CPU time used to satisfy user-defined function requests processed in WLM address space.

Offload table name

CQM_SUMM_METRICS

Column name

UDF_APP_CPU

UDF DB2 Elapsed Time

The elapsed time consumed in DB2 by the user-defined function.

Offload table name

CQM_SUMM_METRICS

Column name

UDF_DB2_ELAPSED

UDF DB2 CPU Time

The CPU time consumed in DB2 by the user-defined function.

Offload table name

CQM_SUMM_METRICS

Column name

UDF_DB2_CPU

SP Application Elapsed Time

The total elapsed time spent by the SQL activity in stored procedures. A stored procedure might initiate a trigger or invoke a user-defined function. The time spent there is not included in this counter.

Offload table name
CQM_SUMM_METRICS

Column name
SP_APP_ELAPSED

SP Application CPU Time

The total CPU time spent by the SQL activity in stored procedures.

Offload table name
CQM_SUMM_METRICS

Column name
SP_APP_CPU

SP DB2 Elapsed Time

The TCB time accumulated in DB2 for processing SQL statements issued by stored procedures.

Offload table name
CQM_SUMM_METRICS

Column name
SP_DB2_ELAPSED

SP DB2 CPU Time

The CPU time accumulated in DB2 for processing SQL statements issued by stored procedures.

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 - No Storage

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

Related tasks:

“Viewing miscellaneous statistics for an exception” on page 286
Follow these steps to view miscellaneous statistics for an exception.

Accessing exceptions from summary display

Follow these steps to access exceptions from some drill down options in operational summaries.

Procedure

1. On the DB2 Query Monitor main menu, type 1 in the **Option** field and press Enter.
2. Select the appropriate operational summary level.
3. Navigate to the drill down option of interest that supports the E line command.
4. Type E in the **CMD** field next to the SQL activity of interest and press Enter. The Summary Exceptions panel is displayed with implicit filtering. For example, if you drill down through Operational Summaries by DB2 (R71C), Plan (DSNESPCS) and Program, and then enter the E line command for the line item DSNESM68, the Summary Exceptions panel shows the exceptions for DB2 SSID R71C, Plan DSNESPCS, and Program DSNESM68:

```
YYYY/MM/DD HH:MM:SS ----- Summary Exceptions ----- Row 1 of 11
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: MM/DD/YYYY Time: HH:MM:SS
C:0-Objects,C-Calls,S-SQL,A-Analyze,D-Delays,L-Locks,Q-Misc Stats
B-Buffer Pool Stats,H-Host Variables,P-Parallel Activity
----- >
CMD SSID Plan Program DB2 CPU Time DB2 Elapsed GETPAGES SQLCODE
- - - - -
_ R71C PLAN01 DSNESM68 0.001893 0.115371 13 0
_ R71C PLAN01 DSNESM68 0.001420 0.001553 13 +100
_ R71C PLAN01 DSNESM68 0.000156 0.000156 0 0
***** Bottom of Data *****
```

Figure 61. 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).

Related concepts:

“Exceptions - fields” on page 270

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

“Exceptions - line commands” on page 270

This topic describes the line commands that are available on the exceptions panel.

“Exceptions - columns” on page 271

This topic describes the columns that are available on the exceptions panel.

Accessing current activity from summary display

Follow these steps to access current activity from some drilldown paths in operational summaries.

Procedure

1. Select **1. View Activity Summaries** from the DB2 Query Monitor main menu 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 (DSNESPSCS) 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 DSNESPSCS, and Program DSNESM68.

```
YYYY/MM/DD HH:MM:SS ----- Summary SQL Activity ----- No rows to display
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
C:0-Objects,C-Calls,S-SQL,A-Analyze,D-Delays,L-Locks,Q-Misc Stats
B-Buffer Pool Stats,H-Host Variables,P-Parallel Activity,E-Cancel
-----
CMD SSID Plan Program DB2 CPU Time DB2 Elapsed GETPAGES SQLCODE
- - - - -
```

Figure 62. Summary SQL Activity panel

Related concepts:

“Current activity - fields” on page 249

These fields that display on the Current SQL Activity panel.

“Current activity - line commands” on page 249

These line commands are available for use on the various current activity panels.

“Current activity - columns” on page 251

These columns are displayed on the Current SQL Activity panel.

Specifying one of multiple DB2 subsystems for SQL text

Follow these steps to 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 appropriate summary level (these include 1-Plan, 3-DBRM/Package, or 4-AuthID) to locate the dynamic SQL statement that ran on multiple DB2 subsystems.

Note: If you select 2-DB2, you will not be required to specify a DB2 subsystem using the Multiple DB2 Subsystems for SQL text panel because you would have specified the DB2 subsystem of interest prior to IBM DB2 SQL Performance Analyzer for z/OS analysis.

3. Issue the S and A line commands to select and request analysis of 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 63. Multiple DB2 Subsystems for SQL Text panel

These fields display on the Multiple DB2 Subsystems for SQL Text panel:

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 and press Enter to analyze the SQL text of interest.

Displaying IBM DB2 Analytics Accelerator for z/OS information

Follow these steps to display IBM DB2 Analytics Accelerator for z/OS (IDAA) information.

Before you begin

IBM DB2 Analytics Accelerator for z/OS is a device that integrates with DB2. The IBM DB2 Analytics Accelerator for z/OS receives qualified queries, rapidly builds results sets for those queries and in doing so can greatly improve performance.

The query is first processed by DB2 to determine if it is a candidate for offload to the IDAA. This processing is in the PREPARE call of the query. If the query is offloaded, the bulk of the processing is performed on the IDAA 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 IDAA where the query was run, as well as the usage of native DB2 resources (CPU, Elapsed Time, etc.) involved in sending the query to the IDAA 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 > Optional Summaries** panels (Plan, DB2, DBRM/Package, and AuthID).

DB2 Query Monitor does not provide IBM DB2 Analytics Accelerator for z/OS information from within **View Summaries > Structural Summaries** panels (DB2, Database, Buffer Pool, Page Set).

The following figure shows the Operational Summaries panels (for Plan) with the **Accel** field and the line command, **Z-Accel**:

```

YYYY/MM/DD HH:MM:SS ----- Operational Summaries ----- Row 1 of 5
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01      Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N        Interval End Date: CURRENT Time: CURRENT
DB2:      Plan:      Pgm:      Authid:      Accel:
          Section:   Call:      Type:
          WSUser:    WSName:
          WStran:    CorrID:
C: 2-DB2(Op),R-Pgm,U-Auth,5-DB2(St),J-DBase,F-Buff,G-PSet,0-Objs,I-Corr,
T-Sect,C-Call,W-WSUs,M-WSNm,N-WStr,S-SQL,D-Delay,L-Lock,Q-Misc,B-BStat,
E-Excp,A-CAct,Z-Accel
-----
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 64. Operational Summaries - Accel - panel

Issuing the Z line command for a line item (in the case of the previous figure, the line item that corresponds to the “PLAN03” plan) displays the Operational Summaries drill down for that selection.

The following figure shows the result issuing the Z line command for a line item:

```

YYYY/MM/DD HH:MM:SS ----- Operational Summaries ----- Row 1 of 2
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01      Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled : N        Interval End Date: CURRENT Time: CURRENT
DB2:      Plan: XYZPLAN4    Pgm:      Authid:      Accel:
          Section:   Call:      Type:
          WSUser:    WSName:
          WStran:    CorrID:
C: P-Plan,2-DB2(Op),R-Pgm,U-Auth,5-DB2(St),J-DBase,F-Buff,G-PSet,0-Objs,
I-Corr,T-Sect,C-Call,W-WSUs,M-WSNm,N-WStr,S-SQL,D-Delay,L-Lock,Q-Misc,
B-BStat,E-Excp,A-CAct
-----
CMD ACCELERATOR    Exec Count      Calls          Elapsed %Elap
--  -
--  492             1480           0.418683  100.00
***** Bottom of Data *****

```

Figure 65. Operational Summaries - Z line command - panel

Notice that "IDAASEL1" displays in the Plan field to indicate the plan selected on the previous panel, a navigational field "Accel", and a column, "ACCELERATOR" is shown in the data table:

Accel The accelerator associated with the displayed activity.

ACCELERATOR

The ACCELERATOR column indicates 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.

Issuing the **S** (SQL) line command for activity that was sent to the IBM DB2 Analytics Accelerator for z/OS displays the Activity by SQL Text panel:

```

YYYY/MM/DD HH:MM:SS ---- Activity by SQL Text ---- Row 1 of 2
Option ==> Scroll ==> CSR
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: MM/DD/YYYY Time: HH:MM:SS
DB2: Plan: XYZPLAN4 Pgm: Authid: Accel: ACCEL01
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorrID:
C: P-Plan,2-DB2(Op),R-Pgm,U-Auth,5-DB2(St),J-DBase,F-Buff,G-PSet,O-Objs,
I-Corr,T-Sect,C-Call,W-WSUs,N-WSNm,N-WSTr,V-View,A-Analyze,D-Delay,
L-Lock,Q-Misc,B-BStat,Z-Accel
-----+>
CMD SQL Text Exec Count Calls
-----+>
__ SELECT C1, C2, C6 FROM USER.TABLE1 WH 1 3
***** Bottom of Data *****

```

Figure 66. Operational Summaries - S (SQL) line command - panel

You can view whether SQL statements were accelerated for all of the Operational Summaries displays. This means that you can select an initial summary level of Plan, DB2, DBRM/Package or AuthID. Furthermore, from those displays you can issue operational summary drilldown line commands (such as P-Plan, 2-DB2(Op), R-Pgm, U-Auth, I-Corr, C-Call, W-WSUs, M-WSNm, N-WSTr) 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.

Note:

- You can 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.

Related concepts:

"IBM DB2 Analytics Accelerator for z/OS" on page 13

This topic describes the integration of DB2 Query Monitor with IBM DB2 Analytics Accelerator for z/OS.

Structural summaries

You can use structural summaries to view and drill down through summaries of SQL activity from the perspective of the DB2 objects on which SQL statements act.

The Structural Summaries panel is displayed when you select a structural summary option from the Select Summary Level panel. For example, if select 5 (DB2), the following panel is displayed:

```
YYYY/MM/DD HH:MM:SS ----- Structural Summaries ----- Row 1 of 1
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: MM/DD/YYYY Time: HH:MM:SS
DB2: DBname: BPool: PageSet:
C: P-Plan,2-DB2(Op),R-Pgm,U-Auth,J-DBase,F-Buff,G-PSet,0-Objs,I-Corr,
T-Sect,C-Call,W-WSUs,M-WSNm,N-WStr,S-SQL,D-Delay,L-Lock,Q-Misc,B-BStat,
E-Excp,A-CAct
----- >
CMD DB2 GetPages Elapsed SyncRead SyncWrit SeqPftch
-- --
-- DB01 7683 0.752588 2 0 33
***** Bottom of Data *****
```

Figure 67. 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.

Related concepts:

“Activity summaries - fields” on page 195

The fields at the top of the activity summary panels show information about the interval being viewed and the navigational sequence taken to view the data.

“Activity summaries - line commands” on page 196

The following line commands are available for use when refining your view of information displayed on the activity summary panels (the commands that are available for selection vary based on your drill down path).

“Activity summaries - columns” on page 197

The columns that display on an activity summary panel depend on whether you are in operational or structural summaries and on the line commands you specify to navigate to the activity summary panel you are viewing.

Viewing object details

Follow these steps to view summary information about objects 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 appropriate summary level.
3. Locate the SQL activity for which you want to view object detail information.
4. Type O in the **CMD** field next to the SQL activity of interest and press Enter. The Object Detail panel is displayed:

```
YYYY/MM/DD HH:MM:SS ----- Object Detail ----- Row 1 of 3
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: MM/DD/YYYY Time: HH:MM:SS
DB2: DBB6 Plan: Pgm: AuthID: Accel:
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorrID:
C: P-Plan,2-DB2(Op),R-Pgm,U-Auth,5-DB2(St),J-DBase,F-Buffer,G-PSet,I-Corr,
T-Sect,C-Call,W-WSUs,M-WSNm,N-WSTr,S-SQL,D-Delay,L-Lock,Q-Misc,B-BStat,
Z-Accel,X-Usage
----- >
CMD Creator Name Type DataBase BPool PageSet GetPages
-----
--
-- SYSIBM SYSCOLUMNS TABLE DSND06 BP00 SYSDBASE 537
-- SYSIBM DSNDX01 INDEX DSND06 BP0 DSNDX01 7142
-- SYSIBM DSNSSH01 INDEX DSND06 BP0 DSNSSH01 4
***** Bottom of Data *****
```

Figure 68. Object Detail panel

Related concepts:

“Activity summaries - fields” on page 195

The fields at the top of the activity summary panels show information about the interval being viewed and the navigational sequence taken to view the data.

Viewing object usage

Follow these steps to view information about object usage 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 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.

- 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
DB2 QM Subsystem: QM01      Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N          Interval End Date: MM/DD/YYYY Time: HH:MM:SS
DB2: DB01      DBname: DATAB01      BPool: BP0      Page set: SERVERRI
Type: INDEX      Creator: RDBI      Name: SERVER_INFO_IDX
----- >
PLAN      PROGRAM  USER      CORRID      WSUSER
-----
DISTSERV PRGR0001  USERID1    QMF for Wind
***** Bottom of Data *****

```

Figure 69. Object Usage panel

Chapter 11. View SQLCODEs

You can use DB2 Query Monitor main menu option **2. View SQLCODEs** to view SQLCODEs for all of the DB2 subsystems being monitored by the DB2 Query Monitor subsystem.

Topics:

- “About SQLCODEs”
- “Grouping negative SQLCODE information” on page 243
- “Viewing negative 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. Negative SQLCODEs yield information about SQL execution errors. Use DB2 Query Monitor main menu option **2. View SQLCODEs** to view information about negative 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 to be 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 negative SQLCODEs are to be collected and how many occurrences of each unique code are to be retained for viewing.

Notes:

1. The collection of negative 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 negative SQLCODE information is not collected for the specified workload.

2. The data provided under the menu options **1. View Activity Summaries** and **3. View Current Activity** are not directly related to the data provided through main menu option **2. View SQLCODES**. Data provided under menu options **1. View Activity Summaries** and **3. View Current Activity** are influenced by the monitoring profile in use, while data provided under main menu option **2. View SQLCODES** are not controlled by the use of monitoring profiles. Therefore, the number of negative SQLCODES might differ between option **2. View SQLCODES** and options **1. View Activity Summaries** and **3. View Current Activity**.
3. DB2 Query Monitor does not collect the values of host variable data for FETCH statements.
4. DB2 Query Monitor captures information of negative 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.

Related concepts:

"DB2 Query Monitor subsystem parameters - CQMPARMS" on page 531
 This topic describes the parameters that are used in CQMPARMS to control the DB2 Query Monitor subsystem.

SQLCODEs - fields

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

DB2 QM Subsystem

The active DB2 Query Monitor subsystem ID.

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. 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 negative SQLCODE and the number of times it occurred during the displayed interval.

No Grouping (Group by *)

If you select **No Grouping**, the **DB2 QM SQL Code Detail**

Display panel is displayed and shows negative SQLCODE information without any grouping.

SQLCODEs - line commands

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

C - SQLCA

Display the expanded text description for an SQLCODE that is supplied by the IBM utility program DSNTIAR.

S - SQLCODEs

Display the SQLCODE-level data.

S - Select detail

Show detail view.

S - SQL text

Display the text for the SQL statement.

P - Plans

Display the plan-level data.

D - DBRMs/Packages

Display the program-level SQLCODE summary.

A - AuthIDs

Display the AUTHID-level SQLCODE summary.

SQLCODEs - Columns

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

Authid

The primary authorization ID.

Offload table name

CQM_SQLCODE_DET

Column name

AUTHID

Collection

The collection ID.

Offload table name

CQM_SQLCODE_DET

Column name

COLLECTION

Connname

The connection name.

Offload table name

CQM_SQLCODE_DET

Column name

CONNECTION

Connname

The connection name.

Offload table name
CQM_SQLCODE_DET

Column name
CONNECTION

Program

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 instances of the SQL code has exceeded the maximum SQL code detail value that you set in CQMPARMS. The SQLCODE detail is set in CQMPARMS via the MAX_SQLCODE_DETAIL(n) parameter.

Plan The DB2 plan name.

Offload table name
CQM_SQLCODE_DET

Column name
PLAN

Section

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

DB2 The DB2 subsystem on which the activity occurred.

Offload table name
CQM_SQLCODES

Column name
DB2_SUBSYSTEM

not applicable

The statement number assigned by PRECOMPILER.

Offload table name

CQM_SQLCODE_DET

Column name

STMT

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_SQLCODE_DET

Column name

TYPE

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 negative SQLCODE information

Follow these steps to group negative SQLCODE information to locate problematic SQL activity of interest.

Procedure

1. On the DB2 Query Monitor main menu, type 2 in the **Option** field and press Enter.

```

YYYY/MM/DD HH:MM:SS ----- DB2 QM SQL Code Summary ----- Row 1 of 2
Option ==>                               Scroll ==> CSR
DB2 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)
                Specify "*" for no grouping
C: S-Select detail, P-Plans, D-DBRMs/Packages, A-AUTHIDS
-----
CMD SQL Code      Occurrences
- -----
-  -104           3
-  -204           5
***** Bottom of Data *****

```

Figure 70. DB2 QM SQL Code Summary panel

2. Specify the appropriate command in the **Group By** field to refine the display of information to suit your needs. For example, to group by DB2 authorization ID, type **A** in the **Group By** field and press Enter. The SQL Code Summary panel groups SQLCODE information by authorization ID:

```

YYYY/MM/DD HH:MM:SS ----- DB2 QM SQL Code Summary ----- Row 1 of 2
Option ==> Scroll ==> CSR
DB2 QM Subsystem: QMID 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)
Specify "*" for no grouping
C: P-Plans, D-DBRMs/packages, S-SQLCODEs
-----
CMD Authid Occurrences
--
_ USERID1 5
_ USERID2 3
***** Bottom of Data *****

```

Figure 71. DB2 QM SQL Code Summary panel

- When you have refined the grouping of SQLCODE information to locate activity of interest, you can issue line commands to drill down into a line item. For example, you can issue the P line command and press Enter to view plans associated with a line item.

```

YYYY/MM/DD HH:MM:SS --- DB2 QM SQL Code Group Summary --- Row 1 of 1
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QMID 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, S-SQLCODEs
-----
CMD Plan Occurrences
--
_ PLAN01 5
***** Bottom of Data *****

```

Figure 72. DB2 QM SQL Code Summary panel

- To view the SQLCODEs associated with a line item, type S in the CMD field and press Enter.

```

YYYY/MM/DD HH:MM:SS --- DB2 QM SQL Code Group Summary --- Row 1 of 1
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QMID Interval Start Date: MM/DD/YYYY Time: HH:MM:S
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 73. DB2 QM SQL Code Group Summary panel

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

Viewing negative SQLCODE information with no grouping

Follow these steps to view negative SQLCODE information with no grouping.

Procedure

1. On the DB2 Query Monitor main menu, type 2 in the **Option** field and press Enter. The DB2 QM SQL Code Detail Display panel is displayed:

```
YYYY/MM/DD HH:MM:SS ----- DB2 QM SQL Code Summary ----- Row 1 of 2
Option ==> Scroll ==> CSR
DB2 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)
Specify "*" for no grouping
C: S-Select detail, P-Plans, D-DBRMs/Packages, A-AUTHIDs
-----
CMD Authid Occurrences
- -----
_ USERID1 1
***** Bottom of Data *****
```

Figure 74. DB2 QM SQL Code Summary panel

2. Type a * in the **Group By** field and press Enter. The DB2 QM SQL Code Detail Display panel displays:

```
YYYY/MM/DD HH:MM:SS --- DB2 QM SQL Code Detail Display --- Row 1 of 1
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QMID 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 75. DB2 QM SQL Code Detail Display panel

Viewing details, SQLCA, and text for an SQLCODE

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

Procedure

1. On the DB2 Query Monitor main menu, type 2 in the **Option** field and press Enter.
2. Locate the SQLCODEs for which you want to view details. If you group negative SQLCODE information and drill down to located activity of interest, the S line command (select) enables you to access the SQL Code Detail Display panel. If you specify no grouping, the SQL Code Detail Display panel is displayed immediately:

```

YYYY/MM/DD HH:MM:SS --- DB2 QM SQL Code Detail Display --- Row 1 of 5
Option ==> Scroll ==> CSR
DB2 QM Subsystem: QMID Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Interval End Date: CURRENT Time: CURRENT
Detail data captured for SQLCODE: -204
Primary Authid: AUTHID01
DBRM/Package: PACKAGE1

C: S-SQL Text, C - SQLCA
----- >
CMD SSID Plan DBRM/Package JOBNAME Stmt # Collection ID Sect# Authid
-----
- DB01 DSNTEP2 DSN@EP2L JOB0001 1,494 DSNTEP2 1 USERA
- DB02 DSNTEP2 DSN@EP2L JOB0002 1,559 DSNTEP2 1 USERA
- DB01 DSNTEP2 DSN@EP2L JOB0001 1,494 DSNTEP2 1 USERA
- DB02 DSNTEP2 DSN@EP2L JOB0002 1,559 DSNTEP2 1 USERA
- DB01 DSNTEP2 DSN@EP2L JOB0001 1,494 DSNTEP2 1 USERA
***** Bottom of Data *****

```

Figure 76. DB2 QM SQL Code Detail Display panel

- To view the SQL Communication Area (SQLCA) for a line item, type **C** in the **CMD** field next to the appropriate line item and press Enter. The SQLCA Display panel displays:

```

YYYY/MM/DD HH:MM:SS ----- SQLCA Display ----- Row 1 of 32
Option ==> Scroll ==> CSR

DB2 SSID: DBD01 Plan: DSNTEP2 DBRM: DSN@EP2L Coll: DSNTEP2
Cursor: Section: 1
Stmt: 1,494 Type: PREPARE
----- +
DSNT408I SQLCODE = -204, ERROR: USERA.U_TAB IS AN UNDEFINED NAME
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 77. SQLCA Display panel

- Press PF3 to return to the SQL Code Detail Display panel. To display SQL text, type **S** in the **CMD** field for the appropriate line item and press Enter. The Display SQL Statement Text panel displays:

```

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

DB2 SSID: DB01 Plan: DSNTEP2 DBRM: DSN@EP2L Coll: DSNTEP2
Cursor: Section: 1
-----
SELECT UC1, HEX(UC1), UG1, HEX(UG1) from U_TAB
***** Bottom of Data *****

```

Figure 78. Display SQL Statement Text panel

Chapter 12. View current activity

You can use DB2 Query Monitor main menu option 3. **View Current Activity** to access a wide range of views of your system's current activity.

Topics:

- "Monitoring SQL statements in current activity"
- "Viewing current activity" on page 248
- "Viewing buffer pool statistics for current activity" on page 256
- "Viewing call level statistics for current activity" on page 256
- "Viewing delay statistics for current activity" on page 257
- "Canceling a thread" on page 258
- "Viewing lock related statistics for current activity" on page 259
- "Viewing object statistics for current activity" on page 260
- "Viewing SQL text for current activity" on page 262
- "Viewing host variables for current activity" on page 263
- "Viewing parallel activity for current activity" on page 264
- "Viewing miscellaneous statistics for current activity" on page 264

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 DB2 Query Monitor subsystem must be receiving adequate CPU service in order for this tracking work to execute.

While an SQL statement executes, DB2 Query Monitor evaluates the statement for alerts and determines whether or not to queue the statement for processing by the CAE Agent. After the CLOSE has executed, DB2 Query Monitor considers the SQL

statement to have completed and evaluates the statement for exceptions using current monitoring profile. When DB2 Query Monitor determines that the statement has completed, DB2 Query Monitor removes the statement from current activity.

DB2 Query Monitor records information about current activity and exceptions on a statement basis. For example, if a particular thread opens two cursors, each individual cursor (statement) will be traced as a separate line item in the current activity and exception displays even though they have been assigned the same thread token. This allows DB2 Query Monitor to keep track of and report on the individual components used in diagnosing long-running or problematic statements (for example, host variables SQL text, SQLCA).

Other considerations:

- DB2 Query Monitor's current activity feature is not a thread display. If a thread is not currently involved in the execution of an SQL statement, no metrics for that thread appear in current activity.
- DB2 Query Monitor only gathers dynamic SQL text for PREPARE and EXECUTE IMMEDIATE SQL calls. If a dynamic SQL statement comprised of a PREPARE, OPEN, FETCH, CLOSE call sequence, DB2 Query Monitor will gather the SQL text only for the PREPARE call. If DB2 Query Monitor is inactive and only records activity for the OPEN, FETCH, and CLOSE calls, the SQL text will not be gathered and when the user attempts the view the SQL text, message CQM196I will be generated.
- DB2 Query Monitor has the capability of reporting SQL call execution prior to the termination of the call. Exceptions and alerts are noted in the current activity displays if the thresholds defined in the monitoring profile are exceeded, however the statement execution will not be externalized to the performance history files until the statement execution has ended and if the exception limit defined in the monitoring profile has not been exceeded.

Viewing current activity

Follow these steps to view SQL statements as they execute.

Procedure

On the DB2 Query Monitor main menu, type 3 in the **Option** field and press Enter. The Current SQL Activity panel is displayed:

The interval navigation and selection commands (INTV, PREV, NEXT, CUR) are

```

YYYY/MM/DD HH:MM:SS ----- Current SQL Activity ----- No rows to display
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QM01 Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
C:0-Objects,C-Calls,S-SQL,A-Analyze,D-Delays,L-Locks,Q-Misc Stats
B-Buffer Pool Stats,H-Host Variables,P-Parallel Activity,E-Cancel
----- >
CMD SSID Plan Program DB2 CPU Time DB2 Elapsed GETPAGES SQLCODE
----- >
- SS01 PLAN0001 DSN0EP2L 5.912578 53.484071 47,321 0
- SS02 PLAN0001 DSN0EP2L 2.874263 53.484182 22,982 0
- SS03 PLAN0001 DSN0EP2L 0.008957 53.568156 60 0
***** Bottom of Data *****

```

Figure 79. Current SQL Activity panel

not valid for the Current SQL Activity panel because only activity pertaining to the current interval is presented on this display.

Related concepts:

“Current activity - fields”

These fields that display on the Current SQL Activity panel.

“Current activity - line commands”

These line commands are available for use on the various current activity panels.

“Current activity - columns” on page 251

These columns are displayed on the Current SQL Activity panel.

“Configuring filters” on page 164

You can use filters to specify the type of information to display for an ISPF session.

Current activity - fields

These fields that display on the Current SQL Activity panel.

DB2 QM Subsystem / DB2 DS Group

The active DB2 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 filter(s) are active for the current display.

Current activity - line commands

These line commands are available for use on the various current activity panels.

Current SQL activity - line commands

These line commands are valid for the Current SQL activity panel:

O - Objects

Show object information.

C - Calls

Show statistics for SQL calls.

S - SQL

Show individual SQL statements.

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 data set's high-level qualifier. 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.

D - Delays

Show delay events, counts, and delay times.

L - Locks

Show lock events and counts.

Q - Misc Stats

Show additional statistics.

B - Buffer Pool Stats

Show buffer pool usage statistics.

H - Host Variables

Show host variable information.

P - Parallel Activity

Show parallel activity information.

E - Cancel

Cancels the thread executing an SQL statement.

Call level statistics - line commands

These line commands are valid for the Call Level Statistics panel:

S - Call Text

Show the call text.

D - Delays

Show delay events, counts, and delay times.

L - Locks

Show lock events and counts.

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.

Q - Misc Stats

Show additional statistics.

B - Buffer Pool Stats

Show buffer pool usage statistics.

H - Host Variables

Show host variable information.

Parallel task statistics - line commands

These line commands are valid for the Parallel Task Statistics panel:

O - Objects

Show objects information.

C - Calls

Show statistics for SQL calls.

D - Delays

Show delay events, counts, and delay times.

L - Locks

Show lock events and counts.

Q - Misc Statistics

Show additional statistics.

B - Buffers Pool Stats

Show buffer pool usage statistics.

E - Cancel

Cancel the thread that is executing the SQL statement.

Current activity - columns

These columns are displayed on the Current SQL Activity panel.

Accel Elig CPU

The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_SUMM_METRICS

Column name

ACCEL_ELIGIBLE_CPU

Accel Elig Elapsed

The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_SUMM_METRICS

Column name

ACCEL_ELIGIBLE_ELAPSED

Accel Elig ZIIP

The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_SUMM_METRICS

Column name

ACCEL_ELIGIBLE_ZIIP

Accelerator

The name of the IBM DB2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the IBM DB2 Analytics Accelerator for z/OS.

Offload table name

CQM_SUMM_METRICS

Column name

ACCELERATOR

Acctg Token

The accounting token.

Alerts A string of codes indicating the type of alerts encountered during the execution of an SQL statement within DB2. Data entered within a DB2 Query Monitor monitoring profile defines the alerts. The codes within the column are:

C DB2 CPU Time threshold exceeded.

E DB2 Elapsed Time threshold exceeded.

- G GETPAGE threshold exceeded.
- N Negative SQL code exception raised.
- S SQL Calls threshold exceeded.

ASQLCode

The negative SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

Authid

The primary authorization ID.

Offload table name
CQM_SUMM_METRICS

Column name
AUTHID

Avg GetPages

The average number of getpages issued.

Offload table name
not applicable

Column name
not applicable

Call Type

The type of call (PREPARE, OPEN, etc.).

Cancel thread

Indicates whether or not the thread is to be canceled. Valid values are:

- Y Cancels the thread.
- N Does not cancel the thread.

Child Indicates whether the exception is related to another (parent) exception.

Collection

The collection ID.

Offload table name
CQM_SUMM_METRICS

Column name
COLLECTION

Coordinator

The DB2 subsystem name acting as the parallelism coordinator for a parallel task associated with the inflight activity.

CONSISTENCY_TOKEN

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

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.

Offload table name
CQM_EXCEPTIONS

Column name
END_TIME

ESQLCode
The negative SQL code that raised an exception condition. Exception criteria are defined within a monitoring profile.

Exceptions
A string of codes indicating the type of exceptions encountered during the execution of an SQL statement within DB2. Data entered within a DB2 Query Monitor monitoring profile defines the exceptions. The codes within the column are:

C DB2 CPU Time threshold exceeded.

E DB2 Elapsed Time threshold exceeded.

G GETPAGE threshold exceeded.

N Negative SQL code exception raised.

S SQL Calls threshold exceeded.

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

HV? Indicates whether or not host variables have been collected.

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.

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

Req Site
The requesting site name.

Section
The section number assigned by the DB2 pre-compiler.

SQL Calls

The total number of individual SQL calls executed by DB2.

Sqlcode

The SQL return code issued by DB2.

SSID The DB2 subsystem name.

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

STMT#

The SQL statement number for which call level statistics were collected.

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.

Offload table name

CQM_SUMM_METRICS

Column name

TYPE

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.

Offload table name

CQM_EXCEPTIONS

Column name

WORKLOAD_NAME

WS Name

The name of the workstation.

WS Tran

The workstation's transaction.

WS User

The user ID logged on to the workstation connected to DB2.

zIIP CPU

The amount of CPU time accumulated while executing in DB2 on a zIIP processor.

Offload table name
CQM_SUMM_METRICS

Column name
ZIIP_CPU_TIME

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

DDB2 SSID: DB01 Plan: PLAN1 DBRM: DBRM1 Coll: SYSACCEL
Cursor: partitionCursor Section: 0
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

Valid Commands: (End)

```

Figure 80. Buffer Pool Statistics panel

Related concepts:

“Buffer pool statistics - fields” on page 215

This topic describes the statistics that are displayed on the 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.

- 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: DSNTEP2 DBRM: DBRM1 Coll: DSNTEP2
Cursor: C1 Section: 1
Filters Enabled: N

C:S-Call Text,D-Delays,L-Locks,Q-Misc Stat,B-Buffer Pool Stats
H-Host Variables,C-SQLCA
----->
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 81. Call Level Statistics panel

Viewing delay statistics for current activity

Follow these steps to view delay statistics for current activity.

Procedure

- On the DB2 Query Monitor main menu, type 3 in the **Option** field and press Enter.
- Locate the SQL activity for which you want to view delay statistics.
- 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:          Plan: PLAN01  Pgm:          AuthID:
              Section:      Call:          Type:
              WUser:        WSName:
              WStran:
              Accel:
              CorrID:

Filters Enabled: N
-----
Delay Event                               Event Count   Delay Time
Lock or Latch Delays                      0             0.00000
Synchronous I/O Delays                    17            0.20933
  Database I/O Delays                      17            0.20933
  Log Write I/O Delays                     0             0.00000
Other Read Delays                          0             0.00000
Other Write Delays                         0             0.00000
Service Task Switch Delays                 1             0.07064
Update Commit Delays                       1             0.07064
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                               18            0.27998

Valid Commands: (End, Filter)

```

Figure 82. Delay Statistics panel

Related concepts:

“Delay statistics - fields” on page 210

This topic describes the statistics that are displayed on the Delay Statistics panel.

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 83. Cancel DB2 Thread panel

Viewing lock related statistics for current activity

Follow these steps to view lock related statistics for current activity.

Procedure

1. Select **3. View Current Activity** from the DB2 Query Monitor main menu 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

DB2:          Plan: PLAN01  Pgm:          AuthID:
              Section:      Call:          Type:
              WSUser:       WSName:
              WSTran:
              Accel:
Filters Enabled: N
-----
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 84. Lock Related Statistics panel

Related concepts:

“Lock-related statistics - fields” on page 218
 These statistics are displayed on the Lock Related Statistics panel.

Viewing object statistics for current activity

Follow these steps to view object statistics for current activity.

Procedure

1. On the DB2 Query Monitor main menu, type 3 in the **Option** field and press Enter.
2. Locate the SQL activity for which you want to view object statistics.
3. Type O in the **CMD** field next to the SQL activity of interest and press Enter. The Object Statistics panel is displayed:

```

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

C:B-Buffer Pool Statistics
----->
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 85. Object Statistics panel

The following line command is available:

B - Buffer Pool Statistics

Display buffer pool statistics for the selected line item.

Object statistics - fields

These statistics are displayed on the Object Statistics panel.

Creator

The object creator.

Offload table name

CQM_SUMM_OBJECTS

Column name

OBJECT_CREATOR

Name The object name.

Offload table name

CQM_SUMM_OBJECTS

Column name

OBJECT_NAME

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

Offload table name
CQM_SUMM_METRICS

Column name
TYPE

Database

The database name.

Offload table name
CQM_SUMM_OBJECTS

Column name
DATABASE_NAME

BPool The normalized bufferpool number (BP0, BP16K0).

Offload table name
CQM_SUMM_OBJECTS

Column name
BUFFERPOOL_NORM

PageSet

The pageset name.

Offload table name
CQM_SUMM_OBJECTS

Column name
PAGESET_NAME

GetPages

The number of getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail GETPAGES of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

Offload table name
CQM_SUMM_METRICS

Column name
GETPAGES

HitRatio

The hit ratio.

Offload table name
not applicable

Column name
not applicable

Elapsed Time

The total amount of elapsed time that the object was accessed.

SyncRead

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

Offload table name
CQM_SUMM_METRICS

Column name
SYNC_READS

SyncWrite

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

Offload table name

CQM_SUMM_METRICS

Column name

SYNC_WRITES

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

Follow these steps to view SQL text for current activity.

Procedure

1. On the DB2 Query Monitor main menu, type 3 in the **Option** field and press Enter.
2. Locate the SQL activity for which you want to view SQL text information.
3. Type S in the **CMD** field next to the SQL activity of interest and press Enter. The Display SQL Statement Text panel is displayed:

```

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 86. 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 87. Input Host Variables panel

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) and 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 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: SSID Plan: DSNTEP71 DBRM: DSN@EP2L Coll: DSNTEP2
Cursor: C1 Section: 1

C:0-Objects,C-Calls,D-Delays,L-Locks,Q-Misc Stats,B-Buffer Pool Stats
E-Cancel,
----->
CMD SSID Plan Program DB2 CPU Time DB2 Elapsed GETPAGES SQLCODE
- - - - -
_ QM01 DSNTEP71 DSN@EP2L 2.741308 30.556241 19,346 0
_ QM01 DSNTEP71 DSN@EP2L 3.636054 30.602641 25,475 0
***** Bottom of Data *****
```

Figure 88. 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
DB2:      Plan: PLAN01  Pgm:      AuthID:
          Section:    Call:      Type:
          WSUser:     WSName:
          WStran:
          Accel:
Filters Enabled: N
-----
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
Valid Commands: (End, Filter)

```

Figure 89. Miscellaneous Statistics panel

Related concepts:

“Miscellaneous statistics - fields” on page 223

This topic describes the statistics that are displayed on the Miscellaneous Statistics panel.

Chapter 13. View DB2 command activity

The topics in this section describe how you can view information about DB2 command activity.

Viewing DB2 command activity

Follow these steps to view DB2 command activity.

About this task

DB2 Query Monitor does not track DB2 commands that have not been executed (for example, syntax errors, bad return codes).

Procedure

1. On the DB2 Query Monitor main menu, type 4 in the **Option** field and press Enter. The DB2 Command Activity panel is displayed:

```
YYYY/MM/DD HH:MM:SS ----- DB2 Command Activity ----- Row 1 of 5
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: SS01 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 90. DB2 Command Activity panel

These columns display on the DB2 Command Activity panel:

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

2. When finished viewing DB2 command activity, press PF3 to exit and return to the DB2 Query Monitor main menu.

Chapter 14. View exceptions

The topics in this section describe how you can view exceptions for your monitored DB2 subsystems.

Topics:

- “About exceptions”
- “About color coding” on page 279
- “Viewing buffer pool statistics for an exception” on page 279
- “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 282
- “Viewing object statistics for an exception” on page 283
- “Viewing SQL text for an exception” on page 284
- “Viewing host variables for an exception” on page 284
- “Viewing parallel activity for an exception” on page 285
- “Viewing miscellaneous statistics for an exception” on page 286

About exceptions

This topic describes the basic concepts regarding exceptions.

DB2 Query Monitor main menu option **5. View Exceptions** enables you to view information about completed SQL statements that exceeded the exception thresholds defined in monitoring profiles.

```
YYYY/MM/DD HH:MM:SS ----- Display Exceptions ----- Row 1 of 4
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: QMID      Interval Start Date: MM/DD/YYYY Time: HH:MM:SS
Filters Enabled: N          Interval End Date: CURRENT Time: CURRENT
C:O-Objects,C-Calls,S-SQL,A-Analyze,D-Delays,L-Locks,Q-Misc Stats
  B-Buffer Pool Stats,H-Host Variables,P-Parallel Activity
----->
CMD  SSID Plan   Program  DB2 CPU Time  DB2 Elapsed  GETPAGES  SQLCODE
-----
-   SS01 DSNESPCS DSNESM68    0.001827    0.036026      13        0
-   SS01 DSNESPRR DSNESM68    0.001328    0.001503      13        0
-   SS01 DSNESPRR DSNESM68    0.000119    0.000122       0        0
-   SS01 DSNESPRR DSNESM68    0.007552    0.050455      41      +100
***** Bottom of Data *****
```

Figure 91. Display Exceptions panel

Related concepts:

“Exceptions - fields” on page 270

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

“Exceptions - line commands” on page 270

This topic describes the line commands that are available on the exceptions panel.

“Exceptions - columns” on page 271

This topic describes the columns that are available on the exceptions panel.

Exceptions - fields

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

DB2 QM Subsystem / DB2 DS Group

The active DB2 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.

Note: A value of CURRENT denotes the display interval has not yet ended.

Filters Enabled

Indicates whether or not filter(s) are active for the current display.

Exceptions - line commands

This topic describes the line commands that are available on the exceptions panel.

Display exceptions - line commands

These line commands are valid for the Display Exceptions panel:

O - Objects

Display object information.

C - Calls

Display statistics for SQL calls.

S - SQL

Display individual SQL statements.

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 data set's high-level qualifier. 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.

D - Delays

Display delay events, counts, and delay times.

L - Locks

Display lock events and counts.

Q - Misc Stats

Display additional statistics.

B - Buffer Pool Stats

Display buffer pool usage statistics.

H- Host Variables

Display host variable information.

P - Parallel Activity

Display parallel activity information.

Call level statistics - line commands

These line commands are valid for the Call Level Statistics panel:

S - Call Text

Display the call text.

D - Delays

Display delay events, counts, and delay times.

L - Locks

Display lock events and counts.

C - SQLCA

Display the SQL communication area.

Q - Display Stat

Show additional statistics.

B - Buffer Pool Stats

Display buffer pool usage statistics.

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, the following message displays: CQM104I No host variables. DB2 QM found no input host variables present for this call or the monitoring profile stated not to collect them.

Exceptions - columns

This topic describes the columns that are available on the exceptions panel.

Accel Elig CPU

The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_EXCEPTIONS

Column name

ACCEL_ELIGIBLE_CPU

Accel Elig Elapsed

The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_EXCEPTIONS

Column name

ACCEL_ELIGIBLE_ELAPSED

Accel Elig ZIIP

The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

Offload table name

CQM_EXCEPTIONS

Column name
ACCEL_ELIGIBLE_ZIIP

Accelerator

The name of the IBM DB2 Analytics Accelerator for z/OS where the activity ran. When the ACCELERATOR column is blank for a line item, it means that no queries for that line item were offloaded to the IBM DB2 Analytics Accelerator for z/OS.

Offload table name
CQM_EXCEPTIONS

Column name
ACCELERATOR

Acctg Token

The accounting token.

Offload table name
CQM_EXCEPTIONS

Column name
ACCOUNTING_TOKEN

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 Query Monitor 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
N Negative SQLCODE exception raised
S SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display CEGN.

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 negative SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

Offload table name
CQM_EXCEPTIONS

Column name
ALERT_SQLCODE

Authid
The primary authorization ID.

Offload table name
CQM_EXCEPTIONS

Column name
AUTHID

Avg Getpages
The average number of getpages issued.

Call Type
The type of SQL call executed by a package or DBRM within DB2 (for example, PREPARE, OPEN, FETCH, etc).

Offload table name
CQM_EXCP_CALLS

Column name
TYPE

Child Indicates whether the exception is related to another (parent) exception.

Collection
The collection ID.

Offload table name
CQM_EXCEPTIONS

Column name
COLLECTION

Connname
The connection name.

Offload table name
CQM_EXCEPTIONS

Column name
CONNECTION

CONTOKEN
The hexadecimal consistency token.

Offload table name
CQM_EXCEPTIONS

Column name
CONSISTENCY_TOKEN

Conntype
The DB2 connection type. Valid connection types include: 1 - TSO (TSO Foreground and Background), 2 - DB2CALL (DB2 Call Attach), 3 - IMSDLI (DL/I Batch), 4 - CICS (CICS Attach), 5 - IMSBMP (IMS Attach BMP), 6 - IMSMMP (IMS Attach MPP), 7 - DB2PRIV (DB2 Private Protocol), 8 - DRDA (DRDA Protocol), 9 - IMSCTL (IMS Control Region), A - IMSTRAN (IMS Transaction BMP), B - UTILITY (DB2 Utilities), and C - RRSAF (RRSAF Attach).

Offload table name
CQM_EXCEPTIONS

Column name
CONNECTION_TYPE

Coordinator

The DB2 subsystem name acting as the parallelism coordinator for a parallel task 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.

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 negative 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 Query Monitor 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
- N Negative SQLCODE exception raised
- S SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display CEGN.

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

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 or not the SQL activity was formulated using DB2 query parallelism.

Offload table name

CQM_EXCEPTIONS

Column name

PARALLEL

Plan The DB2 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

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

Stmt# The SQL statement number assigned by the DB2 pre-compiler to an individual SQL call.

Offload table name
CQM_EXCEPTIONS

Column name
STMT_ID

Token The thread token. A thread token uniquely identifies an individual connection to a DB2 subsystem.

Offload table name
CQM_EXCEPTIONS

Column name
THREAD_TOKEN

Workload

The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current activity, exceptions,

and alerts. It is recommended that you name your workload to facilitate the identification of the monitoring profile line and the workload with which captured activity is associated.

Offload table name
CQM_EXCEPTIONS

Column name
WORKLOAD_NAME

WS Name
The workstation name.

Offload table name
CQM_EXCEPTIONS

Column name
WORKSTATION_NAME

WS Tran
The workstation transaction.

Offload table name
CQM_EXCEPTIONS

Column name
WORKSTATION_TRAN

WS User
The workstation user.

Offload table name
CQM_EXCEPTIONS

Column name
WORKSTATION_USER

zIIP CPU
The amount of CPU time accumulated while executing in DB2 on a zIIP processor.

Offload table name
CQM_EXCEPTIONS

Column name
ZIIP_CPU_TIME

About color coding

Individual fields that qualify a row of data as an exception or an alert are color-coded.

The following color codes are used in DB2 Query Monitor:

Yellow Exception condition.

Red Alert condition. If the triggering field is both an exception and an alert, the field will be displayed in red.

Viewing buffer pool statistics for an exception

Follow these steps to view buffer pool statistics for an exception.

Procedure

1. On the DB2 Query Monitor main menu, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view buffer pool statistics.
3. Type B in the **CMD** field next to the SQL activity of interest and press Enter.

```
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 92. Buffer Pool Statistics panel

Related concepts:

“Buffer pool statistics - fields” on page 215

This topic describes the statistics that are displayed on the 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: QMID Plan: DSNESPCS DBRM: DSNESM68 Coll: DSNESPCS
Cursor: C1 Section: 1
Filters Enabled: N TETIME

C:S-Call Text,D-Delays,L-Locks,Q-Misc Stat,B-Buffer Pool Stats
H-Host Variables,C-SQLCA
----- >
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 93. Call Level Statistics panel

Related concepts:

“Exceptions - columns” on page 271
This topic describes the columns that are available on the exceptions panel.

Viewing delay statistics for an exception

Follow these steps to view delay statistics for an exception.

Procedure

1. On the DB2 Query Monitor main menu, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view delay information.
3. Type D in the **CMD** field next to the SQL activity of interest and press Enter. The Delay Statistics panel is displayed:

```

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 94. Delay Statistics panel

Related concepts:

“Delay statistics - fields” on page 210

This topic describes the statistics that are displayed on the Delay Statistics panel.

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: QMID   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 95. Lock Related Statistics panel

Related concepts:

“Lock-related statistics - fields” on page 218
 These statistics are displayed on the Lock Related Statistics panel.

Viewing object statistics for an exception

Follow these steps to view object statistics for an exception.

Procedure

1. On the DB2 Query Monitor main menu, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view object information.
3. Type O in the **CMD** field next to the SQL activity of interest and press Enter. The Object Statistics panel is displayed:

```

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

C:B-Buffer Pool Statistics
----- >
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 96. Object Statistics panel

Related concepts:

“Object statistics - fields” on page 260
 These statistics are displayed on the Object Statistics panel.

Viewing SQL text for an exception

Follow these steps to view SQL text for an exception.

Procedure

1. On the DB2 Query Monitor main menu, type 5 in the **Option** field and press Enter.
2. Locate the exception for which you want to view SQL text information.
3. Type S in the **CMD** field next to the SQL activity of interest and press Enter. The Display SQL Statement Text panel is displayed:

```

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 97. 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.

- 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 98. 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.

Related tasks:

“Viewing host variables for current activity” on page 263
 Follow these steps to view host variables for current activity.

Viewing parallel activity for an exception

Follow these steps to view parallel activity for an exception.

Procedure

- On the DB2 Query Monitor main menu, type 5 in the **Option** field and press Enter.
- Locate the exception for which you want to view parallel activity.
- 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: SSID Plan: DSNTEP71 DBRM: DSN@EP2L Coll: DSNTEP2
Cursor: C1 Section: 1

C:0-Objects,C-Calls,D-Delays,L-Locks,Q-Misc Stats,B-Buffer Pool Stats
E-Cancel,
----- >
CMD SSID Plan Program DB2 CPU Time DB2 Elapsed GETPAGES SQLCODE
- - - - -
_ QM01 DSNTEP71 DSN@EP2L 2.741308 30.556241 19,346 0
_ QM01 DSNTEP71 DSN@EP2L 3.636054 30.602641 25,475 0
***** Bottom of Data *****

```

Figure 99. Parallel Task Statistics panel

Related tasks:

“Viewing parallel activity for current activity” on page 264
 Follow these steps to view parallel activity for current activity.

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
DB2:      Plan: PLAN01  Pgm:      AuthID:
          Section:    Call:      Type:
          WSUser:     WSName:
          WStran:
          Accel:
Filters Enabled: N
-----
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
Valid Commands: (End, Filter)

```

Figure 100. Miscellaneous Statistics panel

Related concepts:

“Miscellaneous statistics - fields” on page 223

This topic describes the statistics that are displayed on the Miscellaneous Statistics panel.

Chapter 15. Work with monitoring agents

The topics in this section describe how you can use DB2 Query Monitor main menu option **6. Work with Monitoring Agents** to activate and deactivate monitoring agents for the current DB2 Query Monitor subsystem as well as to view, change, and refresh the monitoring profiles associated with those monitoring agents.

Topics:

- “About monitoring agents”
- “Activating a monitoring agent” on page 290
- “Deactivating a monitoring agent” on page 291
- “Changing a monitoring profile” on page 292
- “Refreshing a monitoring profile” on page 292
- “Viewing a monitoring profile” on page 293

About monitoring agents

A monitoring agent is the interface that DB2 Query Monitor installs within a DB2 subsystem to capture SQL performance data. When a DB2 Query Monitor subsystem collects data about a DB2 subsystem, a monitoring agent is at work collecting data about that DB2 subsystem.

If one DB2 Query Monitor subsystem task is performing data collections on three different DB2 subsystems, then there are three monitoring agents active for that DB2 Query Monitor subsystem. Additionally, each agent can optionally be assigned a monitoring profile.

When you select DB2 Query Monitor main menu option **6. Work with Monitoring Agents**, the DB2 QM Monitoring Status panel is displayed:

```
YYYY/MM/DD HH:MM:SS ----- DB2 QM Monitoring Status ----- Row 1 of 64
Option ==> Scroll ==> PAGE
DB2 QM Subsystem SSID
C:A-Activate,D-Deactivate,V-View Profile,R-Refresh Profile,C-Change Profile
-----+
CMD SSID Active Monitored QM Version QM Subsystem Profile Name
- - - - -
- SS01 NO NO V320 QM01 PROF01
- SS02 YES NO V320 QM01 PROF01
- SS03 YES NO V320 QM01 PROF01
- SS04 YES YES V310 QM02 PROF02
- SS05 YES NO V320 QM03 PROF03
- SS06 YES YES V320 QM03 PROF03
```

Figure 101. DB2 QM Monitoring Status panel

These fields display on the DB2 QM Monitoring Status panel:

DB2 QM Subsystem

The active DB2 Query Monitor subsystem ID.

These commands are available on the DB2 QM Monitoring Status panel:

A - Activate

Activates the monitoring agent and initiates the collection of query information for the DB2 subsystem shown in the SSID column.

D - Deactivate

Deactivates the monitoring agent for the DB2 subsystem shown in the SSID column.

V - View Profile

Enables you to view details about a monitoring profile.

R - Refresh Profile

Refreshes an active monitoring profile to synchronize its settings with recent profile changes.

C - Change Profile

Enables users to change or remove the monitoring profile that a monitoring agent uses when monitoring a DB2 subsystem.

These columns display on the DB2 QM Monitoring Status panel:

SSID The DB2 subsystem ID for each DB2 subsystem in the user's z/OS environment that has been initialized since the start of the IPL.

Active Indicates whether or not the DB2 subsystem is currently active.

Monitored

Indicates whether or not the DB2 subsystem is currently being monitored by DB2 Query Monitor.

QM Version

If the DB2 subsystem is being monitored, this column displays the last version and release of DB2 Query Monitor that is actively monitoring the DB2 subsystem.

QM Subsystem

The DB2 Query Monitor subsystem ID that is actively monitoring the indicated DB2 subsystem.

Profile Name

The last monitoring profile name used by a monitoring agent that has monitored a given DB2 subsystem.

Related concepts:

"Commands" on page 731

The following commands are available in DB2 Query Monitor.

Activating a monitoring agent

Activating a monitoring agent enables that monitoring agent to collect data about a given DB2 subsystem.

Procedure

1. Select **6. Work with Monitoring Agents** from the DB2 Query Monitor main menu and press Enter.
2. Type A in the CMD field for the line item for which you want to activate monitoring. The Activate Monitoring Agent panel is displayed:

```

----- 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 102. 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. If you want to specify a monitoring profile for use with the monitoring agent you are activating, type the monitoring agent name in the **Profile Name** field. To view a list of available monitoring profiles, type a ? in the **Profile Name** field and press Enter. The Monitoring Profiles panel is displayed. You can select a profile for use by typing S in the CMD field next to the appropriate monitoring profile. Press Enter to return to the Activate Monitoring Agent panel.
5. Press Enter to activate the agent and return to the DB2 QM Monitoring Status panel. The monitoring agent is now activated for the DB2 subsystem you selected and is using the profile you specified (if any).

Related tasks:

“Applying a monitoring profile to a monitoring agent” on page 332

To put a monitoring profile into effect, you must activate a monitoring agent and associate the monitoring profile with that monitoring agent.

Deactivating a monitoring agent

This topic describes how to deactivate a monitoring agent and stop that monitoring agent from capturing data about a DB2 subsystem.

About this task

Deactivation of a monitoring agent does not de-install the monitoring agent from DB2. For example, if you are moving a DB2 subsystem from one DB2 Query Monitor subsystem to another, the DB2 Query Monitor subsystem that is monitoring the DB2 subsystem must be shut down.

To deactivate a monitoring agent:

Procedure

1. Select **6. Work with Monitoring Agents** from the DB2 Query Monitor main menu and press Enter.
2. Type D in the CMD field for the line item for which you want to activate monitoring. The Deactivate Monitoring Agent panel is displayed:

```

----- 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 103. Deactivate Monitoring Agent panel

3. Press Enter to confirm deactivation of the monitoring agent for the displayed DB2 subsystem.

Changing a monitoring profile

This topic describes how to change the monitoring profile that is used with a monitoring agent.

About this task

To change the monitoring profile that is used with a monitoring agent:

Procedure

1. Select **6. Work with Monitoring Agents** from the DB2 Query Monitor main menu and press Enter.
2. Type C in the CMD field for the line item for which you want to change the monitoring profile. The Change Monitoring Profile panel is displayed:

```

----- 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 104. Change Monitoring Agent panel

3. Type the new profile in the New Profile Name field. To view a list of available monitoring profiles, type a ? in the **New Profile Name** field and press Enter. The Monitoring Profiles panel is displayed and you can select a new monitoring profile for use by typing S in the CMD field next to the appropriate monitoring profile. Press Enter to return to the Change Monitoring Agent panel. The monitoring profile you selected now displays in the **New Profile Name** field.
4. Press Enter to confirm the monitoring profile change.

Refreshing a monitoring profile

This topic describes how to refresh a monitoring profile.

About this task

To refresh a monitoring profile:

Procedure

1. Select **6. Work with Monitoring Agents** from the DB2 Query Monitor main menu and press Enter.
2. Type R in the CMD field for the line item for which you want to refresh the monitoring profile. The Refresh Monitoring Profile panel is displayed:

```
----- 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 105. Refresh Monitoring Profile panel

3. Verify that the subsystem listed in the message is the correct DB2 subsystem for which you want to refresh the monitoring profile.
4. Press Enter to confirm the monitoring profile refresh.

Viewing a monitoring profile

This topic describes how to view the monitoring profile associated with a monitoring agent.

About this task

To view a monitoring profile:

Procedure

1. Select **6. Work with Monitoring Agents** from the DB2 Query Monitor main menu and press Enter.
2. Type V in the CMD field for the line item for which you want to view the monitoring profile. The View Monitoring Profile panel is displayed:

```
----- 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 106. View Monitoring Profile panel

3. Press Enter to view additional information about the profile. 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 107. 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*)

Activate a monitoring agent for DB2 subsystem *ssss* with monitoring profile *profname*.

Note: .

- An activate command, when issued for a monitoring profile that has not yet been installed, will also perform the install of the monitoring profile.
- When the ACTIVATE command is issued against a DB2 subsystem that is already actively monitored, the command changes the monitoring profile.

MODIFY/F *cqmtaskname*,DEACTIVATE(*ssss*)

Deactivate a monitoring agent for DB2 subsystem *ssss*.

MODIFY/F *cqmtaskname*,CHANGE_PROF(*ssss*,*profname*)

Change the monitoring profile for DB2 subsystem *ssss* to the profile named *profname*.

MODIFY/F *cqmtaskname*,REFRESH_PROF(*ssss*)

Refresh the current monitoring profile for DB2 subsystem *ssss*.

Chapter 16. Work with monitoring profiles

You can use monitoring profiles to tailor how DB2 Query Monitor monitors specific workloads.

Topics:

- “About monitoring profiles”
- “Accessing monitoring profiles” on page 296
- “Creating a monitoring profile” on page 305
- “Working with monitoring profile lines” on page 311
- “Updating a monitoring profile” on page 323
- “Renaming a monitoring profile” on page 325
- “Deleting a monitoring profile” on page 325
- “Viewing a monitoring profile” on page 326
- “Monitoring profile workflows” on page 330
- “Applying a monitoring profile to a monitoring agent” on page 332

About monitoring profiles

DB2 Query Monitor can be tailored to monitor specific workloads through the use of monitoring profiles.

Monitoring profiles control various aspects of monitoring such as summary reporting, -SQLCODE reporting, exception limits, alert notifications thresholds, collection of host variable information, and OPTKEYS override settings. Monitoring profiles do not affect DB2 command reporting.

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

Monitoring profiles enable you to fine-tune the inclusion and exclusion of specific workloads from query monitoring and thereby determine the type of activity that is to be collected by DB2 Query Monitor. A monitoring profile consists of a set of include/exclude monitoring profile lines that DB2 Query Monitor reads sequentially as it looks for a match. The order in which monitoring profile lines are placed is important as it determines the order in which DB2 Query Monitor looks for a match and, if found, includes or excludes activity information.

DB2 Query Monitor reads the list of profile lines from top to bottom. When a match is found, the activity is processed according to the parameters specified in the matching monitoring profile line and no additional monitoring profile lines in the monitoring profile are considered for that activity.

You can configure monitoring profile to:

- Disable summary reporting for specific workloads
- Exclude -SQLCODE reporting for specific workloads and/or -SQLCODES
- Set exception limits and thresholds
- Define alert notification thresholds
- Define whether or not to gather host variable information

- Define OPTKEYS override settings

Note: Monitoring profiles do not have any effect on DB2 command reportin

Accessing monitoring profiles

Follow these steps to access the various features controlling the configuration and management of monitoring profiles.

Procedure

On the DB2 Query Monitor main menu, type 8 in the **Option** field and press Enter. These options are available:

```

YYYY/MM/DD HH:MM:SS ----- Monitoring Profiles ----- Row 1 of 14
Option ==>                                         Scroll ==> CSR

Type "CREATE" on command line to create profile

C:U-Update,V-View,D-Delete,C-Copy,R-Rename,N-New Profile
----->
CMD  Name      Creator  Created          Updated          QM  Plans
-----
-    QMMP01     PDUSERA  03/03/2004 - 17:51:48      -
-    QMMP02     PDUSERA  03/03/2004 - 17:51:48      N
-    QMMP03     PDUSERB  03/03/2004 - 17:51:48      N

```

Figure 108. Monitoring Profiles panel

Create (Primary command CREATE)

Create a monitoring profile.

U - Update

Update a monitoring profile.

V - View

View a monitoring profile.

D - Delete

Delete a monitoring profile.

C - Copy

Copy a monitoring profile.

R - Rename

Rename a monitoring profile.

N - New Profile

Create a monitoring profile.

Related concepts:

“Monitoring profiles - columns and fields”

The following list shows the fields and corresponding columns that appear throughout the monitoring profile configuration panels.

Monitoring profiles - columns and fields

The following list shows the fields and corresponding columns that appear throughout the monitoring profile configuration panels.

Alert CPU

The CPU time that when exceeded produces an alert for the workload.

Column name on View Profile panel

ACPU

Alert Elapsed

The elapsed time that when exceeded produces an alert for the workload.

Column name on View Profile panel

AELAPSED

Alert Getpages

The number of getpages that when exceeded produces an alert for the workload.

Column name on View Profile panel

AGETPAGES

Alert SQL Calls

The number of SQL calls that when exceeded produces an alert for the workload.

Column name on View Profile panel

ASQLCALLS

AUTHID

The primary authorization ID.

Column name on View Profile panel

AUTHID

Collect Object Data

Indicates whether or not object data is collected for the workload.

Column name on View Profile panel

OBJECTS

Collect Dynamic SQL

Indicates whether or not data is collected for dynamic SQL for the workload.

Column name on View Profile panel

COLLDSQL

Collect Static SQL

Indicates whether or not data is collected for static SQL for the workload.

Column name on View Profile panel

COLLSSQL

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.

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 or not summary information is to be reported for the unit of SQL activity. Disable Summary Reporting is only valid for exclude monitoring 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

Exception CPU

The DB2 CPU time that, when exceeded, produces an exception for that unit of SQL activity.

Column name on View Profile panel

EPCPU

Exception Elapsed

The DB2 elapsed time that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

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 this criteria 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

EGETPAGES

Exception Limit

The maximum number of exceptions that will be generated for that SQL statement. If you specify an Exception Limit value of zero, collected activity that matches other criteria in the profile line will not be treated as an exception for display (since the exception limit threshold of zero would have been exceeded).

Column name on View Profile panel

ELIMIT

Exception SQL Calls

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.

Column name on View Profile panel

ESQLCALLS

Exclude Alert SQLCODEs

Indicates whether or not an SQLCODEs generates an alert. For an SQLCODE to be excluded from alert processing, the user must:

1. Specify an INCLUDE/EXCLUDE value of I,
2. Specify an Exclude Alert SQLCODEs value of Y, and
3. 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

Exclude Exception SQLCODEs

Indicates whether or not an SQLCODE generates an exception. For an SQLCODE to be excluded from exception processing, the user must:

1. Specify an INCLUDE/EXCLUDE value of I,
2. Specify an Exclude Exception SQLCODEs value of Y, and
3. List the SQLCODE on the Exception SQLCODE Exclusion List.

Note:

- Every negative SQLCODE is treated as an exception unless explicitly excluded from DB2 Query Monitor processing.
- The Exception SQLCODE Exclusion List appears whenever you specify an Exclude Exception SQLCODEs value of Y.
- The exclusion of the negative SQLCODEs does not prevent exceptions from being generated due to other criteria (for example, GETPAGES, number of calls). Negative SQLCODEs will be in your exception records if a unit of work passes some other threshold in your profile. The ESQLCODE and ASQLCODE columns will have values of negative SQLCODEs in the event a negative SQL exception record is processed. If a unit of work passes a threshold either for an alert or exception then DB2 Query Monitor posts the record that includes a negative SQLCODE, if one was generated, as long as the unit of work matches criteria in the active profiles.

Column name on View Profile panel

ESQLCODES

Exclude Summary SQLCODEs

Indicates whether or not SQLCODEs are included in View SQLCODEs displays. Valid values are Y (SQLCODEs are excluded in summary displays) and N (No SQLCODEs is excluded in summary displays). If Y is specified for Exclude Summary SQLCODEs, the Exception SQLCODE Exclusion List displays, enabling you to list the SQLCODEs you want to exclude from summary display.

Column name on View Profile panel

SSQLCODES

Generate SQLCODE Alerts

Indicates whether or not SQLCODEs generate alerts. Valid values are Y (SQLCODEs generate alerts) and N (SQLCODEs do not generate alerts).

Note:

- The **Generate SQLCODE Exceptions** and **Generate SQLCODE Alerts** parameters behave independently of one another.
- The **Generate SQLCODE Exceptions** and **Generate SQLCODE Alerts** parameters work together with the **Exclude Exception SQLCODEs** and **Exclude Alert SQLCODEs** parameters. The **Exclude Exception SQLCODEs** and **Exclude Alert SQLCODEs** parameters define whether or not specific SQLCODEs (defined by the SQLCODE exclusion list) are excluded from exception/alert processing. The **Generate SQLCODE Exceptions** and **Generate SQLCODE Alerts** parameters act as high level flags to turn on or off the generation of exceptions/alerts for SQLCODEs (in general). So, for example:
 - If you specify “Exclude Exception SQLCODEs = Y”, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify “Generate SQLCODE Exceptions = Y”, then exceptions will be produced for all SQLCODEs except -901.
 - If you specify “Exclude Exception SQLCODEs = Y”, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify “Generate SQLCODE Exceptions = N”, then exceptions will not be produced for any SQLCODEs (in this case, the specification of -901 SQLCODE on the SQLCODE exclusion list is not really necessary since it will be enforced by the higher-level “Generate SQLCODE Exceptions = N” setting).
 - If you specify “Exclude Exception SQLCODEs = N”, and specify “Generate SQLCODE Exceptions = Y”, then exceptions will be produced for all SQLCODEs.
 - If you specify “Exclude Exception SQLCODEs = N”, and specify “Generate SQLCODE Exceptions = N”, then exceptions will not be produced for any SQLCODEs.

Column name on View Profile panel
SQLCALRTS

Generate SQLCODE Exceptions

Indicates whether or not SQLCODEs generate exceptions. A non-zero value indicates exception processing is active and is checked on include lines. Valid values are Y (SQLCODEs generate exceptions) and N (SQLCODEs do not generate exceptions).

Note:

- The **Generate SQLCODE Exceptions** and **Generate SQLCODE Alerts** parameters behave independently of one another.
- The **Generate SQLCODE Exceptions** and **Generate SQLCODE Alerts** parameters work together with the **Exclude Exception SQLCODEs** and **Exclude Alert SQLCODEs** parameters. The **Exclude Exception SQLCODEs** and **Exclude Alert SQLCODEs** parameters define whether or not specific SQLCODEs (defined by the SQLCODE exclusion list) are excluded from exception/alert processing. The **Generate SQLCODE Exceptions** and **Generate SQLCODE Alerts** parameters act as high level flags to turn on or off the generation of exceptions/alerts for SQLCODEs (in general). So, for example:
 - If you specify “Exclude Exception SQLCODEs = Y”, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify “Generate SQLCODE Exceptions = Y”, then exceptions will be produced for all SQLCODEs except -901.

- If you specify "Exclude Exception SQLCODEs = Y", and specify -901 SQLCODE on the SQLCODE exclusion list, and specify "Generate SQLCODE Exceptions = N", then exceptions will not be produced for any SQLCODEs (in this case, the specification of -901 SQLCODE on the SQLCODE exclusion list is not really necessary since it will be enforced by the higher-level "Generate SQLCODE Exceptions = N" setting).
- If you specify "Exclude Exception SQLCODEs = N", and specify "Generate SQLCODE Exceptions = Y", then exceptions will be produced for all SQLCODEs.
- If you specify "Exclude Exception SQLCODEs = N", and specify "Generate SQLCODE Exceptions = N", then exceptions will not be produced for any SQLCODEs.

Column name on View Profile panel
SQLCXCPS

HOSTVARS

Indicates whether or not host variables are to be collected for the workload.

Column name on View Profile panel
HOSTVARS

INCLUDE/EXCLUDE

Indicates whether matching SQL activity is to be included in or excluded from DB2 Query Monitor 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, 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.

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 DB2 correlation ID to the target summarization 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 (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.

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 or not DB2 Query Monitor overrides the COLLECT_STATIC_SQL and COLLECT_DYNAMIC_SQL parameters in CQMPARMS for the workload according to the values specified in the Collect Static SQL and Collect Dynamic SQL fields.

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 or not a monitoring agent is to exclude SQL activity generated by plans associated with DB2 Query Monitor. This specification removes the DB2 Query Monitor activity from exception processing and current activity. It does not impact summary data collection. This column works in conjunction with the QM Plan1, QM Plan2, and QM Plan3 columns that indicate the names of the plans associated with DB2 Query Monitor.

QM Plan1, QM Plan2, QM Plan3

Patterns that will be used by a monitoring agent to determine if a plan is associated with DB2 Query Monitor. This pattern is only used if the **QM Plans** column is set to Y.

Updated

The most recent date and time the monitoring profile was updated.

Workload Name

The name of the SQL workload. The workload name is a 32-byte character string that is assigned to the SQL activity by the selection criteria of the profile line and identifies the SQL activity in current activity, exceptions, and alerts. It is recommended that you name your workload to facilitate the identification of the monitoring profile line and the workload with which captured activity is associated.

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

Creating a monitoring profile

These topics outline the steps necessary to create a monitoring profile.

Procedure

1. Type **CREATE** in the command line on the Monitoring Profiles panel and press Enter. The Create Monitoring Profile panel displays:

```

----- 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 109. Create Monitoring Profile panel

These fields display on the Create Monitoring Profile panel:

Profile Name

The name of the monitoring profile.

Exclude QM Plans

Indicates whether or not the monitoring profile excludes QM plans from QM processing. Valid values are **Y** (excludes the plans listed in the QM Plan1, QM Plan2, QM Plan3 fields from QM processing) and **N** (does not exclude the plans listed in the **QM Plan1**, **QM Plan2**, **QM Plan3** fields from QM processing).

QM Plan#1, QM Plan#2, QM Plan#3

The QM plan(s) that are excluded from QM exception processing. For QM plans listed in these fields to be excluded from exception processing, a value of **Y** must be specified for **Exclude QM Plans**.

Note: Wildcards can be used when specifying QM plans.

2. Specify a monitoring profile name.
3. (Optional) Specify up to three plan patterns to identify the plans that are part of DB2 Query Monitor.
4. (Optional) Specify **Y** in the **Exclude QM Plans** field if you want to exclude the plans listed in the **QM Plan#1**, **QM Plan#2**, and **QM Plan#3** fields from data collection.
5. Press Enter. The Create Monitoring Profile panel displays:

```

YYYY/MM/DD HH:MM:SS ----- Create Monitoring Profile ----- Row 1 of 1
Option ==> Scroll ==> PAGE
Profile Name: MPROF1

C:I-Insert,U-Update,R-Repeat,D-Delete,C-Copy,M-Move,B-Before,A-After
-----
CMD INCL\EXCL  SSID Plan  Program AUTHID  JOBNAME  CONN  CORRID  >
-----
-           -           -           -           -           -           -           -
-           I           *           *           *           *           *           *
***** Bottom of Data *****

```

Figure 110. Create Monitoring Profile panel

You can use the Create Monitoring Profile panel to configure and sequence a set of monitoring profile lines. Each monitoring profile line can define the inclusion or exclusion of specific workloads from summary reporting, exception processing, and alert processing.

The sequence of the monitoring profile lines displayed on the Create Monitoring Profile panel is important since it determines the order in which DB2 Query Monitor looks for a match and, if found, includes or excludes activity information.

When a monitoring profile is assigned to a monitoring agent, the criteria specified in its monitoring profile lines are used to determine which activity is included in or excluded from DB2 Query Monitor processing.

When a monitoring agent detects SQL activity for a monitored DB2 subsystem, it refers to the monitoring profile (if one has been assigned to the monitoring agent) and in turn to the profile's include/exclude 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 line item (to include or exclude the activity in question) and no further line items are considered for that unit of activity after the match occurs.

Thus, for those monitoring agents that are assigned monitoring profiles, the proper configuration of the monitoring profile is a critical step in the successful monitoring of a system's queries.

These fields display on the Create Monitoring Profile panel:

Profile Name

The name of the monitoring profile.

These commands are valid for the Create Monitoring Profile panel:

I - Insert

Displays the Insert Profile Line panel where you can define the details of a new monitoring profile line. The newly inserted monitoring profile line is placed after the monitoring profile line where the user issued this command.

U - Update

Displays the Update Profile Line panel where you can modify the details of the selected monitoring profile line.

R - Repeat

Repeats (duplicates) the line item to produce a new, identical monitoring profile line directly below the original.

D - Delete

Deletes the monitoring profile line from the monitoring profile.

C - Copy

Enables you to copy monitoring profile lines. When used in

combination with the **A** (after) and **B** (before) line commands, you can define the destination of the monitoring profile line after it has been copied.

M - Move

Enables you to reorder (move) monitoring profile line. When used in combination with the **A** (after) and **B** (before) line commands, you can define the destination of the monitoring profile line after it has been moved.

B - Before

When used in combination with the **M** (move) line command, enables you to place a moved monitoring profile line before the selected monitoring profile line. When used in combination with the **C** (copy) line command, enables you to place the copy of the monitoring profile line before the selected line item.

A - After

When used in combination with the **M** (move) line command, enables you to place a moved monitoring profile line after the selected monitoring profile line. When used in combination with the **C** (copy) line command, enables you to place the copy of the monitoring profile line after the selected line item.

These columns display on the Create Monitoring Profile panel:

INCL/EXCL

Indicates whether a given line of a monitoring profile is to include (**I**) or exclude (**E**) SQL activity that matches the identification criteria specified on the line. If this column is set to **E** (exclude) then the SQL activity is removed from exception and current activity processing.

Note: If the activity is also to be removed from summaries, the **Disable Summary Reporting** flag must be set to **Y** on the exclude line.

SSID The DB2 subsystem name for which the monitoring profile line applies.

Plan The plan name for which the monitoring profile line applies.

Program

The DB2 package or DBRM name for which the monitoring profile line applies.

AUTHID

The primary authorization ID for which the monitoring profile line applies.

JOBNAME

The name of the job for which the monitoring profile line applies.

CONN

The name of the connection for which the monitoring profile line applies.

CORRID

The correlation ID for which the monitoring profile line applies.

CORRNAME

The correlation ID (adjusted by conventions used by IMS and CICS) for which the monitoring profile line applies.

WSUSER

The pattern to be matched against the workstation user IDs for which the monitoring profile line applies.

WSTRAN

The pattern to be matched against the workstation transaction IDs for which the monitoring profile line applies.

WSNAME

The pattern to be matched against the workstation names for which the monitoring profile line applies.

HOSTVARS

Indicates whether or not host variables are to be collected for the specified unit of SQL activity.

DISABLE

Indicates whether or not summary reporting is disabled for the specified unit of SQL activity.

Note: A **Disable Summary Reporting** value of **Y** is only valid for **EXCLUDE** monitoring profile lines. A **Disable Summary Reporting** value of **N** must be specified for all **INCLUDE** monitoring profile lines.

ECPU The DB2 CPU time that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: An **ECPU** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception. A non-zero value indicates exception processing is active for the metric and is only checked on profile include lines.

EELAPSED

The DB2 elapsed time that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: An **EELAPSED** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception. A non-zero value indicates exception processing is active for the metric and is only checked on profile include lines.

EGETPAGES

The number of **GETPAGES** that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: An **EGETPAGES** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception. A non-zero value indicates exception processing is active for the metric and is only checked on profile include lines.

ESQLCALLS

The number of SQL calls that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: An **ESQLCALLS** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or

excluded as an alert or exception. A non-zero value in this column indicates exception processing is active for the metric and is only checked on profile include lines.

SQLCEXCPS

Indicates whether or not negative SQLCODEs are treated as exceptions for the SQL activity identified by the selection criteria on the line.

Note: An **SQLCEXCPS** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception. A non-zero value in this column indicates exception processing is active for the metric and is only checked on profile include lines.

ESQLCODES

Indicates whether or not exceptions for SQLCODEs listed on the **Exception SQLCODE Exclusion List** are excluded by the profile line. This column is only checked for profile include lines.

ELIMIT

The upper bound of the number of exceptions that will be created for the SQL activity identified by the selection criteria on the monitoring profile line. This column is only checked for profile include lines.

Note: If you specify an **ELIMIT** value of zero, collected activity that matches other criteria in the monitoring profile line will not be treated as an exception for display (since the exception limit threshold of zero would have been exceeded).

ACPU The DB2 CPU alert time that, when exceeded, produces an alert for the specified unit of SQL activity.

Note: An **ACPU** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception. A non-zero value indicates exception processing is active for this metric and is only checked on profile include lines.

AELAPSED

The DB2 elapsed time alert threshold that, when exceeded, produces an alert for the specified unit of SQL activity.

Note: An **AELAPSED** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception. A non-zero value indicates exception processing is active for this metric and is only checked on profile include lines.

AGETPAGES

The number of getpages that, when exceeded, produces an alert for the specified unit of SQL activity.

Note: An **AGETPAGES** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception. A non-zero value indicates exception processing is active for this metric and is only checked on profile include lines.

ASQLCALLS

The number of SQL calls that, when exceeded, produces an alert for the specified unit of SQL activity.

Note: An **ASQLCALLS** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception. A non-zero value indicates exception processing is active for this metric and is only checked on profile include lines.

SQLCALRTS

Indicates whether or not negative SQLCODEs are treated as alerts for the SQL activity identified by the selection criteria on the line. This column is only checked for profile include lines.

ASQLCODES

Indicates whether or not alerts for SQLCODEs listed on the Alert SQLCODE Exclusion List are excluded by the monitoring profile line. This column is only checked for profile include lines.

SSQLCODES

Indicates whether or not an SQLCODE exclusion list is present for the negative SQLCODE summaries. This column is only checked for profile include lines.

WORKLOAD NAME

The 32-byte character string that is assigned to the SQL activity for which the monitoring profile line applies. This data is used to identify activity in current activity, exceptions, and alerts.

OPTKEYS

The OPTKEYS override setting. Valid values are **Y** (Query Monitor overrides the setting of the OPTKEYS parameter in CQMPARMS for the workload specified in the monitoring profile line according to the override values shown in the OPTTEXT, OPTAUTHID, OPTCORRID, OPTCORRNAME, OPTWSUSER, OPTWSTRAN, OPTWSNAME, and OPTCALLS columns) and **N** (Query Monitor does not override the OPTKEYS parameter in CQMPARMS for the workload).

OPTTEXT

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(TEXT) parameter in CQMPARMS when OPTKEYS is set to **Y**.

OPTAUTHID

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(AUTHID) parameter in CQMPARMS when OPTKEYS is set to **Y**.

OPTCORRID

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(CORRID) parameter in CQMPARMS when OPTKEYS is set to **Y**.

OPTCORRNAME

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(CORRNAME) parameter in CQMPARMS when OPTKEYS is set to **Y**.

OPTWSUSER

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(WSUSER) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTWSTRAN

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(WSTRAN) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTWSNAME

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(WSNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTCALLS

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(CALLS) parameter in CQMPARMS when OPTKEYS is set to Y.

6. You can now work with monitoring profile lines.

Related concepts:

“Monitoring profiles - columns and fields” on page 296

The following list shows the fields and corresponding columns that appear throughout the monitoring profile configuration panels.

“Step 3: Configure a monitoring profile” on page 126

Monitoring profiles perform the following basic functions in DB2 Query Monitor.

Working with monitoring profile lines

Monitoring profiles consist of monitoring profile lines that can be created, inserted, updated, moved and deleted as needed to tailor a monitoring profile to fit your needs.

Adding a monitoring profile line

Follow these steps to add a monitoring profile line.

Procedure

1. On the Create Monitoring Profile panel or the Update Monitoring Profile panel, type **I** in the **CMD** field and press Enter. The Insert Profile Line panel displays:

```

----- Insert Profile Line for MPROF1 -----
Option ==> _____ Scroll ==> PAGE

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       * _____
Workstation User         * _____
Workstation Trans        * _____
Workstation Name         * _____
Workload Name            _____
Exception CPU            00 : 00 : 00 . 000000
Exception Elapsed        00 : 00 : 00 . 000000
Exception Getpages       0 _____
Exception SQL Calls      0 _____
Exception Limit          0 _____
Generate SQLCODE Exceptions Y (Y/N)
Exclude Exception SQLCODEs N (Y/N)
Alert CPU                00 : 00 : 00 . 000000
Alert Elapsed            00 : 00 : 00 . 000000
Alert Getpages           0 _____
Alert SQL Calls          0 _____
Generate SQLCODE Alerts  N (Y/N)
Exclude Alert SQLCODEs  N (Y/N)
Exclude Summary SQLCODEs N (Y/N)
Override OPTKEYS         (Y/N)
  OPTKEYS(TEXT)          (Y/N)
  OPTKEYS(AUTHIDS)       (Y/N)
  OPTKEYS(CORRID)        (Y/N)
  OPTKEYS(CORRNAME)     (Y/N)
  OPTKEYS(WSUSER)        (Y/N)
  OPTKEYS(WSTRAN)        (Y/N)
  OPTKEYS(WSNAME)        (Y/N)
  OPTKEYS(CALLS)         (Y/N)
  OPTKEYS(PTEXT)         (Y/N)

```

Figure 111. Insert Profile Line panel

The information on the Insert Profile Line panel consists of the **include/exclude instruction**, the **identification parameters** that identify the characteristics on which a match will be based, **instructional parameters** that identify what action DB2 Query Monitor takes for activity that matches the identification parameters, **SQLCODE exclusion parameters** that identify SQLCODES that are to be excluded from exception processing, and **OPTKEYS override parameters** that specify whether or not OPTKEYS settings in CQMPARMS will be overridden for a workload.

Note: Every negative SQLCODE is treated as an exception unless explicitly excluded from DB2 Query Monitor processing using SQLCODE exclusion parameters.

The include/exclude instruction consists of these input fields:

INCLUDE/EXCLUDE

Specifies whether detected SQL activity is to be included in or excluded from further DB2 Query Monitor processing. Valid values are I (includes matching SQL activity in DB2 Query Monitor processing as defined by the monitoring profile) and E (excludes matching SQL activity from DB2 Query Monitor processing as defined by the monitoring profile).

The identification parameters consist of the input fields that follow.

Note: You can use wildcard specifications in these fields to identify the workload.

DB2 Subsystem

The DB2 subsystem with which SQL activity is associated. If the DB2 subsystem associated with the SQL activity in question matches the DB2 subsystem specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

Plan Name

The plan name with which SQL activity is associated. If the plan name associated with the SQL activity in question matches the plan name specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

Program Name

The program name with which SQL activity is associated. If the program name associated with the SQL activity in question matches the program name specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

AUTHID

The DB2 authorization ID with which SQL activity is associated. If the DB2 authorization ID associated with the SQL activity in question matches the authorization ID specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

JOBNAME

The name of the job with which SQL activity is associated. If the job name associated with the SQL activity in question matches the job name specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

Connection ID

The connection ID with which SQL activity is associated. If the connection ID associated with the SQL activity in question matches the connection ID specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

CORRID

The correlation ID with which SQL activity is associated. If the correlation ID associated with the SQL activity in question matches the correlation ID specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

Workstation User

The ID of the workstation user who initiated the SQL activity. If the workstation user who initiated the SQL activity in question matches the workstation user specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

Workstation Trans

The workstation transaction with which SQL activity is associated. If the workstation transaction associated with the SQL activity in question matches the workstation transaction specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

Workstation Name

The name of the workstation from which SQL activity originated. If the workstation name for the SQL activity in question matches the workstation name specified in this field, DB2 Query Monitor continues processing information about that activity as defined by the monitoring profile.

Workload Name

The name of the SQL workload for which the profile line applies.

Note: 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 the workload with which the captured activity is associated.

These instructional parameters display on the Insert Profile Line panel:

Disable Summary Reporting

Indicates whether or not summary information is to be reported for the unit of SQL activity.

Notes:

- a. 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.
- b. **Disable Summary Reporting** does not impact DB2 command reporting. Profiles do not have any effect on DB2 commands.

Gather Host Variables

Indicates whether or not host variable information is to be collected for the unit of SQL activity.

Exception CPU

The CPU time that, when exceeded, produces an exception for that unit of SQL activity.

Note: An **Exception CPU** value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Exception Elapsed

The elapsed time that, when exceeded, produces an exception for that unit of SQL activity.

Note: An **Exception Elapsed** value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Exception Getpages

The number of getpages that, when exceeded, produces an exception for that unit of SQL activity.

Note: An **Exception Getpages** value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Exception SQL Calls

The number of SQL calls that, when exceeded, produces an exception for that unit of SQL activity.

Note: 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.

Exception Limit

The maximum number of exceptions that will be generated for that SQL statement.

Note: If you specify an **Exception Limit** value of zero, collected activity that matches other criteria in the profile line will not be treated as an exception for display (since the exception limit threshold of zero would have been exceeded).

Generate SQLCODE Exceptions

Indicates whether or not SQLCODES generate exceptions. Valid values are Y (SQLCODES generate exceptions) and N (SQLCODES do not generate exceptions).

Notes:

- a. The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters behave independently of one another.
- b. The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters work together with the Exclude Exception SQLCODEs and Exclude Alert SQLCODEs parameters. The Exclude Exception SQLCODEs and Exclude Alert SQLCODEs parameters define whether or not specific SQLCODEs (defined by the SQLCODE exclusion list) are excluded from exception/alert processing. The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters act as high level flags to turn on or off the generation of exceptions/alerts for SQLCODEs (in general). So, for example:
 - If you specify “Exclude Exception SQLCODEs = Y”, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify “Generate SQLCODE Exceptions = Y”, then exceptions will be produced for all SQLCODEs except -901.
 - If you specify “Exclude Exception SQLCODEs = Y”, and specify -901 SQLCODE on the SQLCODE exclusion list, and specify “Generate SQLCODE Exceptions = N”, then exceptions will not be produced for any SQLCODEs (in this case, the specification of -901 SQLCODE on the SQLCODE exclusion list is not really necessary since it will be enforced by the higher-level “Generate SQLCODE Exceptions = N” setting).
 - If you specify “Exclude Exception SQLCODEs = N”, and specify “Generate SQLCODE Exceptions = Y”, then exceptions will be produced for all SQLCODEs.
 - If you specify “Exclude Exception SQLCODEs = N”, and specify “Generate SQLCODE Exceptions = N”, then exceptions will not be produced for any SQLCODEs.

Alert CPU

The CPU time that, when exceeded, produces an alert for that unit of SQL activity.

Note: An **Alert CPU** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception.

Alert Elapsed

The elapsed time that, when exceeded, produces an alert for that unit of SQL activity.

Note: An **Alert Elapsed** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception.

Alert Getpages

The number of getpages that, when exceeded, produces an alert for that unit of SQL activity.

Note: An **Alert Getpages** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception.

Alert SQL Calls

The number of SQL calls that, when exceeded, produces an alert for that unit of SQL activity.

Note: An **Alert SQL Calls** value of zero causes this criteria not to be used in determining if the monitoring profile line should be included or excluded as an alert or exception.

Generate SQLCODE Alerts

Indicates whether or not SQLCODES generate alerts. Valid values are **Y** (SQLCODES generate alerts) and **N** (SQLCODES do not generate alerts).

Notes:

- a. The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters behave independently of one another.
- b. The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters work together with the Exclude Exception SQLCODEs and Exclude Alert SQLCODEs. The Exclude Exception SQLCODEs and Exclude Alert SQLCODEs parameters define whether or not specific SQLCODES (defined by the SQLCODE exclusion list) are excluded from exception/alert processing. The Generate SQLCODE Exceptions and Generate SQLCODE Alerts parameters act as high level flags to turn on or off the generation of exceptions/alerts for SQLCODES (in general). So, for example:
 - If you specify "Exclude Alert SQLCODEs = Y", and specify -901 SQLCODE on the SQLCODE exclusion list, and specify "Generate SQLCODE Alerts = Y", then alerts will be produced for all SQLCODEs except -901.
 - If you specify "Exclude Alert SQLCODEs = Y", and specify -901 SQLCODE on the SQLCODE exclusion list, and specify "Generate SQLCODE Alerts = N", then alerts 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 Alerts = N" setting).
 - If you specify "Exclude Alert SQLCODEs = N", and specify "Generate SQLCODE Alerts = Y", then alerts will be produced for all SQLCODEs.

- If you specify “Exclude Alert SQLCODEs = N”, and specify “Generate SQLCODE Alerts = N”, then alerts will not be produced for any SQLCODEs.

These SQLCODE exclusion parameters display on the Insert Profile Line panel:

Exclude Exception SQLCODEs

Indicates whether or not an SQLCODE generates an exception. For an SQLCODE to be excluded from exception processing, the user must:

- Specify an INCLUDE/EXCLUDE value of I,
- Specify an Exclude Exception SQLCODEs value of Y, and
- List the SQLCODE on the Exception SQLCODE Exclusion List.

Notes:

- The Exception SQLCODE Exclusion List appears whenever you specify an Exclude Exception SQLCODEs value of Y on the Insert/Update Profile Line Item panel and press Enter.
- The exclusion of the negative SQLCODEs does not prevent exceptions from being generated due to other criteria (for example, GETPAGES, number of calls). Negative SQLCODEs will be in your exception records if a unit of work passes some other threshold in your profile. The ESQLCODE and ASQLCODE columns will have values of negative SQLCODEs in the event a negative SQL exception record is processed. If a unit of work passes a threshold either for an alert or exception then DB2 Query Monitor posts the record that includes a negative SQLCODE, if one was generated, as long as the unit of work matches criteria in the active profiles.

Exclude Alert SQLCODEs

Indicates whether or not an SQLCODEs generates an alert. For an SQLCODE to be excluded from alert processing, the user must:

- Specify an INCLUDE/EXCLUDE value of I,
- Specify 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 on the Insert/Update Profile Line Item panel and press Enter.

Exclude Summary SQLCODEs

Indicates whether or not SQLCODEs are included in summary displays (Option N, View SQLCODEs on the Query Monitor main menu). 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.

These OPTKEYS override parameters display on the Insert Profile Line panel:

OPTKEYS

Enables you to specify whether or not to override OPTKEYS settings in CQMPARMS for the workload specified in the profile line. Valid values are Y (overrides OPTKEYS settings in CQMPARMS for the workload according to the information provided for OPTKEYS(TEXT), OPTKEYS(AUTHIDS), OPTKEYS(CORRID), OPTKEYS(WSUSER),

OPTKEYS(WSTRAN), OPTKEYS(WSNAME), and OPTKEYS(CALLS)) and N (does not override OPTKEYS for the workload).

OPTKEYS(TEXT)

Setting this parameter to **Y** enables you to override the OPTKEYS(TEXT) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

OPTKEYS(AUTHIDS)

Setting this parameter to **Y** enables you to override the OPTKEYS(AUTHIDS) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

OPTKEYS(CORRID)

Setting this parameter to **Y** enables you to override the OPTKEYS(CORRID) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

OPTKEYS(CORRNAME)

Setting this parameter to **Y** enables you to override the OPTKEYS(CORRNAME) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

OPTKEYS(WSUSER)

Setting this parameter to **Y** enables you to override the OPTKEYS(WSUSER) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

OPTKEYS(WSTRAN)

Setting this parameter to **Y** enables you to override the OPTKEYS(WSTRAN) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

OPTKEYS(WSNAME)

Setting this parameter to **Y** enables you to override the OPTKEYS(WSNAME) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

OPTKEYS(CALLS)

Setting this parameter to **Y** enables you to override the OPTKEYS(CALLS) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

OPTKEYS(PTEXT)

Setting this parameter to **Y** enables you to override the OPTKEYS(PTEXT) parameter in CQMPARMS.

Note: The Override OPTKEYS value must also be set to **Y** for the override to occur for the workload.

- Specify **I** or **E** in the **INCLUDE/EXCLUDE** field depending on whether the profile line you are creating is intended to include matching SQL activity in or exclude matching SQL activity from Query Monitor processing.

Note: INCLUDE/EXCLUDE does not affect summaries unless the **Disable Summary Reporting** parameter is in effect, thus if you do not include a DB2 subsystem for monitoring, you might still see activity for that subsystem from Query Monitor main menu option **U** (View Activity Summaries).

- In the identification parameter fields (which include **DB2 Subsystem, Plan Name, Program Name, AUTHID, JOBNAME, Connection ID, CORRID, Workstation User, Workstation Trans, Workstation Name, and Workload Name**), specify the values necessary to identify the SQL activity for which the profile line applies.
- In the instructional parameter fields (which include **Gather Host Variables, Disable Summary Reporting, Exception CPU, Exception Elapsed, Exception Getpages, Exception SQL Calls, Exception Limit, Generate SQLCODE Exceptions, Alert CPU, Alert Elapsed, Alert Getpages, Alert SQLCALLS, and Generate SQLCODE Alerts**), specify the values necessary to properly instruct Query Monitor what to do with SQL activity that matches the identification parameters you specified.
- Indicate whether or not you want to override OPTKEYS and specify which OPTKEYS you want to override for the workload by specifying **Y** or **N** in the OPTKEYS override fields.
- Indicate whether or not to exclude negative SQLCODES from alert processing, exception processing, or summary reporting by specifying a **Y** or **N** in the **Exclude Alert SQLCODES, Exclude Exception SQLCODES, and Exclude Summary SQLCODES** fields.
- Press Enter. If you specified **N** in the **Exclude Exception SQLCODES, Exclude Alert SQLCODES, and Exclude Summary SQLCODES** fields, then the Update Monitoring Profiles panel displays.

If you specified **Y** in the **Exclude Exception SQLCODES** field, then the Exclude SQLCODE Exception List panel displays, where you can specify the negative SQLCODES you would like excluded from exception processing:

```
CQM$PRSE 1      --- Exception SQLCODE Exclusion List --- 2008/01/24 11:29:23
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 112. Exception SQLCODE Exclusion List panel

These commands are available on the Exception SQLCODE Exclusion List panel:

I - Insert

Inserts a new, blank row of input fields for negative SQLCODES. The newly inserted line of input fields is placed after the line where you issue this command.

R - Repeat

Repeats (duplicates) the line item to produce a new, identical line directly below the original.

D - Delete

Deletes the line of SQLCODES from the list.

C - Copy

Enables you to copy profile line items. When used in combination with the **A** (after) and **B** (before) line commands you can define the destination of the copied profile line.

M - Move

Enables you to move lines of SQLCODES. When used in combination with the **A** (after) and **B** (before) line commands, you can define the destination of the line after it has been moved.

B - Before

When used in combination with the **M** (move) line command, enables you to place a moved line of SQLCODES before the selected line. When used in combination with the **C** (copy) line command, enables you to place the copy of the line before the selected line.

A- After

When used in combination with the **M** (move) line command, enables you to place a moved line of SQLCODES after the selected line. When used in combination with the **C** (copy) line command, enables you to place the copy of the line after the selected line.

- a. Type the negative SQLCODES that you want to exclude from Query Monitor exception processing in the blank fields.

Note: When typing a negative SQLCODE, you must use "-" prior to the SQLCODE to indicate that it is negative.

- b. If you need to specify more than nine negative SQLCODES for exclusion, use the **I** line command to insert a new line of fields or use the **C**, **A**, **B**, **M**, or **R** commands as necessary to copy or move existing lines.
- c. When finished listing all the negative SQLCODES you want to exclude from exception processing, press PF3. If you specified **N** in the **Exclude Alert SQLCODES** and **Exclude Summary SQLCODES** fields, then the Update Monitoring Profiles panel displays. If you specified **Y** in the **Exclude Alert SQLCODES** or **Exclude Summary SQLCODES** fields, repeat the process of specifying SQLCODES on the exclusion lists displayed for those parameters.
- d. When finished listing all the negative SQLCODES you want to exclude from exception processing, alert processing and summary reporting, press PF3. The Insert Profile Line panel displays.

8. Press PF3 and exit and save changes as necessary.

Related concepts:

"Monitoring profiles - columns and fields" on page 296

The following list shows the fields and corresponding columns that appear throughout the monitoring profile configuration panels.

"Step 3: Configure a monitoring profile" on page 126

Monitoring profiles perform the following basic functions in DB2 Query Monitor.

Copying a monitoring profile line

Follow these steps to copy a monitoring profile line.

About this task

You can copy monitoring profile lines and place them before or after other monitoring profile lines using the C (copy), A (after), and B (before) line commands. This enables you to quickly reproduce a profile line and then makes it available to you for updating as necessary.

Note: If there is only one profile line in your profile and you want to duplicate it, do not use the copy command. Instead, use the R (repeat) line command.

Procedure

1. On the DB2 Query Monitor main menu, type 8 in the **Option** field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel, type C in the **CMD** field next to the profile line you want to copy.
3. Type A (or B) in the **CMD** field next to the profile line after which (or before which) you want to insert the copied profile line.
4. Press Enter. The profile line is copied into the appropriate location and can now be updated as needed.

Moving a monitoring profile line

Follow these steps to move a monitoring profile line.

About this task

Moving a monitoring profile line enables you to alter the order in which the monitoring profile line in a monitoring profile are processed and in turn the way the profile influences the reporting of captured activity.

Procedure

1. On the DB2 Query Monitor main menu, type 8 in the **Option** field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel, type M in the **CMD** field next to the monitoring profile line you want to move.
3. Type A (or B) in the **CMD** field next to the monitoring profile line after which (or before which) you want to move the monitoring profile line.
4. Press Enter. The monitoring profile line is moved into the appropriate location.

Repeating a monitoring profile line

Follow these steps to repeat a monitoring profile line.

About this task

If you have to create several monitoring profile lines that are similar, the R command enable you to create those monitoring profile lines more efficiently.

Procedure

1. On the DB2 Query Monitor main menu, type 8 in the **Option** field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel, type **R** in the **CMD** field next to the monitoring profile line you want to repeat.
3. Press Enter. The monitoring profile line is copied below the original monitoring profile line and is now available for updating as necessary.

Updating a monitoring profile line

Follow these steps to update a monitoring profile line.

Procedure

1. From the Create Monitoring Profile panel or the Update Monitoring Profile panel, type **U** in the **CMD** field next to the profile line you want to update.
2. Press Enter. The Update Profile Line panel displays:

```
----- Update Profile Line for MPROF1 -----
Option ==> _____ Scroll ==> CSR

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         * _____
Workstation User         * _____
Workstation Trans        * _____
Workstation Name         * _____
Workload Name            _____
Exception CPU            00 : 00 : 00 . 000000
Exception Elapsed        00 : 00 : 00 . 000000
Exception Getpages       0 _____
Exception SQL Calls      0 _____
Exception Limit          0 _____
Generate SQLCODE Exceptions Y (Y/N)
Exclude Exception SQLCODEs N (Y/N)
Alert CPU                00 : 00 : 00 . 000000
Alert Elapsed            00 : 00 : 00 . 000000
Alert Getpages           0 _____
Alert SQL Calls          0 _____
Generate SQLCODE Alerts  N (Y/N)
Exclude Alert SQLCODEs  N (Y/N)
Exclude Summary SQLCODEs N (Y/N)
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(WSUSER)        N (Y/N)
  OPTKEYS(WSTRAN)        N (Y/N)
  OPTKEYS(WSNAME)        N (Y/N)
  OPTKEYS(CALLS)         (Y/N)
  OPTKEYS(PTEXT)         (Y/N)
```

Figure 113. Update Profile Line panel

3. Edit the fields for the profile line as needed.
4. Press PF3 to exit and save changes.

Deleting a monitoring profile line

Follow these steps to delete a monitoring profile line from a monitoring profile.

Procedure

1. On the DB2 Query Monitor main menu, type 8 in the **Option** field and press Enter.
2. Access the Create Monitoring Profile panel or the Update Monitoring Profile panel and type **D** in the **CMD** field next to the monitoring profile line you want to delete.
3. Press Enter. The monitoring profile line is deleted.

Updating a monitoring profile

Follow these steps to update a monitoring profile.

About this task

Note: If you update a monitoring profile while it is in use, you must refresh the monitoring profile after it has been updated, in order for your changes to be implemented. For information about refreshing a profile, see “Refreshing a monitoring profile” on page 292.

Procedure

1. Select option **8. Work with Profiles** from the DB2 Query Monitor main menu and press Enter. The Monitoring Profiles panel displays.
2. Type **U** in the **CMD** field for the monitoring profile you want to update. The Update Monitoring Profile panel displays:

```
----- Update Monitoring Profile -----
Option  ===> _____

Profile Name ..... MPROF1
Exclude QM Plans (Y/N)  N
QM Plan#1 _____  QM Plan#2 _____  QM Plan#3 _____

Press Enter to update profile or PF3/CANCEL to exit
```

Figure 114. Update Monitoring Profile panel

These fields display on the Update Monitoring Profile panel:

Profile Name

The name of the monitoring profile.

Exclude QM Plans

Indicates whether or not the profile excludes QM plans from QM processing. Valid values are **Y** (excludes the plans listed in the QM Plan1, QM Plan2, QM Plan3 fields from QM processing) and **N** (does not exclude the plans listed in the **QM Plan1**, **QM Plan2**, **QM Plan3** fields from QM processing).

QM Plan#1, QM Plan#2, QM Plan#3

The QM plan(s) that are excluded from QM exception processing. For QM plans listed in these fields to be excluded from exception processing, a value of **Y** must be specified for **Exclude QM Plans**.

Note: Wildcards can be used when specifying QM plans.

3. Edit the **Exclude QM Plans**, **QM Plan#1**, **QM Plan#2**, and **QM Plan#3** fields as necessary.

- Press Enter to exit and save changes. The Update Monitoring Profile panel displays:

```

YYYY/MM/DD HH:MM:SS ----- Update Monitoring Profile ----- Row 1 of 3
Option ==> Scroll ==> CSR
Profile Name: MPROF1

C:I-Insert,U-Update,R-Repeat,D-Delete,C-Copy,M-Move,B-Before,A-After
-----
CMD  INCL\EXCL  SSID  Plan    Program  AUTHID  JOBNAME  CONN    CORRID
-----
-    -          *    CQM*   *        *        *        *        *
-    E          *    ABC*   *        *        *        *        *
-    I          *    *     *        *        *        *        *
-    E          *    *     *        *        *        *        *
***** Bottom of Data *****

```

Figure 115. Update Monitoring Profile panel

The Update Monitoring Profile panel enables you to configure and sequence a set of profile lines. Each profile line can define the inclusion or exclusion of specific workloads from summary reporting, exception processing, and alert processing.

The sequence of the profile lines displayed on the Update Monitoring Profile panel is important since it determines the order in which Query Monitor looks for a match and, if found, includes or excludes activity information.

When a monitoring profile is assigned to a monitoring agent, the criteria specified in its profile lines are used to determine which activity is included in or excluded from Query Monitor processing.

When a monitoring agent detects SQL activity for a monitored DB2 subsystem, it refers to the monitoring profile (if one has been assigned to the monitoring agent) and in turn to the profile's include/exclude profile lines, in the order in which they are listed on the Create Monitoring Profiles panel. Once a match is identified, Query Monitor proceeds as set forth in the matched line item (to include or exclude the activity in question) and no further line items are considered for that unit of activity after the match occurs.

Thus, for those 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.

- Update the profile as necessary.

Note: If you update a monitoring profile while it is in use, you must refresh the monitoring profile after it has been updated, in order for your changes to be implemented. For information about refreshing a profile, see “Refreshing a monitoring profile” on page 292.

Related concepts:

“Step 3: Configure a monitoring profile” on page 126

Monitoring profiles perform the following basic functions in DB2 Query Monitor.

“Monitoring profiles - columns and fields” on page 296

The following list shows the fields and corresponding columns that appear throughout the monitoring profile configuration panels.

Related tasks:

“Refreshing a monitoring profile” on page 292

This topic describes how to refresh a monitoring profile.

Renaming a monitoring profile

Follow these steps to rename a monitoring profile.

Procedure

1. Select option **8. Work with Profiles** from the DB2 Query Monitor main menu and press Enter. The Monitoring Profiles panel displays.
2. Type **R** in the **CMD** field for the monitoring profile you want to rename. The Rename Monitoring Profile panel displays:

```
----- Rename Monitoring Profile -----
Option  ===> _____

The following profile will be renamed

Profile Name ..... MPROF1
New Profile Name ..... _____

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

Figure 116. Rename Monitoring Profile panel

These field displays on the Rename Monitoring Profile panel:

Profile Name

The current name of the monitoring profile selected for renaming.

New Profile Name

The new name for the monitoring profile.

3. Type a new profile name (up to eight characters) in the **New Profile Name** field.
4. Press Enter to confirm the renaming of the monitoring profile and return to the Monitoring Profiles panel.

Deleting a monitoring profile

Follow these steps to delete a monitoring profile.

Procedure

1. Select option **8. Work with Profiles** from the DB2 Query Monitor main menu and press Enter. The Monitoring Profiles panel displays.
2. Type **D** in the **CMD** field for the monitoring profile you want to delete. The View Monitoring Profile panel displays:

```
----- Delete Monitoring Profile -----
Option  ===> _____

The following profile will be deleted

Profile Name ..... MPROF1

Press Enter to delete profile or PF3/CANCEL to exit
```

Figure 117. Delete Monitoring Profile panel

These field displays on the Delete Monitoring Profile panel:

Profile Name

The name of the monitoring profile selected for deletion.

3. Press Enter to confirm the deletion of the monitoring profile and return to the Monitoring Profiles panel.

Viewing a monitoring profile

Follow these steps to view a monitoring profile.

Procedure

1. Select option **8. Work with Profiles** from the DB2 Query Monitor main menu and press Enter. The Monitoring Profiles panel displays.
2. Type **V** in the **CMD** field for the monitoring profile you want to view. The View Monitoring Profile panel displays:

```

----- 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 118. View Monitoring Profile panel

These fields are displayed on the View Monitoring Profile panel:

Profile Name

The name of the monitoring profile.

Exclude QM Plans from Exceptions, Alerts, and Current Activity

Indicates whether or not the profile excludes Query Monitor's plans from exceptions, alerts, and current activity.

QM Plan #1, #2, #3

Indicates the Query Monitor plan names or patterns that are excluded from monitoring if the Exclude QM Plans option is set to Y.

3. Press Enter to view additional information about the profile. The View Monitoring Profile panel displays, as shown in Figure 119:

```

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 119. View Monitoring Profile panel

The View Monitoring Profiles panel enables you to view the details of the monitoring profile. These fields are displayed on the View Monitoring Profile panel:

Profile Name

The name of the monitoring profile.

The line commands available on the View Monitoring Profile panel includes:

V - View

Displays the View Profile Line panel which displays the details of the selected profile line.

The columns that display on the View Monitoring Profile panel include:

INCL/EXCL

Indicates whether the profile line instructs QM to include or exclude matching SQL activity from further Query Monitor processing. Valid values are I (includes matching SQL activity in further Query Monitor processing) and E (excludes matching SQL activity from further Query Monitor processing).

SSID The ID of the DB2 subsystem for which the profile line applies.

Plan The plan name for which the profile line applies.

Program

The program name for which the profile line applies.

AUTHID

The DB2 authorization ID for which the profile line applies.

JOBNAME

The name of the job for which the profile line applies.

CONN

The connection ID for which the profile line applies.

CORRID

The correlation ID for which the profile line applies.

CORRNAME

The correlation ID (adjusted by conventions used by IMS and CICS) for which the profile line applies.

WSUSER

The workstation user ID for which the profile line applies.

WSTRAN

The workstation transaction for which the profile line applies.

WSNAME

The workstation name for which the profile line applies.

HOSTVARS

Whether or not host variables are to be collected for the specified unit of SQL activity.

DISABLE

Whether or not summary reporting is disabled for the specified unit of SQL activity.

Note: A **Disabled 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.

ECPU The CPU time that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: An ECPU value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

EELAPSED

The elapsed time that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: An EELAPSED value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

EGETPAGES

The number of getpages that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: An EGETPAGES value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

ESQLCALLS

The number of SQL calls that, when exceeded, produces an exception for the specified unit of SQL activity.

Note: An ESQLCALLS value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

SQLCXCPS

Indicates whether (Y) or not (N) negative SQLCODEs are treated as exceptions for the SQL activity identified by the selection criteria on the line. This column is only checked for profile include lines

ESQLCODES

Indicates whether or not exceptions for SQLCODEs listed on the Exception SQLCODE Exclusion List are excluded by the profile line. This column is only checked for profile include lines.

ELIMIT

The number of exceptions that, when exceeded, causes no additional exceptions to be collected for that interval.

Note: If the ELIMIT has a value of zero, collected activity that matches other criteria in the profile line will not be treated as an exception for display (since the exception limit threshold of zero would have been exceeded).

ACPU The CPU time that, when exceeded, produces an alert for the specified unit of SQL activity.

Note: An ACPU value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

AELAPSED

The elapsed time that, when exceeded, produces an alert for the specified unit of SQL activity.

Note: An AELAPSED value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

AGETPAGES

The number of getpages that, when exceeded, produces an alert for the specified unit of SQL activity.

Note: An AGETPAGES value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

ASQLCALLS

The number of SQL calls that, when exceeded, produces an alert for the specified unit of SQL activity.

Note: An ASQLCALLS value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

SQLCALRTS

Indicates whether or not negative SQLCODEs are treated as alerts for the SQL activity identified by the selection criteria on the line. This column is only checked for profile include lines.

ASQLCODES

Indicates whether or not alerts for SQLCODEs listed on the Alert SQLCODE Exclusion List are excluded by the profile line. This column is only checked for profile include lines.

SSQLCODES

Indicates whether or not an SQLCODE exclusion list is present for the negative SQLCODE summaries. This column is only checked for profile include lines.

WORKLOAD NAME

The name of the SQL workload for which the profile line applies.

OPTKEYS

The OPTKEYS override setting. Valid values are Y (Query Monitor overrides the setting of the OPTKEYS 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 for the workload).

OPTTEXT

Indicates whether or not Query Monitor overrides the OPTKEYS(TEXT) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTAUTHID

Indicates whether or not Query Monitor overrides the OPTKEYS(AUTHID) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTCORRID

Indicates whether or not Query Monitor overrides the OPTKEYS(CORRID) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTCORRNM

Indicates whether or not Query Monitor overrides the OPTKEYS(CORRNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTWSUSER

Indicates whether or not Query Monitor overrides the OPTKEYS(WSUSER) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTWSTRAN

Indicates whether or not Query Monitor overrides the OPTKEYS(WSTRAN) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTWSNAME

Indicates whether or not Query Monitor overrides the OPTKEYS(WSNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTCALLS

Indicates whether or not Query Monitor overrides the OPTKEYS(CALLS) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTPTEXT

Indicates whether or not Query Monitor overrides the OPTKEYS(PTEXT) parameter in CQMPARMS when OPTKEYS is set to Y.

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 query monitoring and thereby determine the type of activity that is to be collected by Query Monitor's data collectors. Such fine-tuning requires a clear understanding of your query monitoring objectives. For instance, your monitoring objectives might be to:
 - Include a workload in exception reporting
 - Include a workload in alert reporting
 - Exclude Query Monitor workloads from exception processing
 - Exclude a workload from both exception processing and summary reporting
 - Define OPTKEY override settings

Prior to setting up your monitoring profile, identify your monitoring objectives for that profile.

2. **Define profile name and the Query Monitor plans (if any) to exclude from exception processing.** After identifying your monitoring objectives, you can

start setting up a new profile. The first steps in doing so are to define a profile name and identify any Query Monitor plans you would like to exclude from exception processing. The exclusion of Query Monitor plans from exception processing is optional.

3. **Create the necessary monitoring profile lines.** You can now create the profile lines you need to address your monitoring objectives.
4. **Place profile lines in the proper sequence.** The order in which profile lines are placed within a monitoring profile is important as it determines the order in which Query Monitor looks for a match and, if found, includes or excludes activity information. 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 profile line and no additional profile lines in the monitoring profile are considered for that activity. Move the profile lines in your monitoring profile so they are in the appropriate sequence based on your monitoring 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 Query Monitor main menu Option 6 (Work with Monitoring Agents).

Including a workload in exception processing

Follow these steps to include a workload in exception reporting.

Procedure

Set up an INCLUDE monitoring profile line that:

- Properly specifies the workload (plan, program, etc.)
- Defines the appropriate exception thresholds
- Excludes any negative SQLCODEs from exception reporting for the workload
- Defines an exception limit greater than 0

Note:

1. All work is excluded from exception reporting until a filter is set up to specifically include it.
2. 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.

Including a workload in alert reporting

Follow these steps to include a workload in alert reporting.

Procedure

Set up an INCLUDE profile line that:

- Properly specifies the workload (plan, program, etc.)
- Defines the appropriate exception thresholds
- Excludes any negative SQLCODEs from exception reporting for the workload
- Defines an exception limit greater than 0
- Define the appropriate alert thresholds

Excluding DB2 Query Monitor workloads from exception processing

Follow these steps to exclude DB2 Query Monitor workloads from exception processing.

About this task

Specify the DB2 Query Monitor plans you want to exclude and an **Exclude QM Plans** value of **Y** on the Create/Update Monitoring Profile panel.

Excluding a workload from both exceptions and summary reporting

Follow these steps to exclude a workload from exceptions and summary reporting.

Procedure

To exclude a workload from both exceptions and summary reporting, set up a monitoring profile line within the monitoring profile with these settings:

- Set **INCLUDE/EXCLUDE** to **E**
- Set **Disable Summary Reporting** to **Y**

Note:

- If the workload specification is for the DB2 Query Monitor Plans on this type of filter, the setting for **Exclude QM Plans** on the monitoring profile is not used. The work is automatically excluded from both summary and exception reporting.
- You can use wildcard specifications to identify the workload (ie. in fields such as AUTHID, JOBNAME, Connection ID, CORRID, and Workstation User/Trans/Name).

Defining OPTKEY override settings

Follow these steps to define OPTKEY override settings.

Procedure

1. Set OPTKEYS to **Y**. A value of **Y** causes DB2 Query Monitor to override the setting of the OPTKEYS in CQMPARMS for the workload specified in the monitoring profile line according to the override the individual OPTKEYS settings.
2. Set the appropriate values for the the individual OPTKEYS settings.

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.

Related tasks:

“Activating a monitoring agent” on page 290

Activating a monitoring agent enables that monitoring agent to collect data about a given DB2 subsystem.

Chapter 17. CAE Browser Client overview

The CAE Browser Client provides you with access to DB2 Query Monitor's web-based functionality, which enables you to browse query activity, view alerts, and configure actions and responses.

Topics:

- “About the CAE Browser Client”
- “Home” on page 337
- “CAE log information” on page 337

About the CAE Browser Client

Use the CAE Browser Client to browse query activity, view alerts, and configure actions and responses.

Flex and Ajax Interfaces

There are two types of interfaces in the CAE Browser Client, an Ajax interface and a Flex interface. The Ajax and Flex interfaces share a common header but the body of the page differs between the interfaces.

The differences affect how you log in to and use the CAE Server:

- For Ajax pages, the body of the web page is regular HTML with JavaScript. For Ajax pages to work, JavaScript must be enabled in your web browser. Log in is handled by redirecting to the log in page, then to the originally requested page. The Ajax components of the CAE Browser Client include the Alerts Browser, Configuration Browser, Home Page, and Online Help.
- For Flex pages, the body of the page consists of a single Adobe Flash plug-in that you interact with. Log in is handled by the Adobe Flash plug-in. The Flex components of the CAE Browser Client include the Activity Browser and the QM Subsystem Management. If you visits the Activity Browser in your browser (by clicking on the Activity Browser option on the homepage), that page will either show the Activity Browser, or instructions about how to download the Adobe Flash plug-in. The Flex interface is limited to a small number of configuration pages.

Common header elements

The common header elements that are displayed throughout all pages of the CAE Browser Client provide information about the product and access to basic tools such as online help and log in and log out options.

The header area displays the following:

Product name and version

The product name and version.

Welcome *username*

Displays the current user name.

About Displays product copyright, license, and build information.

Help Displays 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.

Component navigation

Links 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`

Log in

To access the Activity Browser, Alerts, or Configuration components, you must log in to the CAE Server.

You can log in with your mainframe user name and password against any of the systems that have a CAE Agent, or you can authenticate your log in against the CAE Server.

Web session versus system session

When you initially log in to the CAE Browser Client, both a web session and a system session are created unless the log in was an AJAX log in 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

Access to any DB2 Query Monitor data from the Activity Browser or QM Subsystem Management requires a system session with the mainframe system from which the DB2 Query Monitor data is being retrieved. If you attempt to access DB2 Query Monitor data against any mainframe system not previously logged into, then a log in dialog box is displayed in the Flash Player plug-in.

Note: DB2 Query Monitor data refers to data that is retrieved directly from the mainframe and is analogous to the data you can view using the ISPF interface.

Timeouts

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 at all for more than 15 minutes, then your web session will time out.

Note: With respect to timeouts, accessing the Home Page or the Online Help does not constitute use of the CAE Browser Client.

After a timeout, any attempt to use the CAE Browser Client will be treated as if you had not logged in to that web session or system session, depending on which had timed out.

Roles

When you log in, you are assigned a role that controls your access to the Configuration Browser.

- If you authenticate against a mainframe system, the role you are assigned will be determined by the kind of access you have to particular facility classes (see below for additional information).
- If you authenticate against the CAE Server, your role is determined by how you were defined to the CAE.

Access to features

All web sessions will have full access to Alerts Browser and, depending on your role, to the Configuration Browser.

Analysis

The CAE Agent and CAE Server continually perform recursive analysis of alerts and inferred alerts, pro-actively generate new alerts, and correlate alerts.

The following four alerts are triggered by threshold values controlled by profiles:

- GetPageCountExceededProblem
- SqlCallCountExceededProblem
- SqlCpuProblem
- SqlElapsedTimeProblem

Other alerts are triggered by a change in status of a DB2 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, 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, 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 log information

The logs produced by the CAE Server, CAE Agent, and CAE Browser Clients enable you to diagnose and troubleshoot problems.

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_svr_YYYY-mm-dd-hh-MM.log`, for example, `cqm_svr_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, you must ensure the `CQM_LOGS` points to the same path, in this case:

CQM_LOGS=/u/username/cqm/logs

CAE Agent log

Log information generated by the CAE Agent goes to SYSOUT.
Additionally, CAE messages of the type E (CQMC*E) are sent to both
SYSOUT and to WTO.

If any of the logs that are produced by DB2 Query Monitor exceeds 10MB
(default), a new log is created. Logs are kept up to a maximum of 32. If the
number of logs exceeds 32, the oldest is deleted to prevent additional storage
consumption.

Chapter 18. Activity Browser

The activity browser enables you to retrieve DB2 Query Monitor data from any of the available collectors.

Topics:

- “Controls and components”
- “Viewing and navigating activity” on page 340
- “Workload comparison” on page 348
- “Data table columns descriptions” on page 351
- “General tasks” on page 360
- “Query tuning” on page 368

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.

Go (button)

Applies the Source, Target, Interval, Filter, Views, and Perspective settings you have selected and refresh the data table.

Source (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 DB2 Query Monitor subsystem or an archive connection to a performance history database.

Target (drop-down list)

The target (system, DB2 Query Monitor subsystem, DB2 subsystem combination, or data sharing group, SSID combination) for which you want to view activity in the CAE Browser Client. The available values in the **Targets** dropdown depend on the selected Source.

Perspectives (drop-down list)

The perspective to use when viewing activity (summaries, current activity, exceptions, SQLCODES, or DB2 commands).

Initial Summary (dropdown)

The initial drilldown metric to use when showing information in the data table.

View Select your preferred view settings for the activity browser.

Tools Select from a variety of tools that are available in the activity browser including refreshing systems, refreshing configurations, working with intervals, top-n filtering, archive connections, filters, custom views, baselines, preferences, configuration labels, and exporting data.

Query Tuning

Select from a variety of query tuning features including showing SQL, tuning all, checking query tuning, managing staging tables, using the EXPLAIN filter, allowing non-secure tuning, configuring DSM Server connections, and checking the last DSM tuning results.

Status The current status of the activity browser and the time that the most recent task was completed.

Path (links)

The the drilldown path taken to the current data table display. You can click on the links in the navigation path to display prior drilldown command results.

Filter (check box and dropdown)

Select or create a filter to use when browsing activity.

Intervals (dropdowns for starting and ending interval)

Select the starting and ending intervals for which you want view activity in the CAE Browser Client.

TopN Select the metric for which you want to view only the top-n SQL statements. Use the top-n feature to reduce the system resources required to view data of interest.

Compare (toggle button)

Show or hide workload comparison options. Use the workload comparison feature to detect and analyze changes in workload performance metrics.

Show SQL (button)

Shows the SQL text tab for the selected line in the data table.

Tune All (pop-up/dialog)

Send a single SQL query or a set of SQL statements (a workload) for tuning by a tuning client.

Custom View (dropdown)

Select and create custom views to control display options such as columns, column widths, sort direction, sort order, and number of locked columns.

Details (check box)

Show or hide details for a selected row in the data table of the activity browser.

Chart (check box)

Show or hide the chart rendering of the selected line item in the activity browser.

Start Row

The starting row that is returned the next time you click the **Go** button.

End Row

The ending row that is returned the next time you click the **Go** button.

Page Size

The number of rows per page that are returned the next time you click the **Go** button.

Full Record Count

The total number of records (rows) for all pages.

Viewing and navigating activity

The activity browser provides several ways for you to view and navigate data about your site's SQL activity.

Overview

Use these components to view and navigate data about your site's SQL activity:

Data table

Shows data collected by DB2 Query Monitor in rows and columns. Use line commands to drill down and view activity of interest.

Details pane

Shows data collected by DB2 Query Monitor in tabs and lists.

Pie chart

Provides a visual representation of data collected by DB2 Query Monitor.

The data table, details pane, and pie chart function together. 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. 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.

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 refine your view of data by using filters and by issuing drilldown commands for lines of interest.

Also note that in the activity browser, there are controls that you can use to specify the data that is returned to the activity browser. In many situations, interacting with these controls does not cause new data to be retrieved. To retrieve new data, you must execute the selection by pressing the Enter key or clicking the **Go** button. The following actions result in the retrieval of new table data and modify the URL:

- Clicking the **Go** button
- Pressing Enter when the focus is in an option field
- Clicking on a path link button
- Clicking on the intervals stepper to move the current interval up or down
- Using your browser's navigation (for example, using the browser's back button, or selecting a bookmark)

Using the data table

Follow these steps to view and navigate the data that is displayed in the Activity Browser using the data table.

Procedure

1. From any window within the CAE Browser Client, click **Activity Browser**.
2. Click **Source** and select the appropriate DB2 Query Monitor subsystem or archive connection.

QM Subsystems

Connect to a DB2 Query Monitor subsystem.

Private / Public

Connect to an archive connection.

3. Click **Target** and select the appropriate target.

[SYS:QMID] - SSIDs

The target system, DB2 Query Monitor subsystem, and DB2 subsystem combination. Each target is listed using the following format:

SYS The system (sysname). 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 DB2 Query Monitor subsystem.

SSIDs The DB2 subsystem.

[DSGroup] - SSIDs

Data sharing groups are displayed after the DB2 Query Monitor subsystems. A solid black line divides the DB2 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. 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.
5. If the **Initial Summary** dropdown is active, select the appropriate value. The available options depend on the perspective you choose, **Summaries** or **SQLCODES**.
6. Use the **Intervals** controls to select the intervals of interest using one of the following methods:
 - Select a starting and an ending interval using the dropdown controls.
 - Navigate through intervals in a step-wise manner, either forwards or backwards, using the up and down buttons to the right of the interval **Start** and **End** choosers. You do not need to click **Go** when using the interval stepper, the action is immediately applied.
 - Select specific intervals. Click the **Show Interval Manager** button, select the check boxes next to the intervals of interest, and click **OK**.
7. (Optional) If you want to use a filter, select the appropriate filter from the **Filter** dropdown.
8. Select the appropriate line command for activity of interest using the dropdown located in the command column. The available line commands are depended on the selected perspective and the current drilldown. To select a line command, you can choose an option from the **Command** selection drop-down or type it directly into the **Command** box for the line item of interest.

Typing an option code

The option codes that are valid for specification are the same as in the corresponding ISPF panel. When you type a command, the combo box displays all options that start with the characters typed so far. If you

press Enter or click **Go**, the display changes in a way that depends on the option chosen and the context. If you do not press Enter, you can choose other options (such as filtering or intervals), then click **Go** or press Enter to execute the selection.

Choosing an option

If you choose an option from the **Command** drop-down, the contents of the field are set to the option chosen. To execute the option, press Enter or click **Go**.

Option choices

The choices available in an option field will vary according to context. For the **Command** drop-down, the available options will match the available options in the equivalent ISPF context, with the exception of those ISPF options that correspond to **Details Display** tabs in the CAE Browser Client (such as Delays or Locks).

9. Click Go.

Related tasks:

“Archive connections” on page 362

You can use archive connections to connect to DB2 Query Monitor data that has been loaded to a performance history database.

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 that is 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 refetch 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 shows a **Fetch** button that, when clicked, re-fetches the data with the sort done on the CAE Server.

You can also define the preferences for sort:

Default

To use the default sorting method, deselect the **Tools > Preferences > Novice Table Sort** option.

The default sorting method enables you to toggle the sort order between ascending and descending by clicking on the column heading. After you click the column header, a small black arrow displays in the column header to show the current data sort order. If you want to sort data on a second or third column, control-click the column header for the second and third columns. A number displays to indicate its sort priority (primary, secondary, tertiary, etc.). To select a different primary sort column when another has already been selected, click the column heading of interest to reset it as the primary sort column.

Novice table sort

To select novice table sort method, select the **Tools > Preferences > Novice Table Sort** option.

The novice table sort method displays a sort control box on the right side of a column heading box. The sort control box shows a small black arrow to indicate the current data sort order. If you want to sort data on a second or third column, click the sort control box for the second and third columns. A number displays in the sort control box to indicate its sort priority (primary, secondary, tertiary, etc.). To select a different primary sort column when another has already been selected, click the column heading (not the sort control box) to reset it as the primary sort column.

Moving columns

Follow these steps to move columns of data in the activity data table.

Procedure

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.

Adjusting the view

Follow these steps to adjust the activity browser view.

Procedure

1. From any window within the CAE Browser Client, click **Activity Browser**.
2. Click **View**.
3. Select the appropriate view option. The following options are available:

Fullscreen

Toggle between fullscreen and normal mode. In fullscreen mode, only the mouse can be used to navigate.

High Contrast

Toggle between high contrast and normal mode. High contrast mode is to improve readability for low-vision users.

Zoom In / Zoom Out / Zoom Reset

Zoom in or out by 20 percent or reset the zoom to normal.

Using top-n filters

You can use top-n filters to limit the number of rows that are returned by the CAE Server when you view SQL text.

About this task

By using top-n filters, you can improve performance and reduce the impact that your activity browsing has on the CAE Server. Top-n filtering enables you to locate the most problematic SQL statements and using the smallest possible amount of system resources.

You can perform TopN filtering on any column or field that is visible in the details pane with the following exceptions:

- Avg Elapsed
- AvgX Elapsed
- <% CPU>
- Avg CPU
- AvgX CPU
- Avg Delay
- AvgX Delay
- <%Delay>
- Avg GetPages
- AvgXGetPages
- <%UAT>
- Buffer Pool Hit Ratio

The number of rows (n) that are returned by the top-n filter are controlled by the **Rows** dropdown, located beneath the data table. Available values are:

- 5** Returns the top 5 results.
- 25** Returns the top 25 results.
- 50** Returns the top 50 results.
- 100** Returns the top 100 results.
- 200** Returns the top 200 results.

The following limitations 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 **Fetch** or **Run**. 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. For this reason, the values returned from the top-n filter always add up to 100%.

When you filter on a column or field, including those that are not displayed in the table, that column or field will be added as the first column in the table and will be assigned a column title that matches that listed in the property table detail display.

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 (5, 25, 50, 100, or 200).
5. Select the **SQL-S** line command for the activity of interest, to drill down to display SQL text. The top-n results are shown in the data table.

Note: When you select a top-n column on which to filter results, including those that are not currently displayed in the data table, the selected column is shown in the results as the first column in the table and is assigned a column title that matches the one listed in the property table detail display.

Top-n filtering and data sharing groups

In rare situations in which the total range of the filtered column is narrow and the workload is distributed across the data sharing group members in a specific way, the top-n filtering might be slightly inaccurate.

You should consider the following when using top-n filtering in a data sharing environment:

- You cannot sort in ascending order for a data sharing group.
- Due to the nature of summarization in particular, all summary records are entered into CAE Agent memory at the same time. However, top-n filtering prevents the situation where all the records must temporarily exist in raw memory and as Java data structures at the same time. This at least halves the memory requirements for large queries. In addition, it dramatically reduces the CAE Agent Java heap requirements, as only the top-n records need to be brought into the Java heap. While a large request can cause a temporary growth in memory, almost all of that memory is guaranteed to be released to the operating system once the call is done, since it does not involve expanding the Java heap.

Since top-n filtering occurs in the CAE Agent, it greatly reduces memory usage on the CAE Server for large data requests. Top-n filtering operates within the memory limitations of the CAE Server. This might cause incomplete results in rare circumstances.

Viewing activity details

The details pane consists of a set of context-sensitive tabs that show additional information about the selected activity.

Procedure

1. From any window within the CAE Browser Client, click **Activity Browser**.
2. Navigate to the SQL activity of interest using either the data table or the pie chart.
3. Toggle the **Details** button to show the details pane.

Each tab in the details pane shows a list of attributes and values. The tabs that are displayed and the information on those tabs depend on the activity that is selected in the data table or pie chart.

The details pane can include one or more of these tabs:

Analysis

Shows the components that can contribute to the elapsed time (CPU, Delays, Unaccounted Time, and Specific Elapsed). The lists can be expanded to show more detailed statistics. All the sub-lists within a parent list are sorted in descending order of duration. Any sub-list whose contribution to the parent item is more than 50 percent will have its statistics in bold, and is automatically expanded.

Buffer Pool

Shows buffer pool columns, totals, and averages. This tab is equivalent to the ISPF line command **B** in **Activity Summaries**, **Current Activity** and **Exceptions**. This tab has no chart.

Delays

Shows delay events, event counts, and delay times. This tab is equivalent to the ISPF line command **D** in **Activity Summaries**, **Current Activity** and **Exceptions**.

General

Shows the general columns and values in the active data table.

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.

The **Chart** check box is located in the table footer of the activity data table. When the **Chart** check box is selected, it displays the activity data chart area.

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 pop-up is displayed that shows the value of the first column in the corresponding row in the data table.

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 **Slice Count Chooser** chooser.

Chart column chooser

Controls which column from the activity data table is used to determine the size of the slices in the activity data pie chart.

Note: Changes to this control do not affect the order of the slices.

Slice Count Chooser

Specify a number or use the arrows to change the number of slices shown in the pie chart.

Charts in details display

The General, Delays and Locks tabs of the Details display have optional charts. In these charts, the order of the slices is always largest slice first (starting at three o'clock), then getting successively smaller (counter clockwise). There is no Column Chooser, but there is a Slice Count Chooser.

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.

Comparing workloads

Follow these steps to compare workloads. The ability to compare workloads is only available in the summaries perspective.

About this task

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.

Procedure

1. From any window within the CAE Browser Client, click **Activity Browser**.
2. From the **Perspectives** list, select **Summaries**.
3. Select the **Compare** check box.
4. Define the baseline workload.
 - From the **Baseline** drop-down list, select a saved baseline.
 - From the **Baseline** drop-down list, select **<Ad Hoc>** to define your own (ad hoc) baseline. From the comparison **Source**, **Target**, **Intervals**, and **DB2** drop-down lists, select the appropriate values for the baseline workload. Alternatively, to select an existing baseline, from the **Baseline** drop-down list, select an existing baseline. If you want to save the baseline workload, click the **Save** button in the **Baseline** drop-down list. In the **Baseline Name** field, type a name for the baseline and click **Save**.
5. Define a comparison workload.
 - a. Use the standard data browsing controls in the Activity Browser (which include the **Source**, **Target**, **Interval** selection fields) to browse to a comparison workload. Browse to your comparison workload in the same way you would if you were browsing data normally. Because you previously defined a baseline workload, the data you browse to using the standard data browsing controls is compared to the baseline you defined. The results of that comparison are displayed in the data table.
 - b. Select the interval or set of intervals you want to use for your comparison.
6. Select the comparison mode you want to use. From the **Compare** drop-down list, select one of the following:

Absolute

Show data as the absolute difference between the current (comparison) workload and the baseline.

Percent

Show data as the percent change from the baseline to the current (comparison) workload.

7. Select the comparison data to show. From the **Show** drop-down list, select one of the following:

All Shows the comparison data for all statuses (retained, added, and removed)

Retained

Shows the comparison data for retained metrics. Retained metrics are present in both the baseline workload and the current (comparison) workload.

Added

Shows the comparison data for added metrics. Added metrics are not present in the baseline workload but are present in the current (comparison) workload.

Removed

Shows the comparison data for removed metrics. Removed metrics are present in the baseline workload but are not present in the current (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.

8. If you want to compare workloads from the same DB2 subsystem, leave the **Current DB2** and **Baseline DB2** fields blank. If you want to compare workloads from two different DB2 subsystems (for example, to compare test and production DB2 subsystems or to compare subsystems running two different versions of DB2), specify a current and a baseline DB2.
 - a. Select the current DB2 subsystem from the **Current DB2** dropdown.
 - b. Select the baseline DB2 subsystem from the **Baseline DB2** dropdown.
9. Click **Go**.
10. Hover your mouse over a data cell to display the baseline workload value, the current (comparison) workload value, the absolute change and the percentage change for that data cell.

The value displayed 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

These usage scenarios describe situations in which workload comparisons can be advantageous.

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 DB2 and wish to see how the performance characteristics are changed by that upgrade, you would capture data from a "typical workload run" in DB2 Query Monitor (and probably offload it to a DB2 database for long-term storage) as a "pre-upgrade baseline"

After the DB2 upgrade, you would capture data for a "typical run of the same workload" in Query Monitor.

You choose the source, target, and intervals that hold the data from the "pre-upgrade baseline" and set that as a baseline. You then choose the source, target, and intervals that holds the current data for the "post upgrade" run of the workload.

You can then sort by different columns to investigate changes to the performance profile. If the baseline and current data tend to have different numbers of executions, the "Averages columns" are most useful.

Other scenarios

Similar techniques can also be used to demonstrate performance improvements that have been made by tuning queries, adding indexes, or offloading some queries to an accelerator. Only in these cases would you sort by elapsed or average elapsed in ascending order.

Data table columns descriptions

This topic describes the columns shown in the Activity Browser data table.

Column descriptions - Operational Summaries

This topic describes the columns that are shown on the various Summaries displays. The columns that display depend on the drilldown path taken.

DB2 SSID

The DB2 subsystem on which the activity occurred.

Execution Count

The number of times an SQL statement executed.

Plan The plan name.

SQLCalls

The number of SQL calls that occurred.

Note: The SQLCalls column is the number of calls within the SQL statement. For example, in a program that performed an open, then did 10 fetches, then a close, the number of calls would be 12 (1+10+1). The execution count would be 1.

Elapsed

The total amount of elapsed time entire SQL calls (for a line item) spent in DB2.

Note: The elapsed time in Operational Summaries is the elapsed time of the duration of entire SQL calls and the elapsed time in Structural Summaries is the elapsed time of GETPAGE operations.

%Elap The percentage of elapsed time SQL calls (for a line item) spent in DB2 relative to the total elapsed time all SQL calls spent in DB2:

$$\%Elap = 100.0 * ((Elap \text{ for this object}) / (\text{SUM of all objects Elap}))$$

AvgX Elapsed

The average elapsed time for a line item per execution count.

CPU The total amount of CPU time SQL calls (for a line item) spent in DB2.

%CPU The percent CPU time SQL calls (for a line item) spent in DB2 relative to the total CPU time that all SQL calls spent in DB2:

$$\%CPU = 100.0 * ((CPU \text{ for this object}) / (\text{SUM of all objects CPU}))$$

AvgX CPU

The average CPU time for a line item per execution count.

<%CPU>

The percent CPU usage for the SQL calls (for a line item) relative to the total elapsed time for the SQL calls (for the line item):

$$\langle \%CPU \rangle = 100.0 * ((CPU \text{ Usage for this object}) / (\text{Total Elapsed Time for this object}))$$

Delay The total time SQL calls (for a line item) spent in delays (due to lock or latch delays, synchronous I/O delays, read/write delays).

%Delay

The percent delay time for SQL calls (for a line item) relative to the total elapsed time for those SQL calls.

$$\%DELAY = 100.0 * ((DELAY \text{ for this object}) / (\text{SUM of all objects DELAYS}))$$

AvgX Delays

The average delay time for a line item per execution count.

<%Dly>

The percent of delay time for the SQL calls (in a line item) relative to the total elapsed time for those SQL calls:

$$\langle \%Dly \rangle = 100.0 * ((DELAY \text{ for this object}) / (\text{Total Elapsed Time for this object}))$$

<%UAT>

The percent unaccounted time (the amount of time not accounted for by SQL calls). Represents the time for which DB2 does not track or report statistics.

$$\langle \%UAT \rangle = 100 * (((\text{Total Elapsed Time}) - (\text{Total Delay Time} + \text{DB2 CPU Time})) / (\text{Total Elapsed Time}))$$

Getpages

The total number of getpages issued.

Note: The GETPAGE information for a program reported on the activity summary might not add up to the sum of object detail's GETPAGEs of that program due to the trade-off between optimizing the collector for efficiency and increasing the level of detail in some statistics.

AvgX Getpages

The average number of getpages executed.

Ziip CPU

The amount of CPU time accumulated while executing in DB2 on a zIIP processor.

<%ZIP>

The percent CPU time accumulated while executing in DB2 on a zIIP processor.

$$\langle \%ZIP \rangle = 100 * (\text{ZIP time} / (\text{ZIP time} + \text{CPU time}))$$

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)

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)

Avg Delay

The average delay time per SQL calls.

$$\text{Avg Delay} = (\text{Total DELAY for this object}) / (\text{Total SQL instructions for this object})$$

Avg Getpages

The average number of getpages.

Accel The name of the IBM DB2 Analytics Accelerator 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.

Current Schema

The current schema.

SQL Text

The abbreviated view of the SQL text for which DB2 Query Monitor has collected information.

Table Creator

The table creator.

Table Name

The table name.

Hit Ratio

The hit ratio for the object.

Column descriptions - Current Activity

The following are the possible columns that display for Current Activity.

DB2 SSID

The DB2 subsystem name.

Plan The plan name.

Program

The DB2 package or DBRM name.

CPU The accumulated total of all TCB and SRB CPU time spent while executing within DB2.

Elapsed

The accumulated elapsed time while executing within DB2.

Getpages

The number of GET PAGE requests. This count includes conditional, unconditional, successful, and unsuccessful requests.

Sqlcode

The SQL return code issued by DB2.

SQLCalls

The total number of individual SQL calls executed by DB2.

Delay The total time spent waiting due to specific delay events.

Delay Count

The total number of delay events encountered.

Log Bytes Written

The number of log bytes written.

Log Records Written

The number of log records written.

Collection ID

The collection ID.

Cursor Name

The cursor name.

Jobname

The name of the job.

Conn The name of the connection.

Token The thread token. A thread token uniquely identifies an individual connection to a DB2 subsystem.

Authid

The primary authorization ID.

Req Site

The requesting site name.

Corrid The correlation ID.

Corrname

The correlation name.

WS User

The user ID logged on to the workstation connected to DB2.

WS Tran

The workstation transaction.

WS Name

The name of the workstation.

Acctg Token

The accounting token.

Netid The network identifier.

LUName

The logical unit name.

Section

The section number assigned by the DB2 pre-compiler.

Exceptions

A string of codes indicating the type of exceptions encountered during the execution of an SQL statement within DB2. Data entered within a DB2 Query Monitor monitoring profile defines the exceptions. The codes within the column are:

C DB2 CPU Time threshold exceeded.

E DB2 Elapsed Time threshold exceeded.

G GETPAGE threshold exceeded.

N Negative SQL code exception raised.

S SQL Calls threshold exceeded.

Alerts

A string of codes indicating the type of alerts encountered during the execution of an SQL statement within DB2. Data entered within a DB2 Query Monitor monitoring profile defines the alerts. The codes within the column are:

C DB2 CPU Time threshold exceeded.

E DB2 Elapsed Time threshold exceeded.

G GETPAGE threshold exceeded.

N Negative SQL code exception raised.

S SQL Calls threshold exceeded.

ESQLCode

The negative SQL code that raised an exception condition. Exception criteria are defined within a monitoring profile.

ASQLCode

The negative SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

Child Indicates whether the exception is related to another (parent) exception.

Coordinator

The DB2 subsystem name acting as the parallelism coordinator for a parallel task.

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.

Workload

The name of the workload assigned to an SQL statement executing within DB2. The workload name is assigned by DB2 Query Monitor and is defined within a monitoring profile.

Start Time

The starting time (as seen by DB2 Query Monitor) that an individual SQL statement started executing its first SQL call.

End Time

The ending time (as seen by DB2 Query Monitor) that an individual SQL statement finished executing its last SQL call.

HV? Indicates whether or not host variables have been collected.

ConToken

The hexadecimal consistency token.

Avg Getpages

The average number of getpages.

zIIP CPU

The amount of CPU time accumulated while executing in DB2 on a ZIIP processor.

Column descriptions - Exceptions

The following are the possible columns that display for Exceptions.

DB2 SSID

The DB2 subsystem.

Plan The plan.

Program

The DB2 package or DBRM name.

CPU The accumulated total of all TCB and SRB CPU time the exceptional SQL activity spent while executing in DB2.

Elapsed

The accumulated elapsed time the exceptional SQL activity spent while executing in DB2.

Getpages

The total number of getpages. This count includes conditional, unconditional, successful, and unsuccessful requests.

Sqlcode

The SQL return code issued by DB2.

SQ Calls

The total number of individual SQL calls executed by DB2.

Delay The total time spent waiting due to specific delay events.

Delay Count

The total number of delay events encountered.

Log Bytes Written

The log size (bytes).

Log Records Written

The number of log records.

Collection ID

The collection ID.

Cursor Name

The cursor name.

Jobname

The name of the job.

Conn The name of the connection.

Token The thread token. A thread token uniquely identifies an individual connection to a DB2 subsystem.

Authid

The primary authorization ID.

Req Site

The requesting site name.

Corrid The correlation ID.

Corrname

The correlation ID adjusted by conventions used by IMS and CICS.

WS User

The workstation user ID.

WS Tran

The workstation transaction.

WS Name

The workstation name.

Acctg Token

The accounting token.

Netid The network identifier.

LUName

The logical unit name.

Section

The section number assigned by the DB2 pre-compiler.

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 Query Monitor 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
- N** Negative SQLCODE exception raised
- S** SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display **CEGN**.

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).

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 Query Monitor 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
N	Negative SQLCODE exception raised
S	SQL Calls threshold exceeded

If more than one event class raises a flag, there will be more than one code displayed in this field. For example, if a row is displayed for a statement that exceeds the Elapsed time threshold, the CPU Time threshold, the GETPAGES threshold and also a -805 SQLCODE, the EXCEPTIONS field would display **CEGN**.

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).

ESQLCode

The negative SQL code that raised an exception condition. Exception criteria are defined within a monitoring profile.

ASQLCode

The negative SQL code that raised an alert condition. Alert criteria are defined within a monitoring profile.

Child Indicates whether the exception is related to another (parent) exception.

Coordinator

The DB2 subsystem name acting as the parallelism coordinator for a parallel task.

Orig Token

The thread token assigned to the thread that generated the parallel task(s) on the parallelism coordinator DB2 subsystem.

Package Version

The version of the package that contains the SQL statement that produced the exception.

Workload

The name of the workload assigned to an SQL statement executing within DB2 that produced the exception. The workload name is assigned by Query Monitor and is defined within a monitoring profile.

Start Time

The starting time (as see by Query Monitor) that an individual exceptional SQL statement started executing its first SQL call.

End Time

The ending time (as see by Query Monitor) that an individual exceptional SQL statement finished executing its last SQL call.

HV? Indicates whether or not host variables have been collected.

CONTOKEN

The hexadecimal consistency token.

AVG GETPAGES

The average number of getpages issued.

zIIP CPU

The amount of CPU time accumulated while executing in DB2 on a ZIIP processor.

Column descriptions - SQLCODEs

The following are the possible columns that display for SQLCODEs.

SSID The DB2 subsystem ID for the DB2 subsystem on which the plan was executed.

Timestamp

The date and time that the SQLCODE occurred.

SQLCODE

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

Plan The name of the plan.

DBRM/Package

The DBRM.

JOBNAME

The name of the job.

Stmt # The SQL statement number.

Collection ID

The collection ID.

Sect # The section number.

AUTHID

The authorization ID.

Conn The connection ID.

Statement Type

Indicates the type of SQL statement (for example, ALTER, INSERT, GRANT, UPDATE).

Column descriptions - DB2 Commands

The following are the possible columns that display for DB2 commands.

SSID The DB2 subsystem name.

Jobname
The name of the job.

AUTHID
The primary authorization ID.

Command timestamp
The date and time that Query Monitor recorded the execution of a given DB2 command.

Command text
The text of the DB2 command recorded by Query Monitor.

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.

Most aspects of the data on an activity browser page is preserved as part of the bookmark. The state of the details panel and the activity data table page selection are not saved with a bookmark. Navigating to a bookmarked page (or using the browser's back or forward buttons) results in a re-retrieval of the data requested for that view.

What you can bookmark

The aspects of a data request that can be bookmarked include:

- System name (will be sysname, not SMFID, except when source is archived)
- DB2 Query Monitor subsystem name
- Perspective
- drill down path
- Name of current filter
- Indication as to whether the named filter is active
- Interval Selection
- TopN selections, if any

What you cannot bookmark

The following items 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 **Tools > Export Data**.
4. Choose the file type you want to export:
 - Click **CSV** to export the data to a comma separated value (CSV) format file.
 - Click **PDF** to export the data to a PDF format file.
5. Choose the scope you want to export:
 - 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. 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. 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.

Refreshing systems

Refreshing systems ensures the activity browser accurately reflects the CAE Agents and DB2 Query Monitor subsystem that are currently active.

Procedure

To refresh systems, click the **Tools** button and select **Refresh Systems**.

Refreshing configurations

Refreshing configurations ensures the Activity Browser accurately reflects the user configurations that are currently available.

Procedure

To refresh configurations, click the **Tools** button and select **Refresh Configurations**.

Working with intervals

The **Intervals** option in the **Tools** menu enables you to choose the intervals you would like to access via the Activity Browser.

Procedure

1. From any window within the CAE Browser Client, click **Activity Browser**.
2. Select **Tools > Intervals**. The Choose Intervals window displays the following information:

Avail Indicates whether or not the interval is available.

Start The start date and time of the interval.

End The end date and time of the interval.

Interval number

The interval number.

Status The status of the interval list.

To select one or more intervals, check the box next to the interval(s) and press **OK**. You can also use the interval chooser and stepper to select intervals. For more information, see Working with the interval selection and stepper tools.

Note:

- To prevent you from having to choose intervals from all DB2 Query Monitor subsystems that monitor members of a data sharing group, the intervals shown in the Intervals displays will come from the Master DB2 Query Monitor subsystem of the Subsystem Group.
- When getting data from the other subsystems, the CAE Server will choose corresponding intervals from the other DB2 Query Monitor subsystems: all intervals that overlap with any of the “master intervals” by more than 30 seconds will be chosen. Since all subsystems in a group will have the same interval length, and should have INTERVAL_MIDNIGHT(Y), These “corresponding” intervals will generally have the same start and end times of the “Master Intervals” chosen by the user.
- If, due to manual interval snaps or collector restarts, the interval start or end times do not line up properly, the user will see in the Status Area the message: CQMCxxxI: Interval start or end times are not all the same.

Archive connections

You can use archive connections to connect to DB2 Query Monitor data that has been loaded to a performance history database.

Related tasks:

“Using the data table” on page 341

Follow these steps to view and navigate the data that is displayed in the Activity Browser using the data table.

Adding an archive connection

Follow these steps to add an archive connection. An archive connection is a connection between the CAE Browser Client and a performance history database.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Archive Connections**.
2. Click **New**.
3. In the **Choose Name for Connection** field, type a name for your archive connection.
4. Enter connection information:

- a. In the **Host** field, type the host where the performance history database resides.
 - b. In the **Port** field, type the data listener port of the DB2 where the performance history database resides.
 - c. In the **Location** field, type the location name where the performance history database resides.
5. Select the **Use Secure** check box to use SSL for the connection.
 6. From the **Truststore** list, select the appropriate truststore.
 7. In the **Creator** field, type the table creator.
 8. 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.

9. (Optional) In the **UDF Creator** field, type the creator of the UDF that is used to format host variables.
10. (Optional) In the **UDF Name** field, type the name of the UDF that is used to format host variables.
11. Click **OK**.

Deleting an archive connection

Follow these steps to delete an archive connection.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Archive Connections**.
2. From the **Source** drop-down list, select the archive connection you want to delete.
3. Click **Delete**.

Editing an archive connection

Follow these steps to edit an archive connection.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Archive Connections**.
2. From the **Source** drop-down list, select the archive connection you want to edit.
3. Edit the archive connection as needed. For information about the available options, see “Adding an archive connection” on page 362.

Sharing an archive connection

Follow these steps to share an archive connection.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Archive Connections**.
2. From the **Source** drop-down list, select the archive connection you want to share.
3. Click **Configure Sharing**.
4. Select the **Public Configuration** check box.

5. From the list, select the label that you want to use to share the archive connection, or click **Add New Label** to create new label to use for sharing. Labels control the visibility of the shared user configurations, including shared archive connection.
6. Click **Done**.

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

Follow these steps to add a filter.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Filters**.
2. Click **New**.
3. Type a filter name in the **Filter Name** field.
4. Specify the filter case and exclude options. Select **Mixed Case** if the data you define in the filter contains mixed case characters. Select **Match Case** if the data you define in the filter must match case. Select **Exclude** to exclude any activity that matches the filter. The combination of **Mixed Case** and **Match Case** settings behave as follows:
 - (Default) **Mixed Case** (selected) and **Match Case** (not selected) - Filter values are stored as entered but filter values and field values are treated as upper case for comparison.
 - **Mixed Case** (selected) and **Match Case** (selected) - Filter value are stored as entered but filter values and filed 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 **OK**.

Related tasks:

“Editing a filter”

Follow these steps to edit an existing filter.

Editing a filter

Follow these steps to edit an existing filter.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Filters**.
2. Select the filter you would like to edit.
3. Modify the filter as needed, editing the filter options and rows as needed.
4. Click **OK**.

Related tasks:

“Adding a filter” on page 364

Follow these steps to add a filter.

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 **Tools > Filters**.
2. Select the filter you would like to delete from the filters drop-down.
3. Click **Delete**.
4. Click **OK**.

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.

Adding a custom view

Follow these steps to add a new custom view.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Custom Views > Manage**.
2. Click the **Custom View** chooser and select **New**.
3. Specify a name for the new custom view and click **OK**. The Manage Column Preferences window displays.
4. Select the columns for your custom view using the **>>** and **<<** buttons to sort columns into or out of the **Selected Columns** list.
5. Sort column sequence using the **Move To Top**, **Move Up**, **Move Down**, and **Move To Bottom** buttons.
6. Click **OK**.

Deleting a custom view

Follow these steps to delete a custom view.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Custom Views**.

2. From the **Custom View** list, select the custom view you want to delete.
3. Click **Delete**.
4. Click **Confirm**.

Renaming a custom view

Follow these steps to rename a custom view.

Procedure

1. From any window within the CAE Browser Client, click **Tools > Custom Views**.
2. From the **Custom View** list, select the custom view you want to rename.
3. Click **Rename**.
4. In the **Rename Custom View** 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 **Tools > Custom Views**.
2. From the **Custom View** list, select the custom view you want to edit.
3. Edit the custom view as needed. For information about the available options, see “Adding a custom view” on page 365.

Configuring labels

Follow these steps to configure labels. You can use labels to limit the shared user configurations that you see.

Procedure

1. From any window within the CAE Browser Client, click **Activity Browser > Tools > Choose Configuration Labels**.
2. Select the check box next to each label of interest. By selecting a check box, you will limit 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 list of existing 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 have configured a filter, custom view, archive connection, baseline or staging table connection that you want to share, click the **Configure Sharing** link (located within the configuration panel for filters, custom views, archive connections, or staging table connections). To enable the configuration to be public, select the **Public Configuration** check box.
2. Existing labels are displayed in a list.

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.
3. If appropriate, select an existing label or labels. You can also specify a new label by clicking the **Create Label** button and specifying a new name for the label and clicking **Create**. or specify a label for your configuration.
 4. When you have selected or created all the labels you want to use for your configuration, click **Done**.

Saving preferences

You can save your preferences so they are retained in future sessions.

Procedure

From any window within the CAE Browser Client, click **Tools > Save Preferences**.

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 **Tools > Export Data**.
4. Choose the file type you want to export:
 - Click **CSV** to export the data to a comma separated value (CSV) format file.
 - Click **PDF** to export the data to a PDF format file.
5. Choose the scope you want to export:
 - 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. 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. 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.

Query tuning

The CAE Browser Client integrates with various tuning clients so you can tune single SQL queries or SQL workloads.

Query Tuning menu options

The following query tuning options are available:

Show SQL

Displays the Details panel with the SQL Text tab selected for SQL activity in the data table.

Tune All

Tune an SQL workload.

Check Query Tuning

Check the availability of the query tuning data bridge.

Manage Staging Tables

Manage staging table information.

Use '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 of using the EXPLAIN Filter. To turn on or off the EXPLAIN Filter, select the menu option **Query Tuning > Use 'EXPLAIN' Filter**.

Allow Non-Secure Tuning with OQWT

Use OQWT to tune workloads without being required to use a secure (HTTPS) connection to the tuning client.

Configure DSM Server Connection

Configure the connection to the DSM Server. Displays the DSM Connection window.

Check Last DSM Tuning Result

Check the status of a workload that you submitted to the DSM server. This option enables you to determine if tuning is complete and if it was successful or not.

Requirements for query tuning integration

The following requirements must be met to enable integration between the CAE Browser Client and query tuning clients.

You must have one of the following query tuning clients installed:

- IBM Data Server Manager, V2.1 (or later)
- IBM Optim Query Workload Tuner for DB2 for z/OS, V2.2
- IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS, V3.1 (or later)
- IBM DataStudio, V3.2 (or later)

You must also verify that the following requirements are met:

- The DB2 subsystem you choose for tuning must have an appropriate license and be configured for the type of query tuning that you want to perform.

- The query tuning client you use must be running the data bridge server. IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS runs the data bridge server by default. You can turn the data bridge on and off by clicking a toolbar button in IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS.

You must verify the following before tuning workloads:

- For workload tuning, the entire workload must be guaranteed to originate from the same DB2. If your target collector monitors more than one DB2, you must include DB2 in one of your drill-downs to have access to workload tuning.
- The mechanism for transferring workload data differs depending on the tuning client you use. For IBM DataStudio and IBM Data Server Manager, workload data from the CAE Browser Client is placed in DB2 tables and the tuning client retrieves the data from the tables. For IBM Optim Query Workload Tuner for DB2 for z/OS, V2.2 and IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS V3.1 workload data is transferred by an HTTP POST directly to the tuning client.
- The HTTP POST mechanism can only accept a certain amount of data (usually 4 MB, depending on tuning client configuration), limiting the size of the workload that can be transferred from DB2 Query Monitor to the tuning client.

Query tuning integration tips and troubleshooting

If you attempt to send SQL text to a query tuning tool for analysis and tuning but the **Tune** button is disabled, consider the following troubleshooting tips.

Verify the following:

- The SQL text must be explainable. By default, DB2 Query Monitor applies a filter (referred to as the “EXPLAIN Filter”) which prevents SQL statements that cannot be explained from being sent to the query tuner. A small fraction of SQL statements that can be explained might not pass this filter and as a result might not be sent to the query tuner. For this reason, you have the option of using the EXPLAIN Filter. To turn on or off the EXPLAIN Filter, select the menu option **Query Tuning > Use ‘EXPLAIN’ Filter**.
- You must start the tuning client before you attempt to tune an SQL statement or workload from the CAE Browser Client. After you start the tuning client, refresh the CAE Browser Client by selecting **Activity Browser > Query Tuning > Check Query Tuning**.
- Start the data bridge by clicking the **Data Bridge** icon in the IBM Optim Query Workload Tuner for DB2 for z/OS client. Move the cursor over the **Data Bridge** icon after the data bridge has been started to verify the port it is using.
- After you start the tuning client, refresh the CAE Browser Client by selecting **Activity Browser > Query Tuning > Check Query Tuning**.
- IBM Optim Query Workload Tuner for DB2 for z/OS might have an untrusted certificate. To troubleshoot this possible scenario, access the following URL in a new tab or browser window: <https://localhost:56789/crossdomain.xml>. If your data bridge is using a port other than 56789, modify the URL to reflect the port your data bridge is using. For example, if your data bridge uses port 56792, point your browser to: <https://localhost:56792/crossdomain.xml>

Checking the status of a query tuning client

Follow these steps to check the status of a query tuner client.

Procedure

From any window within the CAE Browser Client, select **Activity Browser > Query Tuning > Check Query Tuning**.

Allowing non-secure tuning

Follow these steps to allow non-secure tuning.

About this task

If you allow non-secure query tuning, the CAE Browser Client passes your user name, password, and SQL text in plain text to your local query tuning client for single query tuning from your browser. Check with your security administrator before allowing non-secure tuning.

Procedure

1. From any window within the CAE Browser Client, select **Activity Browser > Query Tuning > Allow non-secure tuning**.
2. Click **OK**.

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.

Procedure

From any window within the CAE Browser Client, click **Activity Browser > 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.

Configuring a DSM Server connection

Follow these steps to configure a DSM Server connection.

Procedure

1. From any window within the CAE Browser Client, click **Activity Browser > Query Tuning > Configure DSM Server Connection**.
2. 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 DSM 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.

DSM Configuration Qualifier

The DSM configuration qualifier.

TrustStore

Select **Protocol** > **HTTPS** and from the TrustStore list, select the truststore to use for the DSM connection. For more information, see “Truststore configuration” on page 425.

3. Click **Test** to test the connection. After you have tested and confirmed that the connection is working, you can send a query to the tuning client.
4. Click **OK**.

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 tuning client you plan to use to tune SQL queries (IBM Data Server Manager or IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS).
2. Start the CAE Browser Client.
3. If you are using IBM Data Server Manager as your tuning client, configure a DSM Server connection. For more information, see “Configuring a DSM Server connection” on page 370.
4. From any window within the CAE Browser Client, select **Activity Browser**.
5. Use the data table to navigate to the SQL text you want to tune.
6. Click **Show SQL** to display the SQL text in the details panel.
7. Click **Tune**.
8. From the **Tuner Client** list, select the tuner client you want to use to tune your SQL queries. The following options are available:

IBM Data Server Manager (DSM)

Select this option to use IBM Data Server Manager.

3.2 or Higher

Select this option to use IBM DataStudio V3.2 or higher.

3.1.1 Select this option to use IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS V3.1.1.

3.1 Select this option to use IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS V3.1.

2.2.1.1 or Lower

Select this option to use IBM Optim Query Workload Tuner for DB2 for z/OS V2.2.1.1 or lower.

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.

Host User ID

Your TSO User ID.

Password

Your TSO password.

SQLID

The SQLID.

DB2 Subsystem

The DB2 subsystem for which you want to evaluate the SQL

statement. If the Activity Browser is able to identify the DB2 subsystem (for example, if the SQL statement being evaluated is static, or if the navigational path taken to identify the SQL statement contains the DB2 subsystem) then this dropdown box is inactive and the current DB2 subsystem is chosen automatically. If the Activity Browser cannot identify the relevant DB2 subsystem, then you must select the appropriate DB2 subsystem from the dropdown list.

Connection Name

The connection name.

Note: This field is required if the internally discovered system address is IPv6. This requires IPv6 support of both the CAE Server and the mainframe. Additionally IBM Optim Query Workload Tuner for DB2 for z/OS must be Version is 2.2.1.1 or lower.

Monitored Database Connection in DSM

The monitored database connection profile.

Define New

Enables you to set the name for the connection that you want to create. The connection is created only after you send data for tuning (which happens when you click **OK**).

Refresh

Enables you to synchronize the list on the panel with the list of connections available in the tuning client.

10. Click **OK**. The query text is imported into the query tuning tool.

Tuning an SQL workload (tune all)

Follow these steps to perform workload tuning (tune all) for an SQL workload of interest.

Procedure

1. Start the tuning client you plan to use to tune SQL queries.
2. Start the CAE Browser Client.
3. If you are using IBM Data Server Manager as your tuning client, configure a DSM Server connection. For more information, see “Configuring a DSM Server connection” on page 370.
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 DB2 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 **Tune All**.
7. From the **Tuner Client** list, select the tuner client you want to use to tune your SQL queries. The following options are available:

IBM Data Server Manager (DSM)

Select this option to use IBM Data Server Manager.

3.2 or Higher

Select this option to use IBM DataStudio V3.2 or higher.

- 3.1.1** Select this option to use IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS V3.1.1.

3.1 Select this option to use IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS V3.1.

2.2.1.1 or Lower

Select this option to use IBM Optim Query Workload Tuner for DB2 for z/OS V2.2.1.1 or lower.

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.

Workload Tuning

The SQL queries you want to tune. Select **Tune Current Page** to tune only the rows on the current data table page. Select **Tune Current Drilldown** to tune all SQL statements in the current drilldown.

Ignore SQL Text Retrieval Errors

Select this check box to ignore SQL text retrieval errors.

Note: Retrieving SQL text for a large drilldown might take a significant amount of time, during which an error might occur. If you select the **Ignore SQL Text Retrieval Errors** check box, all errors are ignored, the workload includes any SQL texts that are retrieved without an error, and no retrieval errors are reported.

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

Select this check box 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.

Collect Existing EXPLAIN Information

Select this check box to collect existing EXPLAIN information.

Allowable Statement Length

An approximate maximum average SQL statement length that ensures that the workload will be accepted. This value changes to reflect the selected page or drill down. The maximum is 4,000,000 bytes. The formula for this value is:

$$(4,000,000 - aopw) / (nos - aops)$$

Where:

aopw The average overhead per workload.

nos The number of statements.

aops The average overhead per statement.

9. Click **OK**.

10. Click **Check Workload Status**.

11. Tune the activity as appropriate.

Manage staging tables

DB2 Query Monitor uses staging tables to store workloads for query tuning.

Adding a staging table connection

Follow these steps to add a staging table connections.

Procedure

1. From any window within the CAE Browser Client, select **Activity Browser > Query Tuning > Manage Staging Tables**.
2. Click **New**.
3. Click **Next**.
4. Specify the naming convention and the connection.

Use Default Naming Convention

Select this check box 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** check box, 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** check box, 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. If you want to use a truststore to establish a secure connection with the DB2 subsystem, select the **Use Secure** check box and specify the **Secure Port** and select the appropriate the truststore from the **TrustStore** list. If you do not want to use a truststore, clear the **Use Secure** box.
7. In the **Schema** box, type the schema for the connection.
8. Click **Test Connection** to test the connection to the DB2 subsystem.
9. 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.”

Editing a staging table connection

Follow these steps to edit a staging table connections.

Procedure

1. From any window within the CAE Browser Client, select **Activity Browser > Query Tuning > Manage Staging Tables**.
2. From the **Sources** list, select the connection you want to edit.
3. Edit the connection information as needed.

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 > Query Tuning > Manage Staging Tables**.
2. From the **Sources** list, select the connection you want to delete.
3. Click **Delete**.
4. Click **Yes**.

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 374.
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 Tablespace** in this context is to use a different schema for the tables in the database.

5. To grant or revoke authorizations on staging tables, select the **Grant or Revoke Authorizations on Staging Tables** check box.

Related tasks:

“Grant user access to staging tables”

Follow these steps to grant or revoke the authorization to staging tables.

Grant 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 > Query Tuning > Manage Staging Tables**.
2. From the **Source** list, select the staging table for which you want to grant user access.
3. Click **Configure**.
4. Click **Next**.
5. Click **Next**.
6. Select the **Grant or Revoke Authorizations on Staging Tables** check box.
7. Click **Next**.
8. Click **Add Authorization**.

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.

9. In the **Authorization ID** field, type the authorization ID for the user you want to add.
10. In the **SELECT INSERT, UPDATE, and DELETE** fields, select **YES** to grant authority or select **NO** to revoke authority.
11. Click **Next**.
12. Review the DDL.
13. Click **Execute SQL**.

Related tasks:

“Creating staging tables using the CAE Browser Client” on page 375

Follow these steps to create new staging tables using the CAE Browser Client.

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 > Query Tuning > Manage Staging Tables**.
2. Click **Manage Workloads**.
3. You can select workloads in the table and perform the following tasks:
 - Tune** Click **Tune** to tune selected workloads.
 - Clean** Click **Clean** to delete selected workloads from the staging tables.
 - Clean All**
Click **Clean All** to delete all workloads from the staging tables.

| **Note:** If you select the **Delete Sharing Data** option on the Tune
| Workload dialog box, workload data is automatically deleted from the
| staging tables after IBM DataStudio has captured the workload.
|

Chapter 19. Alerts Browser

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 that displays messages for all domains loaded on the 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 types or to match specific criteria such as priority or event type.

Note: 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).

Topics:

- “About the blackboard”
- “Viewing messages” on page 380
- “Working with message boards” on page 382

About the blackboard

The blackboard is a component of the CAE that interacts with the CAE Server and the CAE Browser Client.

DB2 Query Monitor's CAE Server performs alert analysis and correlation before passing data to the blackboard. The blackboard, in turn, passes data to any automated responses configured on the CAE Server. Additionally, the CAE Browser Client retrieves data from the blackboard.

Messages that are posted on the blackboard are retrieved by message boards in the CAE Browser Clients. Those message boards can be configured to display only messages that meet filter criteria. However, filter criteria affect individual message boards only and have no effect on other message boards or the blackboard.

Some commands that take place on message boards affect the blackboard. These include:

Acknowledge

Set the status of the message in the blackboard to **acknowledge** which indicates to all CAE Browser Client users that the message has been acknowledged by a user. The acknowledgment status suspends the message's priority escalation.

Unacknowledge

Clear the **acknowledge** status and allows the message to resume priority escalation if it continues to remain unacknowledged.

Clear Delete the message from the blackboard and as a result removes it from display in all CAE Browser Client message boards.

Viewing messages

Follow these steps to view message boards and messages.

Procedure

Access the CAE Browser Client Alerts Browser by clicking the **Alerts** link on the CAE Browser Client home page. Messages display in message boards. Each message board is displayed on an individual tab within the Alerts Browser.

Message properties

This topic describes message properties.

A message board lists messages (events) in rows with the columns representing the 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 Type

The name of the event type.

- 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 system.

subSystem

The 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, users can view message details).

Rep. Count

The number of times that the message has been posted.

Note: Messages are not received directly from source devices but are inferred from a variety of sources and situations.

Message board filters

Message board filters provide you with the ability to see only the messages that correspond to one or more specific scopes or sets of event types.

To work with message board filters, click the **Filters** button located in the top bar of the Alerts Browser.

Changes that you make to a message board are persistent. The product retains your changes with other preferences that you have set for your user account.

The following kinds of filtering can be manipulated from the filtering dialog box:

Priorities

Turn on or off the appearance of a message based on its priority. The colors correspond to the following priority levels:

Red Critical

Dark orange
High

Orange
Medium

Yellow
Low

Turquoise
Warning

Green Information

Updated before/after

Hide the events that were updated before or after a defined date and time.

Hide acknowledged

Hide acknowledged events.

Do not apply filter to subsuming (e.g. causing) events

Do not apply the filter to subsuming events.

Scopes

Show only the events whose subject is a member of the selected scope.

Events

Show only the events that are one of the set of checked events.

Message details

Message details show you information about the messages you received.

You can display the message details by double-clicking a message in a message board. These tabs show message details:

Messages

Displays 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

Displays the name and value of variables for the message.

Annotations

Displays annotations that are associated with the message.

Related messages

Displays two mini-message boards show the upstream and downstream events associated with the message.

Text/host vars

Displays the SQL text associated with the message and any host variable information. This tab displays only when the event involved an SQL statement. The tab also provides the ability to tune the SQL text associated with the message.

Working with message boards

This topic describes how to work with message boards in the Alerts Browser.

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

Display 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.

Creating a message board

Follow these steps to create 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 and specify whether you want to make the new board public or private.

4. 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.

Chapter 20. Configuration

The configuration browser is an administrative tool that provides you with access to DB2 Query Monitor's configuration tools which enable you to customize actions, scopes, responses, custom launch, monitoring, monitoring overrides, monitored information types, action schedules, and optional alert keys as needed for your site.

Topics:

- "Actions"
- "Scopes" on page 393
- "Responses" on page 399
- "Custom launch" on page 403
- "Monitoring" on page 404
- "Monitoring overrides" on page 406
- "MITs" on page 408
- "Action schedules" on page 411
- "Optional alert keys" on page 412
- "QM subsystem management" on page 414

Actions

Actions can be triggered in response to events, by user menu choice, or by schedule.

You can execute actions in the following ways:

- **Automatically** - The action is executed based on a response you have configured.
- **Interactively** - The action is available as a right-click option when you select a row on the data table.
- **Scheduled** - The action is executed at a time that you specify for all objects in a particular scope.

Several built-in actions are included with DB2 Query Monitor. Most of the actions are samples that you can edit or clone and then modify for further use.

Actions fall into the following categories:

CAE Browser Client based actions

Actions that are only executed by the **action execution agent** running on the CAE Browser Client and never dispatched to remote agents.

CAE Server based actions

Actions that are only executed by the **action execution agent** running on the CAE Server and never dispatched to remote agents

CAE Agent based actions

Actions that are executed by the CAE Agent.

How actions are processed

The CAE Server, CAE Browser Client and CAE Agent have action execution agents built into them. The CAE Server action execution agent is in the server execution group and the CAE Browser Client action execution agent is in the CAE Browser Client execution group. No other execution groups are currently available. When an action is given to the CAE Server dispatcher for execution, it determines which CAE Agent to send it to, as follows:

1. Iterate over all connected CAE Agents, CAE Servers and CAE Browser Clients to produce a list of all CAE Agents that could potentially execute the action based on the following criteria:
 - Does the action's action group specify to dispatch only to a named execution group (CAE Browser Client or CAE Server)? If so, this will exclude agents not in the specified group.
 - Does the action's action group specify to dispatch only to an agent running on or connected to a particular device or storage equipment and is this requirement satisfied for the target device or equipment?
 - Is the agent capable of executing the action type (for example, a PC can't do a WTO)?
2. If more than one agent meets the criteria for execution, the following extra rules determine which agent gets the action:
 - Does the action's action group specify to dispatch to the closest agent? If so, closest is determined by the number of network hops between agent host and the target device or storage equipment.
 - Otherwise, if there is more than one potential agent, then load balance, which means choose the agent with the shortest queue of pending actions to execute.
 - If there is more than one, then pick the first agent.

Note: An action's target device refers to the device on which the action is to be executed. An action's storage equipment refers to the storage equipment containing the element on which the action is to be executed.

Adding a command action

Follow these steps to add a command action.

About this task

You can use a command action to execute command scripts in scripting languages such as JCL, DOS (for Windows), and various others (for UNIX). You can pass device or event-specific information into the script or batch file using variable bindings as command line arguments. The set of variable bindings that is available for use depends upon the context in which the action is executed. If the action is executed by a response you configured, then all defined variable bindings can be used.

You can define multiple script types for an action, and the appropriate script type (such as DOS, MVS, JCL, CSH) is used based on where the object resides. Invoking the action does not mean that all script types run. For example, if the object is a z/OS logical volume, the first script type that is appropriate 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. The DOS script does not run because it is not appropriate for the platform.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Actions**.
2. Highlight the action group to which you want to add the action. Action groups display as folders in the middle panel of the actions window.
3. Click **Add > Command Action**.
4. In the **Enter Name** field, type a name for the action.
5. Click **OK**.
6. From the **Action Group** drop-down list, select the action group to which the action is to belong.
7. From the **Subject Type** drop-down list, select the type of domain element against which the action is to be executed.
8. From the **Event Type** drop-down list, select the event type for which the action is to be executed.
9. From the **Related Event Type** drop-down list, 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 you are creating.

DOS Batch Script

Select this option to create a DOS batch script.

SH Select this option to 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 Select this option to 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 Select this option to 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 Select this option to 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

Select this option to create a JCL command.

CQM Operator Command

Select this option to create an operator command.

11. In the **Script** box, type the script to execute.
12. Add more script definitions if needed.
13. Click **Apply**.

Adding an email action

Follow these steps to add an email action. An email action sends an email message from a specified user account to one or more recipients.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Actions**.

2. Highlight the action group to which you want to add the action. Action groups display as folders in the middle panel of the actions window.
3. Click **Add > Email Action**.
4. In the **Enter Name** field, type a name for the action.
5. Click **OK**.
6. From the **Action Group** drop-down list, select **CAE Server-based actions**.
7. From the **Subject Type** drop-down list, select the appropriate type of domain element against which the action is to be executed.
8. From the **Event Type** drop-down list, select the appropriate type of event against which the action is to be executed.
9. From the **Related Event Type** drop-down list, select the appropriate type of related event against which the action is to be executed.
10. In the **To** field, type the email address of any user to whom the notification is sent.
11. In the **From** field, type the name to be shown in the recipient's inbox as the sender of the message.
12. (Optional) In the **Cc** field, type the email address of any recipient who is copied on the message, but to whom the message is not addressed explicitly.
13. (Optional) In the **Bcc** field, type the email address of any recipient who is copied on the message, but whose name is not visible to other recipients.
14. (Optional) In the **Subject** field, type a short 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 on the CAE Server.
18. In the **Message** field, type the message text.
19. Click **Apply**.

Adding a WTO action

Follow these steps to add an action that issues a write-to-operator (WTO) message.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Actions**.
2. Highlight the action group to which you want to add the action. Action groups display as folders in the middle panel of the actions window.
3. Click **Add > WTO Action**.
4. In the **Enter Name** field, type a name for the action.
5. Click **OK**.
6. From the **Action Group** drop-down list, select the action group to which the action is to belong.
7. From the **Subject Type** drop-down list, select the type of domain element against which the action is to be executed.
8. From the **Event Type** drop-down list, select the event type for which the action is to be executed.
9. From the **Related Event Type** drop-down list, select the related event type for which the action is to be executed.
10. From the **Routing code** drop-down list, select the routing code for the WTO action.
11. From the **Descriptor code** drop-down list, select the routing code for the WTO action.
12. In the **Message ID** field, type message ID to used for the WTO message. Select the message suffix from the drop-down list.
13. In the **Message** field, type the message text.
14. Click **Apply**.

Adding a config control action

Follow these steps to add a configuration control (config control) action. A config control action makes changes to the configuration of the CAE Server.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Actions**.
2. Highlight the action group to which you want to add the action. Action groups display as folders in the middle panel of the actions window.
3. Click **Add > Config Control Action**.
4. In the **Enter Name** field, type a name for the action.
5. Click **OK**.
6. From the **Action Group** drop-down list, select the action group to which the action is to belong.
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 if needed.
9. Click **Apply**.

Adding an SNMPv2 notification

Follow these steps to add an SNMPv2 notification.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Actions**.
2. Highlight the action group to which you want to add the action. Action groups display as folders in the middle panel of the actions window.

Note: 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. From the **Action Group** drop-down list, select the action group to which the action is to belong.

Note: The action group **CAE Server-based actions** is recommended for email actions.

7. From the **Subject Type** drop-down list, select the appropriate type of domain element against which the action is to be executed.
8. From the **Event Type** drop-down list, select the appropriate type of event against which the action is to be executed.
9. From the **Related Event Type** drop-down list, select the appropriate type of related event against 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. From the **Type** drop-down list, select the 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

Follow these steps to add a web browser action.

Procedure

1. From any window within 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. From the **Subject Type** drop-down list, select the appropriate type of domain element against which the action is to be executed.
7. From the **Event Type** drop-down list, select the appropriate type of event against which the action is to be executed.
8. From the **Related Event Type** drop-down list, select the appropriate type of related event against 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. Cancel thread actions are not available for use in action schedules.

Automatic Cancel Thread

Cancel a thread associated with the SQL statement without user authentication. This cancel thread action uses the AUTHID of the CAE Agent address space to cancel the thread. This cancel thread action is intended only 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 a custom launch.

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

Cancel the current scope constraint definition.

Defining 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

To define a constraint-based scope:

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 **Constraint-Based Scope**.

5. Type a name for the new constraint-based scope.
6. Click **OK**. The new constraint-based scope settings display:

Subject is in scope
Everything

Subject is a
DomainElement

7. Edit the default 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 396.

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.

8. 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.

9. (Optional) Type a comment to describe the scope.
10. Press the **Apply** button to save the scope definition.

Defining 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

To create a union-based scope:

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.

Defining 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

To create an enumerated member scope:

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.

Responses

A response is an action or set of actions (such as sending email notifications) that DB2 Query Monitor executes automatically when specific events of interest or concern occur.

These event state changes can cause these event triggers:

- A event is posted

- A event is acknowledged
- A acknowledged event is unacknowledged
- A event is cleared
- The priority of an event changes
- The repetition count of an event increments
- The alert status of an element has changed
- An event is restored
- An event is correlated

A new response is defined by choosing a scope, selecting one or more event types that are pertinent to that scope, then selecting an action, or multiple actions, that address those events for that scope.

Note: Only those actions that are guaranteed to apply to every element encompassed by the scope and event combination are shown, even though other actions may have been defined. For example, you might define a response which causes an Email message to be sent automatically to a user any time that a certain SQL error occurs for a SQL statement run under a particular plan. A scope is used to define the set of SQL statements run by the corresponding user.

Check boxes located in the list next to the responses configurations can be toggled to enable or disable specific responses configurations or groups of responses configurations. If you toggle a check box, a dialog box prompts you to confirm your change before it takes effect.

Adding a response

Follow these steps to add a response.

About this task

Responses define the ways in which DB2 Query Monitor addresses certain events automatically. 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.

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. In addition, you must define how the response handles messages relative to the triggering event.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Responses**.
2. Click **Add**.
3. In the **Enter Name** field, type a name for the response.
4. Click **OK**.
5. On the **Domain Elements & Event Types** tab, select the **Enabled** check box to enable the response.
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. Select **Event Types** or **Event Scopes** from the **Response Applies To** drop down.
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 391.
2. From any window within the CAE Browser Client, click **Configuration > Responses**.
3. Click **Add**.
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**.

Custom launch

Custom launch menu choices are available in pop-up menus when you right-click a domain elements in the Alerts Browser. You can configure these menu choices to show for a subset of domain elements in a scope. Custom launches can be configured to trigger any action.

Custom launches enable you to specify external applications to initiate for certain domain elements in a particular scope. You can use custom launch to link an action (such as launching an external application or executing a shell command) with the domain elements in a particular scope. Each time a custom launch is executed, there will be a message in the Action Console output at the start and end of the action.

Notes:

1. The **Cancel Thread** custom launch is added and enabled for Db2SqlStatement. You should not use “Automatic Cancel Thread” in this context.
2. In the Alerts Browser, for messages of Db2SqlStatement, the right-click menu will show **Tools > Cancel Thread** to launch the cancel thread custom launch. This action uses the same cancel thread security verification as **Cancel Thread under Current Activity**.
3. Configuration control actions are global actions, that is, they are not executed upon a specified DomainElement but instead have no subject. Because configuration control actions are global actions, DB2 Query Monitor does not currently allow their placement of in a custom launch.

Adding a custom launch

Follow these steps to create a custom launch.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Custom Launch**.
2. Click **Add**.
3. Type a name for the custom launch in the name box and press **OK**. The custom launch is added to the list of applications in the **Custom Launch list** and available options for the new custom launch display in the right section of the **Profiles & Configuration Browser**.
4. Specify the options appropriate for the custom launch you are configuring:

Enabled

Enables you to toggle the custom launch to on or off. The custom launch is active only if it is enabled by checking this box.

Show output

Enables you to toggle the display of the custom launch output to on or off. Output will only be available if you select this check box.

Obtain user confirmation before executing

Enables you to require user confirmation prior to performing the custom launch.

Minimum user privilege required

The minimum user privilege required to use the custom launch.

Attach actions to these domain elements.

Combo-box that enables you to select the domain elements for which the custom launch is to apply.

Make these actions available

Identifies the actions that are to be performed for the custom launch. You can select multiple actions for a custom launch.

Comments

Descriptive text associated with the custom launch.

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

Follow these steps to add a monitoring configuration. Monitoring configurations define what events are received for which domain elements and with what alternative 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 to use for monitoring.
 - Data Retention Period**
Type the appropriate number and select the time unit for the data retention period 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 to monitor.
6. Select the **Domains** tab and specify the following options:
 - Applies To**
Select the domains to monitor.
7. Click **Apply**.

Adding a monitoring configuration group

Follow these steps to add a monitoring configuration group.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Monitoring**.
2. Highlight the **All Monitoring** folder in the monitoring configuration tree.
3. Click **Add**.
4. Select **Monitoring Configuration Group** and click **OK**.
5. Type a name for the new monitoring configuration group in the **Name** field.
6. Press the **OK** button. The monitoring options display on two tabs in the right panel of the **Monitoring Configuration Editor**.
 - Enabled**
When checked, enables monitoring.
 - Polling Period**
The monitoring polling period.
 - Data Retention Period**
The data retention period.
 - Monitor These Domains Elements**
A scope selection box to identify the domain elements to monitor.
 - Subordinate Monitoring Configuration**
A list of the monitoring configurations that belong to the group.
7. Specify the appropriate settings to setup the monitoring configuration group.
8. Press the **Apply** button.

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 backstore collection 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 overrides configurations can be toggled to enable or disable specific override configurations. If you toggle a check box, a dialog box prompts you to confirm your change prior to it taking effect.

To access Monitoring Configuration, click the **Configuration** link on your CAE Browser Client home page and click the **Monitoring** link in the left column.

Adding a monitoring override

Follow these steps to add a monitoring override. Monitoring overrides are overrides that take effect after an event has occurred.

Procedure

1. Access Monitoring Overrides Configuration from your CAE Browser Client home page by clicking **Configuration > Monitoring Overrides**.
2. Press the **Add** button.
3. Type a name for the new monitoring override in the box.
4. Click **OK**. The new monitoring override is added to the list of overrides and a list of options displays in the right panel of the **Overrides Configuration Editor**.
5. Enable or disable the override by selecting or deselecting the **Enabled** box.
6. Click the **Add domain element scope** link. The **Select Scope** window displays.
7. Expand the tree structure and select the scope to which you want the monitoring override to apply.
8. Click **OK**. The Parameter Override window displays.
9. Select the MIT for which you want to define a monitoring override. The parameters for the selected MIT appear in the Monitoring Parameters box on the right side of the panel.
10. Select the parameter for which you want to define an override. The parameter's description and value display in the **Value** box.
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 **Apply Only to These Domains** check box and select one or more individual domains to which the override will be restricted. If you select the **Apply Only to These Domains** check box but neglect to select any individual domains, the override will not apply to any domain at all.

15. Click **Apply**. The override is applied.

Adding an event processing override

Follow these steps to add an event processing override. Event processing overrides are overrides that take effect after an event has occurred.

Procedure

To define an event processing override:

1. Access Monitoring Overrides Configuration from your CAE Browser Client home page by clicking **Configuration > Monitoring Overrides**.
2. Select the **Event Processing Overrides** tab.
3. Click **Add**. The **Event Processing Overrides** dialog box appears.
4. Type a name for the new event processing override in the box.

5. Click **OK**. The new event processing override is added to the list of overrides and a list of options displays in the right panel of the Overrides Configuration Editor.
6. Enable or disable the override by selecting or deselecting the Enabled box.
7. Select **Event Types** or **Event Scopes** from the **Override Applies To** drop down list.
8. Use the tree structure to select specific event types or event scopes to which the override will apply.
9. Click the **Add Domain Element Scope** link. The **Select Scope** dialog displays.
10. Expand the tree structure and select the scope to which you want the override to apply.
11. Click **OK**. The **Parameter Override** dialog displays.
12. Select the event processing parameter for which you want to define an override. Value descriptions display in the **Value** box.
13. 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.
14. Click **Apply**.
15. Define additional overrides as needed.
16. 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 **Apply Only to These Domains** check box and select one or more individual domains to which the override will be restricted. If you select the **Apply Only to These Domains** check box but do not select any individual domains, the override will not apply to any domain at all.

17. Click **Apply**. The override is applied.

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.

An event type is any data that DB2 Query Monitor is capable of monitoring and using to assist in the process of managing your DB2.

MITs Configuration lists the data types in a tree that organizes the data types two different ways: by form and by subject. The actual data types are listed under both categories, but the organization of each tree is somewhat different. The Event Types include DBMS Information, Device Information, and SQL Information, as well as some other types. The Event Types view enables you to configure those events that are of interest to you, modifying their global parameters such as threshold, initial priority, and escalation criteria. These list includes some of the common characteristics that can be configured for event types; the exact list of parameters varies according to the event:

- The criteria for posting a message for the event: how many times the message must occur in some interval before a message is sent to the message board.
- The event's initial priority.
- The time to wait between receiving the event and posting a message about it, in case the event is transient.

- If the event recurs, whether to post a new message or increment the count of the existing message.
- The increment by which to escalate the event's priority per interval, up to a maximum priority.
- The interval after which the event should be cleared from the message board automatically.

Monitored Information Types list

The monitored information type (MIT) list is a set of event types built in to Query Monitor that characterize most typical events and statistics encountered by administrators and other users. The MIT hierarchy is organized as a tree. An information type that has sub-types can be expanded by clicking on the “+” to the left of its name to show the sub-types. The Query Monitor MIT hierarchy supports multiple inheritance, so you will often see the same MIT in several places within the tree.

The occurrences of an MIT are listed in two ways:

- By form - (MonitoredInformationByForm) The information under the MonitoredInformationByForm node organizes the MITs according to what they are (such as data, event, and statistic)
- By subject - (MonitoredInformationBySubject) The information under the MonitoredInformationBySubject node organizes MITs according to what they affect (such as device). For example, you will find InterfaceUtilizationProblem under both OverUtilizationProblem (which is a sub-event type of PerformanceProblem) and under InterfaceEvent.

Self events

Query Monitor provide self events to inform you about changes to the server configuration and other state changes in server processing. Self events are implemented using a new domain element type, SelfElement, and a new set of monitoring variables, Self Events. The following self events are available:

- Action Failure
- Active Availability Monitoring Change
- Alert Discarded
- Alert Rate Too High
- CAE Agent Abend Problem
- Configuration Problem
 - Authentication Configuration Problem
 - Cannot Monitor Scope Warning
 - Circular Correlation Warning
 - Conflicting Param Override Warning
- Discover State Change event
 - Discovery Abort Event
 - Discovery Complete Event
 - Discovery Start Event
- License Expiration Warning
- Log File Failure
- Monitoring Agent Connect Event

- Monitoring Agent Failure
- Monitoring Agent Overload
- Polling Period Too Short Warning
- Qm Subsystem Terminated
- Self Configuration Change Event

You can view these self events by expanding the tree view to a category named “Self Event” (located under Monitored Information **By Subject > Self Information > Self Event**). Expand the items under **Self Event** to see all of the events that are provided. You can modify parameters for these events and create overrides, just like any other DB2 Query Monitor monitored information type item.

SelfElements can be used for message board filtering to only display self events, for example. You may also configure responses to self events. Actions that are connected to self events must be created as server based actions.

MITs form

Each monitored information type has a description and a set of configurable parameters associated with it. An MIT sub-type inherits its parameters and the default value for each from its parent event types (taking the value from the first if there is more than one parent with the same parameter). Often, an MIT will have a predefined override value for a parameter that it inherited from a parent information type. For example, Event defines the initialPriority parameter to have a value of 6 (least important) but AvailabilityProblem contains a built-in override for initialPriority to be 4. Look at the Config View tab to see the inheritance of an event type (its parent event types) and from where exactly the value of each of its parameters is inherited.

To view the description and parameters associated with an MIT:

1. Select **Configuration > Monitored Information Types**.
2. Expand the monitored information types tree to locate the MIT of interest.
3. Highlight the MIT of interest. The description and parameters for the MIT displays in the right panel of the monitored information types configuration editor.

The MIT form displays the following tabs and options:

Description

A brief explanation of the monitored information type.

Parameters

This section displays information about the parameters that control the monitored information type's behavior.

Operator View tab

This tab displays a text-based description of the monitored information type's parameter settings. Clicking on a value in the Operator View tab switches you to the Config View tab for changing the value.

Config View tab

This tab displays a tree-based view of the monitored information type's parameter settings.

Use default value

Accept the parameter's default setting.

Specify a value

Change the parameter's setting to a new value. A box displays a text-based description of the value. You can edit values using the editable boxes and drop down selections displayed.

Apply Press this button to effect changes made to the selected monitored information type's parameters.

Revert Discard all changes made to the selected monitored information type's parameters.

Editing MITs

A monitored information type (MIT) is any data that DB2 Query Monitor is capable of monitoring and using to assist in the process of managing your network environment. Most MITs are events but MITs could also include statistics and raw data.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Monitored Information Types**.
2. Select the MIT you want to edit.
3. Modify the description as necessary.
4. If you want to use the default value for the parameter select **Use Default Value**. If you want to specify a value for the parameter, select **Specify a Value** and modify the options shown in the box as needed.
5. Repeat the above steps as needed for all the parameters you would like to modify.
6. Click **Apply**.

Action schedules

You can use Action Schedules Configuration to define a schedule that DB2 Query Monitor follows to perform one or more actions at a specified time or interval.

Adding an action schedule

An action schedule is a tool for initiating one or more actions at a predetermined time or interval. The action schedule consists of a set of domain elements encompassed by a particular scope within one or more domains, the actions that it implements, and the timetable by which those actions are performed on those domain elements.

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 and the **Action Schedule definition** panel appears.
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

Optional alert keys enable you 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 the **Configuration** link on your CAE Browser Client home page and click the **Optional Alert Keys** link in the left column.

By specifying optional alert keys via the Optional Alert Keys Configuration, you can add fields to the uniqueness criteria for all Db2SqlStatements and in turn use those fields to group SQL statements and in turn act upon them (send responses, notifications, etc.).

For example, you can use the optional alert key 'User' to group all of the SQL that a user executes. You can then create a response (such as sending a notification) so a notification is issued to the user if the queries that user runs exceeds a given threshold of CPU consumption.

The Optional Alert Keys Configuration displays the following optional keys for all SQL:

User Indicates whether or not the **User** field will be added to the uniqueness criteria for all future Db2SqlStatements. If checked, the **User** field will be added to the uniqueness criteria for all future Db2SqlStatements. If not checked, the **User** field will not be added to the uniqueness criteria for all future Db2SqlStatements.

Corrname

Indicates whether or not the **Corrname** field will be added to the uniqueness criteria for all future Db2SqlStatements. If checked, the **Corrname** field will be added to the uniqueness criteria for all future Db2SqlStatements. If not checked, the **Corrname** field will not be added to the uniqueness criteria for all future Db2SqlStatements.

WsTran

Indicates whether or not the **WsTran** field will be added to the uniqueness criteria for all future Db2SqlStatements. If checked, the **WsTran** field will be added to the uniqueness criteria for all future Db2SqlStatements. If not checked, the **WsTran** field will not be added to the uniqueness criteria for all future Db2SqlStatementsWsTran

WsName

Indicates whether or not the **WsName** field will be added to the uniqueness criteria for all future Db2SqlStatements. If checked, the **WsName** field will be added to the uniqueness criteria for all future Db2SqlStatements. If not checked, the **WsName** field will not be added to the uniqueness criteria for all future Db2SqlStatements.

WsUser

Indicates whether or not the **WsUser** field will be added to the uniqueness criteria for all future Db2SqlStatements. If checked, the **WsUser** field will be added to the uniqueness criteria for all future Db2SqlStatements. If not checked, the **WsUser** field will not be added to the uniqueness criteria for all future Db2SqlStatements.

The options enable you to add extra keys 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. Consequently, if the above Optional Alert Keys are not used, uniqueness will not be generated based on these criteria.

The **Optional Alert Keys Configuration Editor** displays the following additional optional keys for dynamic SQL:

Plan Indicates whether or not the **Plan** field will be added to the uniqueness criteria for all future Db2SqlStatements. If checked, the Plan field will be added to the uniqueness criteria for all future Db2SqlStatements. If not checked, the Plan field will not be added to the uniqueness criteria for all future Db2SqlStatements.

Program

Indicates whether or not the **Program** field will be added to the uniqueness criteria for all future Db2SqlStatements. If checked, the **Program** field will be added to the uniqueness criteria for all future Db2SqlStatements. If not checked, the **Program** field will not be added to the uniqueness criteria for all future Db2SqlStatements.

Section

Indicates whether or not the **Section** field will be added to the uniqueness criteria for all future Db2SqlStatements. If checked, the **Section** field will be added to the uniqueness criteria for all future Db2SqlStatements. If not checked, the **Section** field will not be added to the uniqueness criteria for all future Db2SqlStatements.

Note: The User, WsTran, WsName, and WsUser optional alert keys apply to both static and dynamic SQL. The Plan, Program, and Section optional alert keys only apply to dynamic SQL since these optional alert keys are already uniqueness criteria for static SQL.

QM subsystem management

You can use QM Subsystems Management to work with monitoring profiles and monitoring agents for all of your DB2 Query Monitor subsystems.

Adding a monitoring profile

Follow these steps to add a monitoring profile.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system from the **System** dropdown.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate DB2 Query Monitor subsystem using the **QM subsystem** chooser.
5. Click the **Add** button.
6. Type a name for the new monitoring profile in the **Profile Name** field and click **OK**.
7. Define the monitoring profile and add monitoring profile line as needed. The following controls display:

OK Close the monitoring profile viewing window.

Cancel

Cancel all unsaved changes to the monitoring profile.

Apply Apply changes to the monitoring profile.

Revert Revert to the last saved version of the monitoring profile.

Export Export the monitoring profile.

Add Line

Add a new profile line.

Clone Line

Clone the selected profile line.

Remove Line

Delete the selected profile line.

Move Up

Move the selected profile line higher in the list of profile lines.

Move Down

Move the selected profile line lower in the list of profile lines.

8. Click **OK**.

Related concepts:

“Monitoring profiles - columns and fields - CAE” on page 418

This topic describes the columns and fields that are available on the monitoring profiles displays for the CAE.

Related tasks:

“Adding a monitoring profile line” on page 416

Follow these steps to add a monitoring profile line.

“Updating a monitoring profile line” on page 417

Follow these steps to update a monitoring profile line.

Updating a monitoring profile

Follow these steps to update a monitoring profile.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate DB2 Query Monitor subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile you want to update.
6. Click the **Update** button.
7. Edit the monitoring profile and monitoring profile lines as needed.
8. Click **OK**.

Related concepts:

“Monitoring profiles - columns and fields - CAE” on page 418

This topic describes the columns and fields that are available on the monitoring profiles displays for the CAE.

Related tasks:

“Adding a monitoring profile line” on page 416

Follow these steps to add a monitoring profile line.

“Updating a monitoring profile line” on page 417

Follow these steps to update a monitoring profile line.

Deleting a monitoring profile

Follow these steps to delete a monitoring profile.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate DB2 Query Monitor subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile you want to delete.
6. Click the **Remove** button.
7. Click **Yes** to confirm the deletion.

Viewing a monitoring profile

Follow these steps to view a monitoring profile.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate DB2 Query Monitor subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile you want to view.
6. Click the **View** button.

Adding a monitoring profile line

Follow these steps to add a monitoring profile line.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate DB2 Query Monitor subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile to which you would like to insert a monitoring profile line and click **Update**.
6. Click **Add Line**.
7. Edit the monitoring profile line as needed.
8. Click **OK**.

Related concepts:

“Monitoring profiles - columns and fields - CAE” on page 418

This topic describes the columns and fields that are available on the monitoring profiles displays for the CAE.

Related tasks:

“Adding a monitoring profile” on page 414

Follow these steps to add a monitoring profile.

“Updating a monitoring profile” on page 415

Follow these steps to update a monitoring profile.

Deleting a monitoring profile line

Follow these steps to delete a monitoring profile line.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate DB2 Query Monitor subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile for which you want to remove a monitoring profile line and click **Update**.
6. Highlight the monitoring profile line you want to remove and click **Remove Line**.
7. Click **OK**.

Moving a monitoring profile line

Follow these steps to move a monitoring profile line.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate DB2 Query Monitor subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile for to which you would like to move a monitoring profile line and click **Update**.
6. Highlight the monitoring profile line you would like to move and click **Move Up** or **Move Down**.
7. Click **OK**.

Updating a monitoring profile line

Follow these steps to update a monitoring profile line.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Profiles** perspective using the **Perspective** chooser.
4. Select the appropriate DB2 Query Monitor subsystem using the **QM subsystem** chooser.
5. Highlight the monitoring profile for to which you would like to update a monitoring profile line and click **Update**.
6. Highlight the monitoring profile line you would like to update and edit the fields for the profile line as needed.
7. Click **OK**.

Related concepts:

“Monitoring profiles - columns and fields - CAE”

This topic describes the columns and fields that are available on the monitoring profiles displays for the CAE.

Related tasks:

“Adding a monitoring profile” on page 414

Follow these steps to add a monitoring profile.

“Updating a monitoring profile” on page 415

Follow these steps to update a monitoring profile.

Monitoring profiles - columns and fields - CAE

This topic describes the columns and fields that are available on the monitoring profiles displays for the CAE.

Exclude QM Plans

Indicates whether or not the profile excludes QM plans from exceptions, alerts, and current activity. Valid values are Yes (exclude the plans listed in the QM Plan1, QM Plan2, QM Plan3 fields) and No (do not exclude any QM plans).

Profile Name

The name of the monitoring profile.

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.

DB2 The DB2 subsystem on which the activity occurred.

Plan The DB2 plan name.

Program

The DB2 package or DBRM name.

Exception CPU

The DB2 CPU time that, when exceeded, produces an exception for that unit of SQL activity.

Exception Elapsed

The DB2 elapsed time that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Alert CPU

The CPU time that when exceeded produces an alert for the workload.

Alert Elapsed

The elapsed time that when exceeded produces an alert for the workload.

Workload Filter tab

Exclude

Indicates whether matching SQL activity is to be included in or excluded

from DB2 Query Monitor 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. Disable Summary Reporting is only valid for exclude monitoring 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.

Thresholds tab

Summaries

The options in the Summaries box define the treatment of SQL Codes for summaries:

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 negative SQL codes to be excluded from summary reporting if the **Exclude SQL Codes** field is set to **True**.

Exceptions

The options in the Exceptions box define parameters used for the profile line's exception processing:

Exceptions - CPU

The DB2 CPU time that, when exceeded, produces an exception for that unit of SQL activity.

Exceptions - Elapsed

The DB2 elapsed time that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

Exceptions - Getpages

The number of getpages that, when exceeded, produces an exception for that unit of SQL activity. A value of zero causes this criteria not to be used in determining if the profile line should be included or excluded as an alert or exception.

SQL Calls

The number of SQL calls that, when exceeded, produces an exception for the specified unit of SQL activity.

Exceptions - Limit

The maximum number of exceptions that will be generated for that SQL statement. If you specify an Exception Limit value of zero, collected activity that matches other criteria in the profile line will not be treated as an exception for display (since the exception limit threshold of zero would have been exceeded).

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 negative SQL codes to exclude from exceptions when **Exclude SQL codes** is set to **True**.

Generate SQLCODE Exceptions

Indicates whether or not SQLCODEs generate exceptions. Valid values are **True** (SQLCODEs generate exceptions) and **False** (SQLCODEs do not generate exceptions).

Alerts The parameters used for the profile line's alert processing:

CPU The DB2 CPU alert time that, when exceeded, produces an alert for the specified unit of SQL activity.

Elapsed

The DB2 elapsed time alert threshold that, when exceeded, produces an alert for the specified unit of SQL activity.

Getpages

The number of getpages that when exceeded produces an alert for the workload.

SQL Calls

The number of SQL calls that when exceeded produces an alert for the workload.

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 negative SQL codes to be excluded from alerts.

Generate SQLCODE Alerts

Indicates whether or not SQLCODES generate alerts. Valid values are **True** (SQLCODES generate alerts) and **False** (SQLCODES do not generate alerts).

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, 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.

Corrname

The CORRNAME parameter 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. 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 (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.

Corrnum

The CORRNUM parameter reduces collected information down to the level of the individual correlation number.

Wsuser

The WSUSER parameter reduces collected information down to the level of the individual workstation user ID.

Wsname

The WSNAME parameter reduces collected information down to the level of the individual workstation name.

Wstran

The WSTRAN parameter reduces collected information down to the level of the individual workstation transaction.

Calls

The CALLS parameter reduces collected information down to the level of the individual SQL calls. If the CALLS option is not specified in the OPTKEYS parameter, the statement number and description can contain N/A in the operational summaries.

Ptext

The PTEXT parameter strips literals and multiple blanks from summary text. Literals are replaced by the indicator "&". Multiple 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.

Misc Collection tab

Collect Object Data

Indicates whether or not object data is collected for the workload.

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.

Related tasks:

“Adding a monitoring profile” on page 414

Follow these steps to add a monitoring profile.

“Updating a monitoring profile” on page 415

Follow these steps to update a monitoring profile.

“Adding a monitoring profile line” on page 416

Follow these steps to add a monitoring profile line.

“Updating a monitoring profile line” on page 417

Follow these steps to update a monitoring profile line.

Activating a monitoring agent

Follow these steps to activate a monitoring agent.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Monitoring Agents** perspective using the **Perspective** chooser.
4. Highlight the monitoring agent you want to activate and click **Activate**.

Deactivating a monitoring agent

Follow these steps to deactivate a monitoring agent.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Monitoring Agents** perspective using the **Perspective** chooser.
4. Highlight the monitoring agent you want to deactivate and click **Deactivate**.

Changing a monitoring profile

Follow these steps to change a monitoring profile.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.

3. Select the **Monitoring Agents** perspective using the **Perspective** chooser.
4. Highlight the monitoring agent you want to change the profile for and click **Change Profile**.
5. Select the appropriate monitoring profile and click **OK**.

Refreshing a monitoring profile

Follow these steps to refresh a monitoring profile.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > QM Subsystems Management**.
2. Select the appropriate system using the **System** chooser.
3. Select the **Monitoring Agents** perspective using the **Perspective** chooser.
4. Highlight the monitoring agent for which you want to refresh the monitoring profile and click **Refresh**.

OMEGAMON[®] integration

Follow these steps to manage the connection between the CAE Server and a Tivoli[®] Enterprise Monitoring Server (TEMS).

The integration of DB2 Query Monitor with IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS provides IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS users with access to more detailed information about their DB2 subsystems.

By using the CAE Browser Client to configure a connection between DB2 Query Monitor and a TEMS, you can send data from DB2 Query Monitor to IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS.

To enable this integration, DB2 Query Monitor runs a KQQ Agent in the CAE Server. The KQQ Agent receives requests from IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS, executes these requests in the CAE Server, and sends the results back to IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS. The CAE Server can start the KQQ Agent for a DB2 subsystem as long as the following conditions are met:

- The DB2 subsystem is monitored by a TEMS.
- The DB2 subsystem is monitored by the CAE Server.
- There is no other KQQ Agent monitoring the DB2 subsystem.

To configure OMEGAMON Configuration:

1. Access OMEGAMON Configuration from your CAE Browser Client home page by clicking **Configuration > OMEGAMON Configuration**. 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.

- Specify a **TEMS address** and **TEMS port** in the corresponding fields. 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.

- To stop sharing, click the **Stop** button. To refresh OMEGAMON Configuration click the **Refresh** button.

Truststore configuration

You can use truststores to create secure (SSL) connections to a DB2 subsystem or to a DSM Server.

Adding a truststore

Follow these steps to add a new truststore.

Procedure

- From any window within the CAE Browser Client, click **Configuration > Truststore Configuration > Add**.
- Specify the following:

Name The name of the truststore you are defining.

Path The path to the truststore on the file system of the CAE Server. This is the local path on the file system where the CAE Server is installed, for example C:\truststores\truststore.jks (on Windows) or /tmp/truststores/truststore.jks (on USS). You must manually copy the truststore to the CAE Server.

Description

A description of the truststore.

DB2 Default

When checked, this causes the truststore to be used by default when creating a new archive connection.

DSM Default

When checked, this causes the truststore to be used by default when creating a new DSM server connection.

3. After adding a truststore, you can define a secure archive connection that uses the truststore you added.
 - a. Follow the steps described in “Adding an archive connection” on page 362.
 - b. When defining the new archive connection be sure to:
 - Check the **Use SSL** box to use SSL for the connection.
 - From the **Truststore** list, select the appropriate truststore.

Deleting a truststore

Follow these steps to delete a truststore.

Procedure

1. From any window within the CAE Browser Client, click **Configuration > Truststore Configuration**.
2. Highlight the truststore you want to delete and click **Delete**.

Note: You cannot delete the <Default TrustStore>.

Chapter 21. Tools

The tools feature provides you with access to the action console.

Topics:

- “Action console”

Action console

The action console displays information about actions that are running or have previously run the CAE Server or CAE Agent.

Action Schedules

The action schedules folders display the action schedules you have defined. The action schedules are sorted into subfolders 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** tab located at the bottom of the Action Console window displays any output from the action. The **Error Log** tab located at the bottom of the Action Console window displays error messages associated with the action's execution (or lack of execution).

Chapter 22. 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 thresholds for alerts and exceptions.

Topics:

- “CAE port definitions”
- “CAE IP address definitions” on page 432
- “Custom port specification” on page 433
- “About FS locations for the CAE Server on USS” on page 440
- “CAE Agent address space management” on page 442
- “Security for cancel thread operations” on page 442
- “Considerations for the use of DHCP versus fixed IP addresses on the CAE Server” on page 442
- Configuring DB2 Query Monitor for use with CA Top Secret
- “Guidelines for setting thresholds for alerts and exceptions” on page 442
- “Contextual information and action configurations” on page 443

CAE port definitions

This topic provides information about the ports used by the CAE Server, CAE Agent, and DB2 Query Monitor subsystem.

The list that follows defines the various CAE ports and provides information about the CQMCPRMS parameters, CQMPARMS parameters, system properties (for the CAE Server on Windows) and environment variables (for the CAE Server on USS) associated with these ports.

CAE Agent System - CAE Server Access Listener Port

(Optional) The port at which the CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

3448

System property in `rocket.kbm.server.properties` (CAE Server on Windows)

`com.rocketsoft.nm.qm.caeAgent.listenerPort`

CQMCAESV STDENV DD environment variable (CAE Server on USS)

`CQM_CAE_AGENT_LISTENER_PORT`

CQMCPRMS parameter (CAE Agent)

`SERVER_PORT`

CQMPARMS parameter (DB2 Query Monitor subsystem) - For data sharing

`CAE_SERVER_PORT`

CAE Agent System - Backup CAE Server Access Listener Port

(Optional) The port at which the Backup CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

3448

System property in rocket.kbm.server.properties (Backup CAE Server on Windows)

com.rocketsoft.nm.qm.caeAgent.listenerPort

CQMCAESV STDENV DD environment variable (Backup CAE Server on USS)

CQM_CAE_AGENT_LISTENER_PORT

CQMCPRMS parameter (CAE Agent)

BACKUP_PORT

CQMPARMS parameter (DB2 Query Monitor subsystem)

Not applicable

CAE Agent System - CAE Agent Access Listener Port Range

(Required, user-specified) The port range used by the CAE Agent to accept communication requests from the CAE Server.

Default

None, must be specified by user

System property in rocket.kbm.server.properties (CAE Server on Windows)

Not applicable

CQMCAESV STDENV DD environment variable (CAE Server on USS)

Not applicable

CQMCPRMS parameter (CAE Agent)

LISTENER_PORTS

CQMPARMS parameter (DB2 Query Monitor subsystem)

Not applicable

Java Agent System - Portal Ports (Java Agent System - Local Portal Port and Java Agent System - Remote Portal Port)

(Optional) 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 Agent System - Local Portal Port is the port that the Java Agent listens on. The Java Agent System - Remote Portal Port is the port that the Java Agent attempts to connect to.

Default

3444

System property in rocket.kbm.server.properties (CAE Server on Windows)com.rocketsoft.denali.agents.localPort and
com.rocketsoft.denali.agents.remotePort**CQMCAESV STDENV DD environment variable (CAE Server on USS)**CQM_LOCAL_PORTAL_PORT and
CQM_REMOTE_PORTAL_PORT**CQMCPRMS parameter (CAE Agent)**

Not applicable

CQMPARMS parameter (DB2 Query Monitor subsystem)

Not applicable

HTTPS Port

(Optional) The port used by CAE Browser Client to obtain data from the CAE Server or Backup CAE Server.

Default

443

System property in `cqm_service_install.bat` (CAE Server on Windows)

`-httpsPort`

System property in `rocket.kbm.server.properties` (CAE Server on Windows)

Not applicable. This parameter is not supported in `rocket.kbm.server.properties` at this time. You must instead use the `-httpsPort` property in `cqm_service_install.bat`.

CQMCAESV STDENV DD environment variable (CAE Server on USS)

`CQM_HTTPS_PORT`

CQMCPRMS parameter (CAE Agent)

Not applicable

CQMPARMS parameter (DB2 Query Monitor subsystem)

Not applicable

JDBC Port

(Optional) The Java database connectivity port use by the CAE Server.

Default

1112

System property in `cqm_service_install.bat` (CAE Server on Windows)

`-jdbcPort`

System property in `rocket.kbm.server.properties` (CAE Server on Windows)

Not applicable. This parameter is not supported in `rocket.kbm.server.properties` at this time. You must instead use the `-jdbcPort` property in `cqm_service_install.bat`.

CQMCAESV STDENV DD environment variable (CAE Server on USS)

`CQM_JDBC_PORT`

CQMCPRMS parameter (CAE Agent)

Not applicable

CQMPARMS parameter (DB2 Query Monitor subsystem)

Not applicable

RMI Port Range

(Optional) 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

System property in `rocket.kbm.server.properties` (CAE Server on Windows)

`com.rocketsoft.denali.agents.rmiPortRange`

CQMCAESV STDENV DD environment variable (CAE Server on USS)
CQM_RML_PORT_RANGE

CQMCPRMS parameter (CAE Agent)
Not applicable

CQMPARMS parameter (DB2 Query Monitor subsystem)
Not applicable

SMTP Port

The port used by CAE Server to send email actions.

Default
25

Setting in Configuration Browser

CAE IP address definitions

The list that follows defines the IP addresses used by CAE Server, CAE Agent, and DB2 Query Monitor subsystem and provides information about the CQMCPRMS parameters, CQMPARMS parameters, system properties (for the CAE Server on Windows) and environment variables (for the CAE Server on USS) associated with these ports.

CAE Agent System - CAE Agent Access Listener Addresses

(Optional) A list of IP addresses or DNS names at which the CAE Agent listens for incoming connections from the CAE Server.

Default
0.0.0.0

System property in rocket.kbm.server.properties (CAE Server on Windows)
Not applicable

CQMCAESV STDENV DD environment variable (CAE Server on USS)
Not applicable

CQMCPRMS parameter (CAE Agent)
LISTENER_ADDRESSES

CQMPARMS parameter (DB2 Query Monitor subsystem)
Not applicable

CAE Agent System - CAE Server Access Listener Address

(Optional) A list of IP addresses or DNS names at which the CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default
0.0.0.0

System property in rocket.kbm.server.properties (CAE Server on Windows)
Not applicable

CQMCAESV STDENV DD environment variable (CAE Server on USS)
Not applicable

CQMCPRMS parameter (CAE Agent)
SERVER_ADDRESS

CQMPARMS parameter (DB2 Query Monitor subsystem)
CAE_SERVER_ADDRESS

CAE Agent System - Backup CAE Server Access Listener Address

(Optional) The IP address or DNS at which the Backup CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

0.0.0.0

System property in rocket.kbm.server.properties (Backup CAE Server on Windows)

Not applicable

CQMCAESV STDENV DD environment variable (Backup CAE Server on USS)

Not applicable

CQMCPRMS parameter (CAE Agent)

BACKUP_ADDRESS

CQMPARMS parameter (DB2 Query Monitor subsystem)

Not applicable

Custom port specification

If you plan to specify custom ports with your CAE implementation, review the following considerations and procedures.

The ports that can be customized on the CAE Server include the following:

- CAE Agent System - CAE Server Access Listener Port
- CAE Agent System - Backup CAE Server Access Listener Port
- CAE Agent System - CAE Agent Access Listener Port Range
- Java Agent System - Local Portal Port
- Java Agent System - Remote Portal Port
- HTTPS Port
- JDBC Port
- RMI Port Range
- SMTP Port

For detailed information about the various CAE ports, see “CAE port definitions” on page 429.

Note: Most sites do not need to specify custom ports. The procedures that follow should only be implemented if your site requires the use of ports other than the default ports used by DB2 Query Monitor.

TCP/IP port mappings for the CAE Server

The following figure shows the DB2 Query Monitor components affected by the TCP/IP port mappings and provides details about how to specify the appropriate values for the deployment of the CAE Server on either Windows and USS.

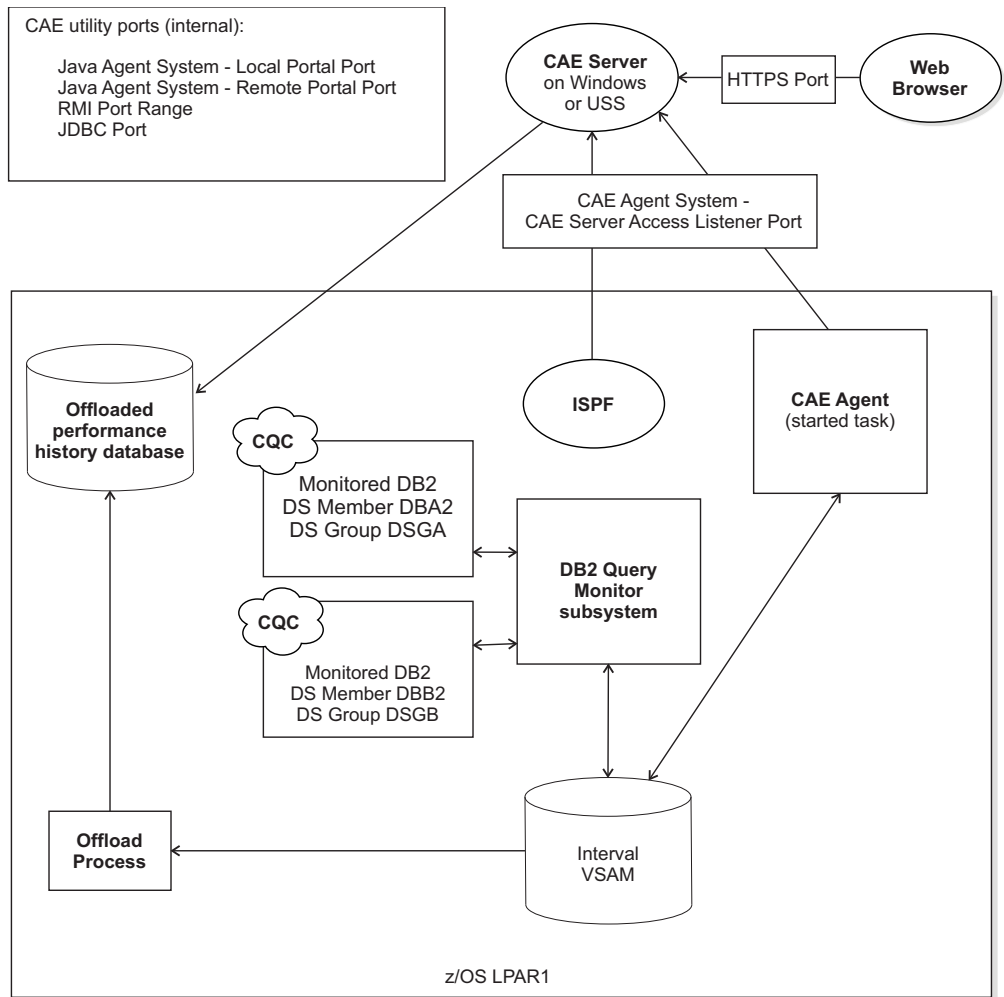


Figure 120. TCP/IP port mappings for the CAE Server on Windows or USS

The following ports are used by the CAE Server (on Windows and USS), the CAE Agent, and the DB2 Query Monitor subsystem:

- CAE Agent System - CAE Server Access Listener Port
- CAE Agent System - Backup CAE Server Access Listener Port
- CAE Agent System - CAE Agent Access Listener Port Range
- Java Agent System - Portal Ports (Java Agent System - Local Portal Port and Java Agent System - Remote Portal Port)
- HTTPS Port
- JDBC Port
- RMI Port Range

TCP/IP port mappings for the CAE Server on USS

The following table describes the default TCP/IP port mappings for the CAE Server on USS. Ports used by the CAE Server on USS are defined in STDENV DD.

Table 33. TCP/IP port mapping for the CAE Server on USS

Port	Parameter	Default
CAE Agent System - CAE Server Access Listener Port	CQM_CAE_AGENT_LISTENER_PORT	3448
CAE Agent System - Backup CAE Server Access Listener Port	CQM_CAE_AGENT_LISTENER_PORT	3448
CAE Agent System - CAE Agent Access Listener Port Range	Not applicable to the CAE Server on USS	Not applicable
HTTPS Port	CQM_HTTPS_PORT	443
Java Agent System - Local Portal Port	CQM_LOCAL_PORTAL_PORT	3444
Java Agent System - Remote Portal Port	CQM_REMOTE_PORTAL_PORT	3444
JDBC Port	CQM_JDBC_PORT	1112
RMI Port Range	CQM_RMI_PORT_RANGE	3445-3455

TCP/IP port mappings for the CAE Server on Windows

The ports for the CAE Server on Windows that are defined in `rocket.kbm.server.properties` include:

- CAE Agent System - CAE Server Access Listener Port
- CAE Agent System - Backup CAE Server Access Listener Port
- CAE Agent System - CAE Agent Access Listener Port Range
- Java Agent System - Local Portal Port
- Java Agent System - Remote Portal Port
- RMI Port Range

The ports for the CAE Server on Windows that are defined in `qcm_service_install.bat` include:

- HTTPS Port
- JDBC Port

The following table describes the default TCP/IP port mappings for the CAE Server on Windows.

Table 34. TCP/IP port mapping for the CAE Server on Windows

Port	Parameter	Default
CAE Agent System - CAE Server Access Listener Port	com.rocketsoft.nm.qm.caeAgent.listenerPort	3448
CAE Agent System - Backup CAE Server Access Listener Port	com.rocketsoft.nm.qm.caeAgent.listenerPort	3448
CAE Agent System - CAE Agent Access Listener Port Range	Not applicable to the CAE Server on Windows	Not applicable
HTTPS Port	-httpsPort	443
Java Agent System - Local Portal Port	com.rocketsoft.denali.agents.localPort	3444
Java Agent System - Remote Portal Port	com.rocketsoft.denali.agents.remotePort	3444
JDBC Port	-jdbcPort	1112
RMI Port Range	com.rocketsoft.denali.agents.rmiPortRange	3445-3455

TCP/IP port mappings for the CAE Agent

The following table describes the default TCP/IP port mappings for the CAE Agent. Ports used by the CAE Agent are defined in CQMCPRMS DD.

Table 35. TCP/IP port mapping for the CAE Agent

Port	Parameter	Default
CAE Agent System - CAE Server Access Listener Port	SERVER_PORT	3448
CAE Agent System - Backup CAE Server Access Listener Port	BACKUP_PORT	3448
CAE Agent System - CAE Agent Access Listener Port Range	LISTENER_PORTS	Required, no default
HTTPS Port	Not applicable to the CAE Agent	Not applicable
Java Agent System - Local Portal Port	Not applicable to the CAE Agent	Not applicable
Java Agent System - Remote Portal Port	Not applicable to the CAE Agent	Not applicable
JDBC Port	Not applicable to the CAE Agent	Not applicable
RMI Port Range	Not applicable to the CAE Agent	Not applicable

TCP/IP port mappings for the DB2 Query Monitor subsystem

The following table describes the default TCP/IP port mappings for the DB2 Query Monitor subsystem. Ports used by the DB2 Query Monitor subsystem are defined in CQMPARMS.

Table 36. TCP/IP port mapping for the DB2 Query Monitor subsystem

Port	Parameter	Default
CAE Agent System - CAE Server Access Listener Port	CAE_SERVER_PORT	3448
CAE Agent System - Backup CAE Server Access Listener Port	Not applicable to the DB2 Query Monitor subsystem	Not applicable
CAE Agent System - CAE Agent Access Listener Port Range	Not applicable to the DB2 Query Monitor subsystem	Not applicable
HTTPS Port	Not applicable to the DB2 Query Monitor subsystem	Not applicable
Java Agent System - Local Portal Port	Not applicable to the DB2 Query Monitor subsystem	Not applicable
Java Agent System - Remote Portal Port	Not applicable to the DB2 Query Monitor subsystem	Not applicable
RMI Port Range	Not applicable to the DB2 Query Monitor subsystem	Not applicable
JDBC Port	Not applicable to the DB2 Query Monitor subsystem	Not applicable

Custom port specification on the CAE Server (Windows)

The following procedures detail how to specify custom ports.

For detailed information about the various CAE ports, see “CAE port definitions” on page 429.

Note:

- Before you customize `rocket.kbm.server.properties`, we recommend that you create a backup of the original file prior to making your edits.
- The batch scripts referred to in the examples below are all one line (the line breaks shown in the examples are only present to fit the script within the margins of the page on which this is presented). You should ensure that the batch script remains in this 'one line' format after you have edited it.
- If you insert more than one Java system property, separate them with a space.

Specifying CAE Agent System and RMI Ports (Windows)

Follow these steps to customize the CAE Agent System - CAE Server Access Listener Port, RMI Port Range, and CAE Agent System - CAE Agent Access Listener Port Range for the CAE Server on Windows.

About this task

To use custom port values for the:

- CAE Agent System - CAE Server Access Listener Port
- RMI Port Range
- CAE Agent System - CAE Agent Access Listener Port Range

when using the CAE Server on Windows, you must edit system properties in `rocket.kbm.server.properties`. The `rocket.kbm.server.properties` file is located in the `bin` folder of your DB2 Query Monitor CAE installation directory.

For more information about specifying these parameters in `rocket.kbm.server.properties` see “CAE Server parameters - Windows” on page 585.

Specifying an HTTPS Port (Windows)

The following sequence of steps shows you how to specify a non-standard HTTPS Port for the CAE Server on Windows.

Procedure

1. To specify a non-standard HTTPS Port, go to the `bin` folder of your DB2 Query Monitor CAE and locate the `cqm_service_install.bat` file. In the `cqm_service_install.bat` file, locate the following: `serviceExtraDashDArgs=`
2. To add a specification of a non-standard HTTPS Port, for example 8443, add the following to `cqm_service_install.bat`:

```
-httpsPort 8443
```

For example, `cqm_service_install.bat` might initially be:

```
%KBM_ROOT%\bin\cqmservice"  
-serviceName %serviceName%  
-serviceDisplayName %serviceDisplayName%  
-serviceDescription %serviceDescription%  
-serviceLog %serviceLog%  
-i "%KBM_ROOT%\bin\jre" "%KBM_ROOT%\classes\pinpoint.blob"  
-Xrs -Xmx%MEMORY_SIZE%  
-Djava.class.path="%CLASSPATH%"
```

```

-Djava.library.path="%KBM_ROOT%\bin"
-Dcom.rocketsoft.logPrefix=logs/%serviceLog%_srvr_
%serviceExtraDashDArgs% com.rocketsoft.nm.discovery.TopologyServer
-serverPolicyClass com.rocketsoft.nm.qm.topology.QMServerPolicy
-modules .
-jdbcPort 1112
-httpRoot .

```

After adding the new HTTPS Port, it would be:

```

"%KBM_ROOT%\bin\cqmservice"
-serviceName %serviceName%
-serviceDisplayName %serviceDisplayName%
-serviceDescription %serviceDescription%
-serviceLog %serviceLog%
-i "%KBM_ROOT%\bin\jre" "%KBM_ROOT%\classes\pinpoint.blob"
-Xrs -Xmx%MEMORY_SIZE%m
-Djava.class.path="%CLASSPATH%"
-Djava.library.path="%KBM_ROOT%\bin"
-Dcom.rocketsoft.logPrefix=logs/%serviceLog%_srvr_
%serviceExtraDashDArgs% com.rocketsoft.nm.discovery.TopologyServer
-serverPolicyClass com.rocketsoft.nm.qm.topology.QMServerPolicy
-modules .
-jdbcPort 1112
-httpRoot .
-httpsPort 8443

```

Specifying a non-standard JDBC Port (Windows)

The following sequence of steps shows you how to specify a non-standard JDBC Port for the CAE Server on Windows.

Procedure

1. To specify a non-standard JDBC Port, go to the bin folder of your DB2 Query Monitor CAE and locate the cqm_service_install.bat file. In the cqm_service_install.bat file, locate the following: serviceExtraDashDArgs=
2. To add a specification of a non-standard JDBC Port, for example 1114, add the following to cqm_service_install.bat:

```
-jdbcPort 1114
```

For example, cqm_service_install.bat might initially be:

```

"%KBM_ROOT%\bin\cqmservice"
-serviceName %serviceName%
-serviceDisplayName %serviceDisplayName%
-serviceDescription %serviceDescription%
-serviceLog %serviceLog%
-i "%KBM_ROOT%\bin\jre" "%KBM_ROOT%\classes\pinpoint.blob"
-Xrs -Xmx%MEMORY_SIZE%m
-Djava.class.path="%CLASSPATH%"
-Djava.library.path="%KBM_ROOT%\bin"
-Dcom.rocketsoft.logPrefix=logs/%serviceLog%_srvr_
%serviceExtraDashDArgs% com.rocketsoft.nm.discovery.TopologyServer
-serverPolicyClass com.rocketsoft.nm.qm.topology.QMServerPolicy
-modules .
-httpRoot .

```

After adding the new HTTPS Port, it would be:

```

"%KBM_ROOT%\bin\cqmservice"
-serviceName %serviceName%
-serviceDisplayName %serviceDisplayName%
-serviceDescription %serviceDescription%
-serviceLog %serviceLog%
-i "%KBM_ROOT%\bin\jre" "%KBM_ROOT%\classes\pinpoint.blob"
-Xrs -Xmx%MEMORY_SIZE%m
-Djava.class.path="%CLASSPATH%"
-Djava.library.path="%KBM_ROOT%\bin"

```

```

-Dcom.rocketsoft.logPrefix=logs/%serviceLog%_srvr_
%serviceExtraDashDArgs% com.rocketsoft.nm.discovery.TopologyServer
-serverPolicyClass com.rocketsoft.nm.qm.topology.QMServerPolicy
-modules .
-jdbcPort 1114
-httpRoot .

```

Custom port specification on the CAE Server (USS)

This topic provides information on how to specify custom ports for the CAE Server on USS.

For detailed information about the various CAE ports, see “CAE port definitions” on page 429.

Customization of the ports used by the CAE Server under USS involves adding the appropriate environment variable(s) to your CQMCAESV STDENV DD (and, if appropriate, the CQMCAEWD STDENV DD).

Note: Most sites will not need to specify non-standard ports. The procedures that follow should only be implemented if your site requires the use of ports other than the default ports used by DB2 Query Monitor.

Java Agent System - Portal Ports

To customize the Java Agent System - Portal Ports for a CAE Server installed under USS, you must define CQM_LOCAL_PORTAL_PORT and CQM_REMOTE_PORTAL_PORT in CQMCAESV STDENV DD. For example:

```

//STDENV DD *
CQM_JAVA=/usr/lpp/java/J1.6
CQM_LOGS=/u/cqmcae/cqmv3r2/logs
CQM_LOCAL_PORTAL_PORT=3440
/*

```

If you have modified the local portal port in the CAE Server you'll have to add the Java Agent System - Remote Portal Port in the watchdog JCL (CQMCAEWD STDENV DD).

```

//STDENV DD *
CQM_JAVA=/usr/lpp/java/J1.6
CQM_LOGS=/u/cqmcae/cqmv3r2/logs
CQM_REMOTE_PORTAL_PORT=3440
/*

```

RMI Port Range

To customize the RMI Port Range for a CAE Server installed under USS, you must define the CQM_RMI_PORT_RANGE in CQMCAESV STDENV DD. For example:

```

//STDENV DD *
CQM_JAVA=/usr/lpp/java/J1.6
CQM_LOGS=/u/cqmcae/cqmv3r2/logs
CQM_RMI_PORT_RANGE=3445-3465
/*

```

CAE Agent System - CAE Server Access Listener Port

Note: It is unlikely that you should need to define the CAE Agent System - CAE Server Access Listener Port on the CAE Server.

To customize the CAE Agent System - CAE Server Access Listener Port for a CAE Server installed under USS, you must define the CQM_CAE_AGENT_LISTENER_PORT in CQMCAESV STDENV DD. For example:

```
//STDENV DD *
CQM_JAVA=/usr/lpp/java/J1.6
CQM_LOGS=/u/cqmcae/cqmv3r2/logs
CQM_CAE_AGENT_LISTENER_PORT=30000
/*
```

HTTPS Port

To customize the HTTPS Port for a CAE Server installed under USS, you must define the CQM_HTTPS_PORT parameter in CQMCAESV STDENV DD. For example:

```
//STDENV DD *
CQM_JAVA=/usr/lpp/java/J1.6
CQM_LOGS=/u/cqmcae/cqmv3r2/logs
CQM_HTTPS_PORT=8443
/*
```

JDBC Port

To customize the JDBC Port for a CAE Server installed under USS, you must define the CQM_JDBC_PORT parameter in CQMCAESV STDENV DD. For example:

```
//STDENV DD *
CQM_JAVA=/usr/lpp/java/J1.6
CQM_LOGS=/u/cqmcae/cqmv3r2/logs
CQM_JDBC_PORT=1114
/*
```

About FS 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.

The table below describes these three locations in more detail.

Table 37. 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 executables and jar files.	The CAE Server configuration and data files.	The CAE Server log files.

Table 37. 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) *
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 the executables 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.

Table 37. 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) *
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.
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 103 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 operations

CAE Browser Client actions such as cancel thread, host variable viewing, and SQL text viewing are protected by the RACF facility classes defined for the userid and password you use when logging in to the CAE Browser Client. Password verification to a given system is good for the life of the CAE Browser Client session.

Considerations for the use of DHCP versus fixed IP addresses on the CAE Server

It is recommended that you use a fixed IP address for the CAE Server whenever possible. If that is not possible, use the DNS name for the CQM_PORTAL_ADDRESS on the CAE Agent but be aware that there will be a loss of communication between the CAE Agent and the CAE Server between the time the CAE Server IP Address changes and the time that the DNS server used by the CAE Agent acquires the correct mapping.

Guidelines for setting thresholds for alerts and exceptions

When you create a monitoring profile include line, you can specify the conditions that when exceeded, cause the generation of an exception or an alert. These conditions include CPU time, elapsed time, getpages, SQL calls, and exception limit.

The purpose of alerts

The purpose of alerts is to make you (or an operator) aware of any unusual activity. There is some overhead that is associated with an alert. For this reason,

thresholds should be set high enough to avoid excessive resource consumption by the CAE Agent and CAE Server.

Considerations for setting thresholds

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

- Can your site's operators and DBAs respond to each individual alert or exception that is generated?
- Would your site's operators and DBAs want to receive an email for every alert that is generated (or would emails be generated faster than they might want to receive them)?

If your site's operators and DBAs would not be able to respond to each individual alert or exception that is generated, or if they would not want to receive so many emails, then the alert threshold is set too low and should be raised.

Thresholds and workloads

The optimal thresholds you should use will also vary depending on the kinds of workloads your site experiences. For example, if an SQL section exceeds a threshold, would an operator at your site want to take the time to look at this SQL section and consider whether or not to cancel it? For example, would they want to consider alerts that exceed thresholds of > 5 seconds of CPU, or > 20 seconds elapsed?

Thresholds and SQLCODEs

When setting thresholds for SQLCODEs, you should evaluate whether an error requires human intervention. For example, would an application developer or DBA actually take some action as a result of knowing that this individual SQL error occurred?

While the alert system can handle 5 alerts a second or more (per CAE Agent) for short periods, if you are averaging more than 5 alerts a minute in the CAE Server, the CAE Server will start to consume too much memory over the course of a day.

Situations that cause too many alerts

The most common reasons for your site experiencing too many alerts are:

- Not having a good list of SQL codes in **SQL Codes excluded** for Alerts. For example, many sites should exclude -803, since it is a common coding technique to insert first and update if necessary based on a -803.
- Setting alert thresholds too low for CPU, elapsed, getpages, and/or SQL calls. If you want to look at the activity after the fact, you can set thresholds to store the activity as an Exception. Alerts are for immediate attention. The profiles facility in DB2 Query Monitor allows you to set different thresholds for different workloads. For example, 5 seconds elapsed may be cause for concern for a transactional workload, but not for a batch workload.

Contextual information and action configurations

By specifying contextual information in your action configurations, you can make your action behavior and content automatically adapt at execution time to the event and or domain element associated with the particular execution of the action.

You can specify this kind of contextual information in your action configurations by inserting **Knowledge-Based Management Language (or KBML)** expressions into the appropriate locations (such as email actions and WTO actions).

KBML is a powerful language that can be used in your action configurations. KBML provides you with a method of identifying and selecting information of interest and enables you to use that information in variety of ways (such as reporting information in an email action, an WTO action, or substituting in JCL).

KBML expression structure

The KBML syntax that is available and valid varies depending on the context in which it is to be defined.

Note: Identifiers and properties are case insensitive. Arguments to calls to `getAttribute()` are case sensitive. The valid arguments for an identifier can be found by opening an alert in the message board of the CAE and referring to the **Attributes** tab.

The following is a valid entry for the subject field of an email action configuration:

```
A ${event.type} has been ${trigger} on ${subject.db2ssid}
```

This might appear in someone's inbox as:

```
A GetPageCountExceededProblem has been acknowledged on R71C
```

The most common and most simple use of KBML in actions is to include the values of properties and universally available variables known collectively as identifiers within the action fields. These KBML expressions can take the following form:

```
${identifier.property}
```

where *identifier* is the identifier to which the KBML expression pertains and *property* is a specific property of that identifier. Properties of properties can be specified in an expression as follows:

```
${identifier.property.property}
```

Some examples of such KBML expressions are:

```
${subject.bestname}
```

```
${event.autoClear}
```

```
${device.address}
```

```
${event.domainElement.bestName}
```

KBML expressions can also accept methods and arguments using the following structure:

```
${event.getAttribute(string)}
```

where *string* is the argument on the method performed by the KBML expression.

Some examples of a KBML expression that includes a `getAttribute` method and argument are:

```
${event.getAttribute("CorrelationId")}
```

```
${event.getAttribute("REQUESTING_SITE_NAME")}
```

```
${event.getAttribute("CONNECTION_NAME")}
```


Advanced use of KBML enables you to specify conditional expressions that evaluate to different values based upon the value of identifiers. KBML expressions can be concatenated using if/then/else statements in the following manner:

```
#{if expression1 then expression2 else expression3}
```

where *expression1*, *expression2*, and *expression3* are KBML expressions and *expression1* is an expression that returns true or false.

An example of an if/then/else statement is:

```
#{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

In the case of static SQL, a particular section, as identified by the DB2dbms/plan/program/program version/sectionNumber. In the case of dynamic sql, a select/insert/update/delete statement, identified by DB2Dbms/unique-sql-text. Both static and dynamic SQL are considered to be of type “Db2SqlStatement”.

DynamicDb2SqlStatement

A dynamic SQL statement

Db2Dbms

A DB2 Subsystem.

Db2ObjectUsage

The statistics for an object (index or table) collected as this object was used by a specific sql statement.

Device

The z/OS image on which this domain element is contained.

The following subject types also appear, but are less relevant to the contexts in question:

Dbms Similar to Db2Dbms only less specific, and with fewer useful properties.

Domain

The whole data center.

DomainElement

Anything that can have an alert about it: an SQL statement, a table, an index, a z/OS image, a DB2 subsystem.

SelfElement

The Query Monitor application itself: the subject of "self" events such as "Configuration Changed Event" etc.

Software

Any kind of DomainElement that is not a Device.

Sql

Similar to Db2SqlStatement only less specific, and with fewer useful properties.

SqlStatement

Similar to Db2SqlStatement only less specific, and with fewer useful properties.

Properties

The list below shows the various KBML properties.

address

The "primary" IP address of the device, if any. Devices can have multiple IP addresses, in which case the value chosen as the "primary" IP address is somewhat arbitrary. For example, `{device.address}` might produce a value such as 172.16.67.12.

- **Defined on KBML Type:** Device, Db2Dbms, Db2ObjectUsage, Db2SqlStatement, Dbms, Device, Domain, DomainElement, DynamicDb2SqlStatement, SelfElement, Software, Sql, SqlStatement
- **Type:** IPAddress
- **Identifier:** device, subject

autoClear

How long the alert will stay on the message board after its initial posting.

- **Defined on KBML Type:** Managed event
- **Type:** Number
- **Identifier:** event

bestName

DomainElements might have several different names, depending upon the type of DomainElement. "bestName" is based up the name that is considered to be the most identifying for that DomainElement while still attempting to be somewhat concise.

- **Defined on KBML Type:** Device, Db2Dbms, Db2ObjectUsage, Db2SqlStatement, Dbms, Device, Domain, DomainElement, DynamicDb2SqlStatement, SelfElement, Software, Sql, SqlStatement
- **Type:** String
- **Identifier:** subject

collectionId

The collection ID associated with the SQL statement.

- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
- **Type:** String

- **Identifier:** subject
- count** The count or numerator of the rate.
- **Defined on KBML Type:** Rate
 - **Type:** Number
- customName**
Not applicable to Query Monitor.
- datetime**
The initial time of the event, as a Date object.
- **Defined on KBML Type:** ManagedEvent
 - **Type:** Date
 - **Identifier:** event
- db2dbms**
The DB2 subsystem from which the alert was generated.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
 - **Type:** Db2Dbms
 - **Identifier:** subject
- db2Ssid**
The DB2 subsystem ID on which the alert for this SQL Statement was generated.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement
 - **Type:** String
 - **Identifier:** subject
- dbms** The DB2 subsystem from which the alert was generated.
- **Defined on KBML Type:** Db2SqlStatement, DynamicDb2SqlStatement, SqlStatement
 - **Type:** Dbms
 - **Identifier:** subject
- definitionName**
Not applicable to Query Monitor.
- displayName**
Same as event.type.
- **Defined on KBML Type:** ManagedEvent
 - **Type:** String
 - **Identifier:** event
- dnsName**
Not applicable to Query Monitor.
- domain**
Not applicable to Query Monitor.
- domainElement**
Any kind of 'thing' that can have an event about it: a Device, SqlStatement, Db2Dbms, Db2ObjectUsage.
- **Defined on KBML Type:** ManagedEvent
 - **Type:** DomainElement
 - **Identifier:** event

escalationRate

The rate at which the event will increase in priority if left unacknowledged.

- **Type:** String
- **Identifier:** event

id

The unique identifier of the alert. Can be used to build a URL to the message details. For example: `http://cqmdemo.rocketsoftware.com:443/webclient/messageDetails?id=${event.id}`

- **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*(totalIODelayTime/totalDelayTime)`

TotalLockDelayProblem:

The following variables are available for `#{event}`. for TotalLockDelayProblem event types:

totalLockDelayTime

(TimePeriod) `lockLatchDelayTime + claimReleaseDelayTime + drainLockDelayTime + pageLatchDelayTime`

lockDelayPercent

(Percent) `100*(totalLockDelayTime/totalDelayTime)`

KBML Functions

The following functions are available in actions

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:

```
http://<your_server>:443/webclient/messageDetails?id=${event.id}</your_server>
```

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 121. *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 122. *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+
_${subject.wsTran: " + subject.wsTran+
_${subject.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
```

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_DETCOST_TABLE OPTIMIZE FOR 1 ROW WITH UR

Backus-Naur Form (BNF) for KBML

The following details KBML grammar.

```
topLevelExpression
:      kbmlExpression EOF
|      appendExpression EOF
;

kbmlExpression
:      ifExpression
;

appendExpression
:      HASH LCURLY
      (      kbmlExpression ( COMMA kbmlExpression )*
      |
      )
      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"
                    |
                    "an"
                )
                IDENT
                (
                    "of" unaryExpression
                    |
                ) )
            |
            ( "in"
                (
                    ( "scope" STRING_LITERAL )
                    |
                    ( "subnet" ipAddress DIV NUM_INT
                )
            )
            |
            unaryExpression
        ) )
        |
        ( "one" "of" expressionList )
        |
        "bound"
        |
        ( IDENT "of" unaryExpression )
        |
        unaryExpression
    )
    |
    "starts" "with" unaryExpression
    |
    "ends" "with" unaryExpression
    |
    "matches" unaryExpression
    |
    "dsnMatches" unaryExpression
    |
    "has" unaryExpression
    |
    )
;
unaryExpression
:
    quantificationExpression
    |
    MINUS unaryExpression
    |
    LNOT unaryExpression
    |
    PLUS unaryExpression
    |
    attributeExpression
;
ipAddress
:
    IP_ADDRESS
;
expressionList
:
    LPAREN kbmlExpression ( COMMA kbmlExpression )* RPAREN
;
quantificationExpression
:
    "some" IDENT
    (
        IDENT
        |
    )
;
attributeExpression
:
    primaryExpression ( ( DOT
        |
        ( QUOTE

```

```

                                ( "s"
                                |
                                ) )
                                )
                                IDENT
                                ( argList
                                |
                                )
                                )*)
;
primaryExpression
:   constantExpression
|   function
|   LPAREN kbmlExpression RPAREN
;
argList
:   LPAREN RPAREN
|   expressionList
;
constantExpression
:   NUM_INT
|   NUM_LONG
|   NUM_FLOAT
|   IP_ADDRESS
|   STRING_LITERAL
|   "true"
|   "false"
;
function
:   ( "the"
    |
    )
    IDENT
    ( argList
    |
    )
;

```

Chapter 23. Loading DB2 Query Monitor data to DB2

DB2 Query Monitor enables you to load data from its VSAM files to a set of DB2 tables while maintaining uniqueness of the data across z/OS systems, DB2 subsystems, and DB2 Query Monitor subsystems.

After loading data from DB2 Query Monitor's VSAM files to DB2 tables, you can then perform SQL queries and create reports. You can use this feature to:

- Offload selected VSAM backstore data into DB2 tables
- Select intervals for offloading by relative interval or relative day
- Offload ranges of intervals or days
- Select the type of data to be off-loaded

Topics:

- "Requirements for the performance history database"
- "Considerations for offloading of more than one interval per run" on page 468
- "Uniqueness of off-loaded data" on page 468
- "Static SQL text" on page 472
- "Offload formats" on page 472
- "Components" on page 473
- "Configuring DB2 offload" on page 475
- "Syntax, parameters and required DDNAMEs" on page 475
- "Execution" on page 486
- "Foreign keys for joining tables" on page 486
- "Compatibility of offloaded data with IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS tables" on page 488
- "Recovery of offload tables" on page 488

Requirements for the performance history database

This topic describes the prerequisites for DB2 Query Monitor's performance history database.

DB2 requirements

DB2 Query Monitor's performance history database requires DB2 Version 10 or later.

Encoding requirements

The tables in the performance history database are designed to be used in JOINS with other performance history database tables or with DB2 Catalog tables.

The tables in the performance history database do not have a defined codeset. The table spaces in the performance history database are defined in EBCDIC with the exception of the three text table spaces, which are defined in UNICODE.

Note:

- CQMDDL does not support ASCII encoding.
- The encoding scheme for the three text table spaces must be EBCDIC (not UNICODE) when using IBM DB2 Analytics Accelerator for z/OS.

Conversion services must be in place to convert between EBCDIC (CCSID 0500) and UNICODE (CCSID 1208). You must define a path from the CCSID of the collected SQL text to CCSID 1208. DB2 Query Monitor does not support the changing of encoding schemes in the supplied DDL files.

Other considerations

The TEXT_TIMESTAMP column in SYSTOOLS.CQM_SUMM_TEXT is reserved for internal use only.

Considerations for offloading of more than one interval per run

DB2 Query Monitor's offload process closes the performance history file at the end of each interval offload. If you offload multiple intervals, DB2 Query Monitor closes the performance history file and reopens it with extend between each interval.

If you are offloading more than one interval per run, it is recommended that you customize the CQM@LDB2 sample with a larger secondary quantity or without the RLSE option.

Uniqueness of off-loaded data

All data in DB2 Query Monitor is stored on an interval based, so if you can uniquely identify an interval across z/OS systems, DB2 Query Monitor subsystems, and DB2 subsystems, and you can relate all other tables to the interval table, you can guarantee data uniqueness.

To ensure uniqueness of offloaded data for multiple DB2 Query Monitor subsystems or multiple z/OS systems, the following are required:

- SMFID (SMFID)
- DB2 Query Monitor subsystem ID (CQM_SUBSYSTEM)

To ensure uniqueness of offloaded data for a single z/OS system, the following is required:

- DB2 subsystem ID (DB2_SUBSYSTEM)

DB2 Query Monitor uses one interval record for each interval, regardless of the number of DB2 subsystems that are monitored. To ensure uniqueness, the offload program expands the interval record and generates an interval record for each interval by DB2 subsystem. For example, if DB2 Query Monitor monitors three DB2 subsystems during an interval, the offload creates three rows in the interval table even though only one record exists in the performance history file.

Parent tables have definitions for the following columns:

- SMFID
- CQM_SUBSYSTEM
- DB2_SUBSYSTEM

Child tables lack the following columns:

- DB2_SUBSYSTEM

Table descriptions

SCQMSAMP member CQMINDEX identifies the columns in the child tables that relate them to their parent table.

CQM32_INTERVALS

The CQM32_INTERVALS table defines the start and end times of each interval. The CQM32_INTERVALS table is related to all other tables and is at the top of the hierarchy.

The following columns in the CQM32_INTERVALS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_VERSION
- CQM_VERSION

The CQM_INTERVALS table is the parent of the following tables:

- CQM_SUMM_METRICS
- CQM_EXCEPTIONS
- CQM_DB2_COMMANDS
- CQM_SQLCODES

CQM32_SUMM_METRICS

The CQM32_SUMM_METRICS table contains metrics collected by DB2 Query Monitor.

The following columns in the CQM32_SUMM_METRICS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_SUBSYSTEM
- DB2_VERSION
- METRICS_TOKEN

The CQM32_SUMM_METRICS table is the parent of the CQM32_SUMM* tables, which include:

CQM32_SUMM_OBJECTS

The CQM32_SUMM_OBJECTS table contains summary information about objects.

The following columns in the CQM32_SUMM_OBJECTS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START

- METRICS_TOKEN

CQM32_SUMM_TEXT

The CQM32_SUMM_TEXT table contains summary information about SQL text.

The following columns in the CQM32_SUMM_TEXT table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- TEXT_TOKEN

CQM32_EXCEPTIONS

The CQM32_EXCEPTIONS table holds information about exceptions, based on the active monitoring profile.

The following columns in the CQM32_EXCEPTIONS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_SUBSYSTEM
- DB2_VERSION
- EXCEPTION_TOKEN

The CQM32_EXCEPTIONS table is the parent of the CQM_EXCP* tables, which include:

CQM32_EXCP_CALLS

The CQM32_EXCP_CALLS table contains information about the exceptions statement detail for exceptions.

The following columns in the CQM32_EXCP_CALLS table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- EXCEPTION_TOKEN

CQM32_EXCP_HOSTV

The CQM32_EXCP_HOSTV table contains information about the host variables for exceptions.

The following columns in the CQM32_EXCP_HOSTV table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- EXCEPTION_TOKEN

CQM32_EXCP_OBJ

The CQM32_EXCP_OBJ table contains information about objects for exceptions.

The following columns in the CQM32_EXCP_OBJ table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- EXCEPTION_TOKEN

CQM32_EXCP_TEXT

The CQM32_EXCP_TEXT table contains SQL text for exceptions.

The following columns in the CQM32_EXCP_TEXT table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- TEXT_TOKEN

CQM32_DB2_COMMANDS

The CQM32_DB2_COMMANDS table contains information about DB2 commands.

The set of values required to define a unique index for the CQM32_DB2_COMMANDS table include:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_SUBSYSTEM
- DB2_VERSION
- COMMAND_TIMESTAMP

The CQM32_DB2_COMMANDS table has no children.

CQM32_SQLCODES

The CQM32_SQLCODES table contains information about negative SQLCODES collected for a monitored DB2.

The set of values required to define a unique index for the CQM32_SQLCODES table include:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_SUBSYSTEM
- DB2_VERSION
- SQLCODE

The CQM32_SQLCODES table is the parent of the CQM_SQLCODES* tables, which include:

CQM32_SQLCODE_DET

The CQM32_SQLCODE_DET table contains detailed information about negative SQLCODES.

The following columns in the CQM32_SQLCODE_DET table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- DB2_SUBSYSTEM
- DB2_VERSION
- SQLCODE

CQM32_SQLCODE_TEXT

The CQM32_SQLCODE_TEXT table contains information about the SQL text.

The following columns in the CQM32_SQLCODE_TEXT table are used to define a unique index:

- SMFID
- CQM_SUBSYSTEM
- INTERVAL_NUMBER
- INTERVAL_START
- TEXT_TOKEN

Loading from multiple DB2 Query Monitor subsystems into a single target performance history database

To load data from multiple DB2 Query Monitor subsystems into a single target performance history database, you must manually unload the INTERVALS table for each and load them to the single performance history database. Run CQM@WDB2 to create the load files for all the other tables. CQM@WDB2 does not create the INTERVALS table (which provides uniqueness across DB2 QM subsystems).

Static SQL text

This topic provides information about how static SQL text is handled by DB2 Query Monitor.

Static SQL is not duplicated to the performance history files. Static SQL text is stored in the DB2 System Catalog tables and can be retrieved from there with a SQL statement.

Note: Static SQL and its associated metrics are offloaded, but DB2 Query Monitor never gathers the SQL text for the statement itself in any part of its processing.

Offload formats

This topic describes the offload formats.

All data is in DB2 UNLOAD format with the exception of SQL text data except when the target is IBM DB2 Analytics Accelerator for z/OS. The IBM DB2 Analytics Accelerator for z/OS default offload format is LOAD format.

SQL text data is placed in files to be processed by the DSNUTILB program. The files that hold SQL text data are specified in CQM@LDB2 in the TEXTDATA, EXCPTEXT, and SQLCTEXT DD statements.

Note: All elapsed times and CPU times (defined in CQMDDL) are off-loaded in decimal format.

Components

The DB2 offload feature encompasses the following sample jobs, DDL, programs and other components.

Sample DDL and jobs

CQMDDL

SCQMSAMP library member CQMDDL contains the DDL to create the performance history database objects to which off-loaded DB2 Query Monitor performance history files are loaded.

CQMDDLST

Creates the performance history database objects for DB2 Query Monitor statement types and descriptions.

CQMGRTB

GRANT statements used to grant privileges to authorization IDs that access the DB2 tables used for off-loaded DB2 Query Monitor data.

CQMCRDB

DDL to create the CQMTOOLS database.

CQMDROP

Drops the CQMTOOLS database. Run this only if you want to re-create the DB2 Query Monitor objects.

Note: If you want to drop the CQMTOOLS database, you must uncomment the DROP DATABASE command in this member and comment out all of the DROP TABLESPACE commands. Before dropping the CQMTOOLS database, you should be aware that such action will affect other DB2 tools that use this database. Verify that dropping the CQMTOOLS database will not adversely affect any other DB2 tools at your site that you do not intend to affect by this action.

CQM@LDB2

Runs the CQM@WDB2 (the DB2 Query Monitor data offload program).

The CQM@LDB2 job is provided as an example. You must edit this job to suit your needs. In the example we ship with the REPLACE STATISTICS parameter which is passed to the DB2 LOAD utility. You might want to use the RESUME parameter so the data is appended in the offload tables.

The load statements for the tables containing SQL text are built with the RESUME parameter to be in agreement with the CQM@ITXT program. If any large SQL text are collected they will be inserted into the text tables via CQM@ITXT, this work would be undone if the rest of the table was loaded with the REPLACE parameter. If you want the same functionality as the REPLACE, insert a DSNTEP2 step before the CQM@ITXT step to

DELETE from the SQL TEXT tables. This empties the tables before CQM@ITXT and the DB2 load utility loads any SQL texts. You can also add a RUNSTATS step to the end of the job for the SQL text tables.

Note: 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.

Programs

CQM@LSTM

Updates the statement type table. The inputs to the CQM@LSTM program are updated via the PTF maintenance stream as IBM adds additional SQL statement types.

Note: The CQM@LSTM program might have to be run again if IBM adds additional statement types to DB2.

CQM@ITXT

Processes SQL text records longer than 32,000 characters. This program also determines whether the SQL text data is kept or deleted.

CQM@WDB2

The DB2 Query Monitor data offload program. This program verifies that all of DB2 Query Monitor's DB2 tables exist in the DB2 catalog with the proper columns names and types. The CQM@LSTM program verifies that the statement type table exists but does not perform verification of the columns within the statement type table. If a space error is encountered on any of the output data sets for the CQM@WDB2 program, a return code will be generated. Data will still be off-loaded for other data types regardless of the out-of-space condition.

Other components

CQMINDEX

Indexes for DB2 Query Monitor tables that is available to you to help optimize performance of the queries you run against the DB2 offload tables. Identifies the relationships between the offload tables and shows the sets of columns that together create unique indexes.

Note: Your site might want to define your tables and run some queries to identify performance optimization needs prior to using this set of indexes. You might want to then edit this member prior to execution to ensure the defined indexes are suited for your requirements.

CQMCOMM

Describes DB2 Query Monitor fields as comments in the DB2 catalog.

CQMLOADP

A DD statement within CQM@LDB2 and CQM@LSTM. The CQMLOADP DD refers to an instream data file that contains the parameters controlling the loading of DB2 Query Monitor data to DB2.

Configuring DB2 offload

This topic describes the configure steps necessary for loading DB2 Query Monitor data to DB2.

About this task

Prior to loading DB2 Query Monitor data to DB2 for the first time, you must perform these configuration steps.

Procedure

1. Define the CQMTOOLS database. If your site currently does not have a CQMTOOLS database, tailor and run CQMCRDB if your site currently does not have a CQMTOOLS database. If your site already has a CQMTOOLS database defined, you do not have to tailor and run CQMCRDB.
2. Define the DB2 tables. After you have created the CQMTOOLS database (or verified that one already exists), tailor and run the CQMDDL member of the SCQMSAMP library. Follow the instructions provided in the member. Tailor and run SCQMSAMP library member CQMDDLST according to the instructions provided in the member.
3. (Optional) Define the indexes. You can optionally define indexes for the tables for optimization purposes. SCQMSAMP library member CQMINDEX provides sample DDL to define the indexes. Edit and run CQMINDEX according to the instructions provided in the member. The SCQMSAMP library member CQMINDEX is provided for informational purposes to give you a general idea of the key fields for each table. However, depending on the types of queries issued against these tables, you might find it necessary to modify these indexes to improve performance. This step can be performed at any time though it might prove resource costly.
4. Rebind the CQM plan. Tailor and run CQMBIND from the SCQMSAMP library, following the instructions provided within the member.
5. Grant privileges to authorization IDs. Run SCQMSAMP library member CQMGRTB to grant the appropriate privileges to authorization IDs that access DB2 Query Monitor's DB2 tables.
6. Define the parameters. Tailor the parameters in the instream data file referenced by the CQMLOADP DD in SCQMSAMP member CQM@LDB2 as needed to meet your site's requirements. If you make changes to the table names or creator used in CQMDDL, you must also make corresponding changes to the parameters that are input to the CQM@WDB2, CQM@LSTM, and CQM@ITXT programs.

Syntax, parameters and required DDNAMEs

The process of loading Query Monitor data to DB2 uses parameters to define the intervals and data that are to be off-loaded as well as whether or not existing data is deleted from DB2 tables prior to loading new data.

These parameters are defined in an instream data file referenced by the CQMLOADP DD statement in CQM@LDB2.

Note: These parameters control the loading of DB2 Query Monitor data to DB2.

- **Interval selection**-Interval selection is controlled by the STARTING_INTERVAL, ENDING_INTERVAL, and INTERVAL_UNITS parameters and enables you to select the starting and ending intervals as well as the interval units to be off-loaded.
- **Data selection**-Data selection is controlled by the DATA parameter and enables you to select specific data types for offloading including summary metrics, summary objects, summary SQL text, exceptions, negative SQLCODEs, DB2 commands.
- **Replacing or retaining existing data in DB2 tables**-The LOAD parameter enables you to control whether or not existing data is deleted from DB2 tables prior to loading new data.

DB2 offload syntax

When coding the parameters in the instream file referenced by the CQMLOADP DD statement in SCQMSAMP library member CQM@LDB2, note the following:

- Parameters must be coded in uppercase with the exception of the table names and creator names which can be in upper, lower or mixed-case.
- Code one parameter per line. Two or more parameter types cannot exist on the same line. For example the following is not permitted on the same line:
TBCREATOR(CQM) EXCEPTIONS_TBNAME(EXCEPTIONS_V2)
- Data following the parameter specification on a line is treated as comments. For example:
LOAD(RESUME) Load Resume
- Data exceeding the LRECL of the CQMLOADP DD can be continued on a subsequent line. An LRECL value of 80 requires parameter data to be 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

DB2 offload parameters

These parameters are supported for the process of loading of Query Monitor data to DB2:

CQM_SUBSYSTEM

(Optional) The source DB2 Query Monitor subsystem from which to offload data. This parameter is only valid for the CQM@WDB2 program.

Default

DBQM

Syntax

CQM_SUBSYSTEM(*qmid*)

qmid The DB2 Query Monitor subsystem from which you want to offload data.

Example

CQM_SUBSYSTEM(QM01)

COMMIT

(Optional) The COMMIT parameter enables you to specify the number of

records to be inserted before each commit. This parameter is only valid for STEP2 of the SCQMSAMP library member CQM@LDB2 program ITXT. This parameter is not included in the SCQMSAMP member and it must be added if needed. For a restart, the LOAD parameter must be set to RESUME (the default is REPLACE). You must indicate a restart by setting LOAD to RESUME.

Default

0

Syntax

COMMIT(*n*)

n The number of records to be inserted before each commit.

Range 0 - 9999

Example

COMMIT(100)

DATA

(Optional) Indicates the data types that are to be loaded to DB2 tables.

Default

METRICS,DB2CMDS,SQLCODES,EXCEPTIONS,OBJECTS,SQLTEXT,INTERVALS

Syntax

DATA(*datatype1,datatype2,datatype2...*)

datatype_n

The data types that are to be loaded to DB2 tables. Data types include:

METRICS

Loads data that was unloaded from the METRDATA performance history file (which contains summary level information related to SQL call execution).

OBJECTS

Loads data that was unloaded from the OBJSDATA performance history file (which contains summary object level data).

SQLTEXT

Loads data that was unloaded from the TEXTDATA performance history file (which contains information about summary level SQL text data).

EXCEPTIONS

Loads data that was unloaded from the EXCPINDX and EXCPDATA performance history file (which contains information related to exception SQL calls, text, SQLCA, and host variables).

SQLCODES

Loads data that was unloaded from the SQLCDATA performance history file (which contains information about negative SQLCODES collected during the course of an interval).

DB2CMDS

Loads data that was unloaded from the DB2CDATA

performance history file (which contains information about the execution of DB2 commands).

INTERVALS

Loads data that was unloaded from the INTERVALS performance history file (which contains information about DB2 Query Monitor's intervals).

Example

```
DATA(METRICS,DB2CMDS,SQLCODES,EXCEPTIONS,OBJECTS,SQLTEXT,INTERVALS)
```

DB2_COMMANDS_TBNAME

(Optional) Overrides the default DB2 commands table name. This parameter is valid only for the CQM@WDB2 program.

Default

CQM32_DB2_COMMANDS

Syntax

```
DB2_COMMANDS_TBNAME(tname)
```

tname

The overriding table name for the DB2 commands table.

Example

```
DB2_COMMANDS_TBNAME(CQM32_DB2_CMD)
```

DB2_SUBSYSTEM

(Optional) The target DB2 subsystem.

Default

DSN

Syntax

```
DB2_SUBSYSTEM(ssid)
```

ssid The DB2 subsystem ID.

Example

```
DB2_SUBSYSTEM(SS01)
```

DEBUG

(Optional) Turns on or off additional debugging. This parameter is for IBM internal use only. It is valid only for the CQM@WDB2 and CQM@ITXT programs.

Default

N

Syntax

```
DEBUG(Y|N)
```

Y Debugging is on.

N Debugging is off.

Example

```
DEBUG(Y)
```

DISALLOW_DUPLICATE_INTERVAL

(Optional) Indicates whether or not to treat a -803 on the interval table as a fatal error and cause the offload to fail.

Default

N

Syntax

DISALLOW_DUPLICATE_INTERVAL(Y|N)

- Y** Treats an SQLCODE -803 on the interval table as a fatal error and the offload fails. If you specify DISALLOW_DUPLICATE_INTERVAL(Y), you must delete any partial interval data that might have been loaded in an offload job and failed during an prior offload
- N** (Default) The offload ignores SQLCODE -803 on the interval table since it is assumed that the offload might have failed in a prior attempt

Example

DISALLOW_DUPLICATE_INTERVAL(Y)

ENDING_INTERVAL

(Optional) The ending point (relative to the current interval, current day, or an absolute interval number) for the data that are to be loaded into DB2 tables.

Default

-1

Range -99999 to -1

Syntax

ENDING_INTERVAL(*n*)

- n* A negative integer that corresponds to the number of units (intervals or days, depending on what you specify via the INTERVAL_UNITS parameter) prior to the current interval at which point you want to end the offloading of data to DB2 tables. Only negative integers are acceptable values because Query Monitor does not support the offloading of the current interval.

Example - INTERVAL_UNITS(DAYS), STARTING_INTERVAL(-1)

ENDING_INTERVAL(-5)

EXCEPTION_CALLS_TBNAME

(Optional) Overrides the default exception call level detail table name. This parameter is valid only for the CQM@WDB2 program.

Default

CQM32_EXCP_CALLS

Syntax

EXCEPTION_CALLS_TBNAME(*tbname*)

tbname

The table name for the exception call-level detail table (the table that contains information related to exception SQL calls)

Example

EXCEPTION_CALLS_TBNAME(CQM32_EXC_CALLS)

EXCEPTION_HOSTV_TBNAME

(Optional) Overrides the default exception host variable table name. This parameter is valid only for the CQM@WDB2 program.

Default

CQM32_EXCP_HOSTV

Syntax

EXCEPTION_HOSTV_TBNAME(*tbnname*)

tbnname

The overriding table name for the exception host variable table (the table that contains information about host variables for exceptions). The host variable information resides in the EXCPDATA backstore data set.

Example

EXCEPTION_HOSTV_TBNAME(CQM32_EXC_HOSTV)

EXCEPTION_OBJS_TBNAME

(Optional) Overrides the default exception objects table name. This parameter is valid only for the CQM@WDB2 program.

Default

CQM32_EXCP_OBJS

Syntax

EXCEPTION_OBJS_TBNAME(*tbnname*)

tbnname

The overriding table name for the exception objects table (the table that contains information about object exceptions).

Example

EXCEPTION_OBJS_TBNAME(CQM32_EXC_OBJS)

EXCEPTION_TEXT_TBNAME

(Optional) Overrides the default exception SQL text table name. This parameter is valid only for the CQM@WDB2 and CQM@ITXT programs.

Default

CQM32_EXCP_TEXT

Syntax

EXCEPTION_TEXT_TBNAME(*tbnname*)

tbnname

The overriding table name for the exception SQL text table (the table that holds information about exceptional SQL text).

Example

EXCEPTION_TEXT_TBNAME(CQM32_EXC_TEXT)

EXCEPTIONS_TBNAME

(Optional) Overrides the default exception table name. This parameter is valid only for the CQM@WDB2 program.

Default

CQM32_EXCEPTIONS

Syntax

EXCEPTIONS_TBNAME(*tbnname*)

tbnname

The overriding table name for the exception table.

Example

EXCEPTIONS_TBNAME(CQM32_EXCPTS)

INTERVAL_UNITS

(Optional) The method by which intervals are selected for offloading. The INTERVAL_UNITS parameter works with the STARTING_INTERVAL and

ENDING_INTERVAL parameters to define the method and range of intervals to be offloaded. If you specify INTERVAL_UNIT(DAYS), DB2 Query Monitor only considers the interval start date/time (not the interval end date/time) when determining whether or not the interval is to be included in the offload. Thus, every interval that starts between the computed offload start date and offload end date is offloaded, regardless of when the intervals end.

Default

INTERVALS

Syntax

INTERVAL_UNITS(INTERVALS | DAYS)

INTERVALS

Offload all intervals within the specified range of intervals (defined by the STARTING_INTERVAL and ENDING_INTERVAL parameters).

DAYS Offload all intervals that started within the specified range of days (defined by the STARTING_INTERVAL and ENDING_INTERVAL parameters).

Example

If INTERVAL_UNITS(DAYS) is specified with STARTING_INTERVAL(-1) and ENDING_INTERVAL(-1), this causes all intervals that have started between midnight of the previous day and midnight of the day before to be offloaded.

INTERVAL_TBNAME

Required: No

Default: CQM32_INTERVALS

Description: Overrides the default intervals table name. This parameter is valid only for the CQM@WDB2 program.

Syntax:

INTERVALS_TBNAME(*tname*)

Where *tname* is the overriding table name for the intervals table.

Example:

INTERVALS_TBNAME(CQM32_INTV)

LOAD

(Required) Indicates whether or not existing data is deleted from performance history database prior to loading new data and whether or not statistics are collected during the DB2 LOAD.

Default

REPLACE

Syntax

LOAD(REPLACE | RESUME,STATISTICS)

REPLACE

Performs the LOADs in REPLACE mode.

RESUME

Performs the LOADs in RESUME mode.

STATISTICS

The STATISTICS clause is only specified when performing the

DB2 LOAD in REPLACE mode. Adds the following load card to the DB2 Load Utility control file:

```
STATISTICS TABLE(ALL) INDEX(ALL)
```

This generates the statistics as described in the *DB2 Utilities Suite for z/OS Utility Guide and Reference* (SC18-7427). Index statistics are collected when any user-defined indexes have been added to the performance history schema.

Example

LOAD(RESUME)

By specifying LOAD(RESUME), the load cards are built as follows:

```
LOAD INDDN METRDATA FORMAT UNLOAD RESUME  
YES ENFORCE NO INTO TABLE "x"."yz" LOG NO
```

The load sets the objects to copy pending, necessitating additional action by the user. NOCOPYPEND should be an accepted option for the LOAD parameter.

METRICS_TBNAME

(Optional) Overrides the default summary metrics table name. This parameter is valid only for the CQM@WDB2 program.

Default

CQM32_SUMM_METRICS

Syntax

METRICS_TBNAME(*tbname*)

tbname

The overriding table name for the summary metrics table.

Example

```
METRICS_TBNAME(CQM32_SUM_METRICS)
```

NO_DATA_RC

(Optional) The user return code that is issued when an empty backstore interval condition occurs.

Default

08

Range 0 - 4095

Syntax

NO_DATA_RC(*rc*)

rc The return code that is to be issued when an empty backstore interval condition occurs.

Example

```
NO_DATA_RC(12)
```

OBJECTS_TBNAME

(Optional) Overrides the default summary object table name. This parameter is valid only for the CQM@WDB2 program.

Default

CQM32_SUMM_OBJECTS

Syntax

OBJECTS_TBNAME(*tbname*)

tbname

The overriding table name for the summary object table.

Example

OBJECTS_TBNAME(CQM32_SUM_OBJS)

SQLCODE_DETAIL_TBNAME

(Optional) Overrides the default summary SQLCODE detail table name. This parameter is valid only for the CQM@WDB2 program.

Default

CQM32_SQLCODE_DET

Syntax

SQLCODE_DETAIL_TBNAME(*tbname*)

tbname

The overriding table name for the summary SQLCODE table.

Example

SQLCODE_DETAIL_TBNAME(CQM32_SQLC_DET)

SQLCODE_TEXT_TBNAME

(Optional) Overrides the default SQLCODE SQL text table name. This parameter is valid only for the CQM@ITXT program.

Default

CQM32_SQLCODE_TEXT

Syntax

SQLCODE_TEXT_TBNAME(*tbname*)

tbname

The overriding table name for the summary SQLCODE SQL text table.

Example

SQLCODE_TEXT_TBNAME(CQM32_SQLC_TEXT)

SQLCODES_TBNAME

(Optional) Overrides the default summary SQLCODE table name. This parameter is valid only for the CQM@ITXT program.

Default

CQM32_SQLCODES

Syntax

SQLCODES_TBNAME(*tbname*)

tbname

The overriding table name for the summary SQLCODE SQL text table.

Example

SQLCODES_TBNAME(CQM32_SQLC)

SQLTEXT_TBNAME

(Optional) Overrides the default summary SQL text table name. This parameter is valid only for the CQM@ITXT program.

Default

CQM32_SUMM_TEXT

Syntax

SQLTEXT_TBNAME(*tbname*)

tbname

The overriding table name for the summary SQL text table.

Example

SQLTEXT_TBNAME(CQM32_SUMM_TXT)

STARTING_INTERVAL

(Optional) The starting point (relative to the current interval, current day, or an absolute interval number) for the data that are to be loaded into DB2 tables.

Default

-1

Range -99999 to 99999 (except 0)

Syntax

STARTING_INTERVAL(*n*)

n A negative integer that corresponds to the number of units (intervals or days, depending on what you specify via the INTERVAL_UNITS parameter) prior to the current interval at which point you want to start the offloading of data to DB2 tables. Only negative integers are acceptable values because Query Monitor does not support the offloading of the current interval.

Example - INTERVAL_UNITS(DAYS), ENDING_INTERVAL(-5)

STARTING_INTERVAL(-2)

STATEMENT_TYPE_TBNAME

(Optional) Overrides the default statement types table name. This parameter is valid only for the CQM@LSTM program.

Default

CQM32_STMT_TYPES

Syntax

STATEMENT_TYPE_TBNAME(*tbname*)

tbname

The overriding table name for the statement types table.

Example

STATEMENT_TYPE_TBNAME(CQM32_STMT_TYP)

TBCREATOR

(Optional) Overrides the default schema for the DB2 tables.

Default

SYSTOOLS

Syntax

TBCREATOR(*creator*)

creator

The 1 to 8 character schema name.

Example

TBCREATOR(SYST)

Required DDNAMEs

The following are required DDNAMEs:

CQM@WDB2

- CQMLOADP – Input parameters to CQM@WDB2 program.
- CQMERROR DD – This DD statement is required when the following error message is produced in the output of the offload job: CQM2604E VSAM LOGIC ERROR VSAMRC=X'08' VSAMRS=X'002C' CQM#IVSM(***). The offload writes the message “SQL text not available” to the CQMERROR file instead of issuing message CQM2604E to the offload job log.

Note: Other instances of message CQM2604E might be present (for example CQM2604E VSAM LOGIC ERROR VSAMRC=X'08' VSAMRS=X'0010' CQM#IVSM(nnnnn)).

When there is message to be written and the CQMERROR DD statement is not specified in the JCL, the offload sets the RC=04 and issues the following message: CQM1006E CQMERROR DD STATEMENT MISSING

- DB2PARMS – DB2 connection information. STEPLIB data, plan names. Support connection to DB2 by CQM@WDB2 program.
- METRDATA – Required only if DATA(METRICS) is specified in CQMLOADP, input to DB2 LOAD utility program.
- OBJSDATA – Required only if DATA(OBJECTS) is specified in CQMLOADP, input to DB2 LOAD utility program.
- TEXTDATA – Required only if DATA(SQLTEXT) is specified in CQMLOADP, input to CQM@ITXT program.
- EXCPINDEX – Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to DB2 LOAD utility program.
- EXCPCALL – Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to DB2 LOAD utility program.
- EXCPHSTV – Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to DB2 LOAD utility program.
- EXCPOBJS – Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to DB2 LOAD utility program.
- EXCPTTEXT – Required only if DATA(EXCEPTIONS) is specified in CQMLOADP, input to CQM@ITXT program.
- DB2CDATA – Required only if DATA(DB2CMDs) is specified in CQMLOADP, input to DB2 LOAD utility program.
- SQLCDATA – Required only if DATA(SQLCODES) is specified in CQMLOADP, input to DB2 LOAD utility program.
- SQLCTEXT – Required only if DATA(SQLCODES) is specified in CQMLOADP, input to CQM@ITXT program.
- LOADCARD – Generated load cards for input to DB2 LOAD utility.
- SQLCCLOB – SQLCODE text
- TEXTCLOB – Regular SQL text
- EXCPCLOB – Exception SQL text over 32K
- SQLDDATA

CQM@ITXT

- CQMLOADP – Input parameters to CQM@ITXT program.
- DB2PARMS – DB2 connection information. STEPLIB data, plan names. Supports connection to DB2 by CQM@ITXT program.
- TEXTDATA – Required only if loading of summary SQL text data is desired. If DD statement is not present no summary SQL text data will be loaded.

- EXCPTEXT – Required only if loading of exception SQL text data is desired. If DD statement is not present, no exception SQL text data will be loaded.
- SQLCTEXT – Required only if loading of SQLCODE detail SQL text data is desired. If DD statement is not present, no SQLCODE SQL text data will be inserted.

CQM@LSTM

- CQMLOADP – Input parameters to CQM@LSTM program.
- DB2PARMS – DB2 connection information. STEPLIB data, plan names. Support connection to DB2 by CQM@LSTM program.

Execution

To offload data from the DB2 Query Monitor VSAM backstore data sets and load it into DB2 tables, you must perform these steps:

Procedure

1. Load the statement type table.

Note: This step only needs to be performed when loading DB2 Query Monitor data to DB2 for the first time or when SQL statement types have been added or removed. If you are loading DB2 Query Monitor data to DB2 for the first time or SQL statement types must be added to or removed from the statement type table (CQM32_STMT_TYPES), you must tailor and run SCQMSAMP library member CQM@LSTM according to the instructions provided within the member.

2. Load the DB2 tables.
 - a. Tailor SCQMSAMP library member CQM@LDB2 according to the instructions provided within the member.
 - b. Run CQM@LDB2.
3. (Optional) Add table and column comments describing the performance history database into the system catalog. Tailor and run SCQMSAMP library member CQMCOMM according to the instructions provided in the member.

Foreign keys for joining tables

The following foreign keys should be used when joining tables.

When performing joins of the CQM32_SUMM_METRICS and CQM32_SUMM_TEXT tables, the primary keys for those tables are TEXT_TOKEN and TEXT_TOKEN respectively.

Note: The TEXT_TIMESTAMP column in SYSTOOLS.CQM**_SUMM_TEXT is reserved for internal use only (note that ** in the SUMM_TEXT table name varies based on the version/release of the product).

```
--SELECT COUNT (*) FROM SYSTOOLS .CQM32_SUMM_METRICS A,
--      SYSTOOLS .CQM32_SUMM_TEXT B
--WHERE A.TEXT_TOKEN = B.TEXT_TOKEN ;
```

When performing joins of the CQM32_EXCEPTIONS and CQM32_EXCP_TEXT tables, the primary keys for those tables are EXCEPTION_TIMESTAMP and TEXT_TIMESTAMP respectively:

```
--SELECT COUNT(*) FROM SYSTOOLS .CQM32_EXCEPTIONS A,
--      SYSTOOLS .CQM32_EXCP_TEXT B
--WHERE A.EXCEPTION_TIMESTAMP = B.TEXT_TIMESTAMP;
```

CQM32_SQLCODE_DET and CQM32_SQLCODE_TEXT are joined with the SQLCODE_TIMESTAMP in the detail table and the TEXT_TIMESTAMP in the SQLCODE text table if the text token is not 0 (indicating dynamic text). If the text token is 0 (indicating static text), you can retrieve the text from the DB2 Catalog as follows:

```
--SELECT TEXT
--      ,SEQNO
-- FROM SYSIBM.SYSSTMT
-- WHERE NAME = program
-- AND PLNAME = plan
-- AND SECTNO = section number
-- AND STMTNO = statement number;
```

Note:

1. The lower case values can be extracted from the exceptions table or the SQLCODE detail table.
2. If the text token is all X'FF', then OPTKEYS TEXT is not specified and DB2 Query Monitor will not store the dynamic text.

When performing joins of the CQM32_EXCP_HOSTV and CQM32_EXCEPTIONS tables, the primary keys for those tables are EXCEPTION_TOKEN and EXCEPTION_TOKEN respectively:

```
--SELECT COUNT(*) FROM SYSTOOLS .CQM32_EXCP_HOSTV A,
--      SYSTOOLS .CQM32_EXCEPTIONS B
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

When performing joins of the CQM32_EXCP_CALLS and CQM32_EXCEPTIONS tables, the primary keys for those tables are EXCEPTION_TOKEN and EXCEPTION_TOKEN respectively:

```
--SELECT * FROM SYSTOOLS .CQM32_EXCP_CALLS A,
--      SYSTOOLS .CQM32_EXCEPTIONS B
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

When performing joins of the CQM32_EXCP_OBJS and CQM32_EXCEPTIONS tables, the primary keys for those tables are EXCEPTION_TOKEN and EXCEPTION_TOKEN respectively:

```
--SELECT * FROM SYSTOOLS .CQM32_EXCP_OBJS A,
--      SYSTOOLS .CQM32_EXCEPTIONS B
--WHERE A.EXCEPTION_TOKEN = B.EXCEPTION_TOKEN;
```

When performing joins of the CQM32_SUMM_METRICS and CQM32_SUMM_OBJECTS tables, the primary keys for those tables are METRICS_TOKEN and METRICS_TOKEN respectively:

```
--SELECT * FROM SYSTOOLS .CQM32_SUMM_METRICS A,
--      SYSTOOLS .CQM32_SUMM_OBJECTS B
--WHERE A.METRICS_TOKEN = B.METRICS_TOKEN;
```

Compatibility of offloaded data with IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS tables

DB2 Query Monitor's offload tables include a column, CLIENT_ENDUSER, that is a 128-byte field that enables the data offloaded in that column (from Query Monitor) to be easily joined with data in IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS tables.

Recovery of offload tables

The DB2 Query Monitor DB2 offload tables are standard SQL tables and should be recovered using your site's standard recovery procedures.

Repository tables and column descriptions

The following sections describe the DB2 Query Monitor repository tables and the columns they contain.

CQM32_INTERVALS

The CQM32_INTERVALS table defines the start and end times of each interval. This table is uniquely identified by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and CQM_VERSION.

SMFID

The MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

DB2_SUBSYSTEM

The DB2 subsystem that generated the data associated with this interval.

DB2_VERSION

A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

CQM_VERSION

The version of DB2 Query Monitor.

INTERVAL_END

The timestamp of the end time.

OPTKEYS_AUTHIDS

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(AUTHID) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_TEXT

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(TEXT) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_CORRID

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(CORRID) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_WSUSER

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(WSUSER) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_WSNAME

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(WSNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_WSTRAN

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(WSTRAN) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_CALLS

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(CALLS) parameter in CQMPARMS when OPTKEYS is set to Y.

OPTKEYS_CORRNAME

Indicates whether or not DB2 Query Monitor overrides the OPTKEYS(CORRNAME) parameter in CQMPARMS when OPTKEYS is set to Y.

DB2_GROUP_NAME

The DB2 data sharing group name.

DB2_VERSION_LONG

A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

CQM32_SUMM_METRICS

The CQM32_SUMM_METRICS table contains metrics data collected by DB2 Query Monitor. This table is uniquely identified by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, and DB2_VERSION.

SMFID

The MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

DB2_SUBSYSTEM

The DB2 subsystem that generated the data associated with this interval.

DB2_VERSION

A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

METRICS_TOKEN
The metrics token.

METRICS_TIMESTAMP
The metrics timestamp.

TEXT_TOKEN
The text token.

CONSISTENCY_TOKEN
The hexadecimal value of the consistency token.

PLAN The DB2 plan name.

COLLECTION
The collection name.

PROGRAM
The DB2 package or DBRM name.

SECTION
The section number.

STMT The statement number assigned by the pre-compiler.

TYPE The key to the STATEMENT_DESC table to find type of statement such as OPEN, FETCH, etc.

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 workload name.

DECLARE_STMT_NUM
The number assigned by the PRECOMPILER to declare statements.

DB2_CPU
The total CPU time an SQL call spent in DB2, in seconds.

DB2_ELAPSED
The total elapsed time an SQL call spent in DB2, in seconds.

SQL_CALLS
The total number of SQL calls.

TRG_DB2_ELAPSED
The accumulated trigger DB2 elapsed time, in seconds.

TRG_DB2_CPU
The accumulated trigger DB2 CPU time, in seconds.

UDF_APP_ELAPSED

The accumulated UDF application elapsed time, in seconds.

UDF_APP_CPU

The accumulated UDF application CPU time, in seconds.

UDF_DB2_ELAPSED

The accumulated UDF DB2 elapsed time, in seconds.

UDF_DB2_CPU

The accumulated UDF DB2 CPU time, in seconds.

SP_APP_ELAPSED

The accumulated stored procedure application elapsed time, in seconds.

SP_APP_CPU

The accumulated stored procedure application CPU time, in seconds.

SP_DB2_ELAPSED

The accumulated stored procedure DB2 elapsed time, in seconds.

SP_DB2_CPU

The accumulated stored procedure DB2 cpu time in seconds.

LOCK_LATCH_DLY

The accumulated lock and latch elapsed wait time (in seconds) for lock and latch suspensions.

SYNC_IO_DLY

The accumulated I/O elapsed wait time (in seconds) for all I/O activity.

OTHER_READ_DLY

The accumulated read I/O elapsed wait time, in seconds.

OTHER_WRITE_DLY

The accumulate write I/O elapsed wait time, in seconds.

SERVTASK_SW_DLY

The accumulated elapsed wait time (in seconds) due to synchronous switch 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_DLY

The accumulated elapsed wait time (in seconds) due to archive log quiesce commands.

ARCHLOG_RD_DLY

The accumulated elapsed wait time (in seconds) due to archive log read requests.

DRAIN_LOCK_DLY

The accumulated elapsed wait time (in seconds) due to drain locks.

CLAIM_REL_DLY

The accumulated elapsed wait time (in seconds) due to waiting for claims to be released prior to a drain.

PAGE_LATCH_DLY

The accumulated elapsed wait time (in seconds) due to page latch contention

SP_DLY

The accumulated elapsed wait time (in seconds) due to stored procedures.

NOTIFY_MSGS_DLY

The accumulated elapsed wait time (in seconds) spent sending IRLM notify messages.

GLOBAL_CONT_DLY

The accumulated elapsed wait time (in seconds) due to global contention for parent L-LOCKS.

LOG_WRITE_DLY

The accumulated elapsed wait time (in seconds) due to log writes.

OPEN_CLOSE_DLY

The accumulated elapsed wait time (in seconds) due to OPEN/CLOSE of data sets.

SYSLOG_REC_DLY

The accumulated elapsed wait time (in seconds) due to SYSLGRNG updates.

EXTDEL_DEF_DLY

The accumulated elapsed wait time (in seconds) due to extend, delete, or define data sets

OTHER_SERVE_DLY

The accumulated elapsed wait time (in seconds) due to other services which include HSM recall and dataspace manager.

ASYNCH_CFREQ_DLY

The accumulated elapsed wait time (in seconds) due for IXLCACHE and IXLFCOMP asynchronous requests.

COMM_PH1WRT_DLY

The accumulated elapsed wait time (in seconds) due to CommitPhase 1 write IO delays.

LLOCKS_CHILD_DLY

The accumulated elapsed wait time (in seconds) due to locks requested by child processes.

LLOCKS_OTHER_DLY

The accumulated elapsed wait time (in seconds) for other Physical contention.

PLOCKS_PAGESET_DLY

The accumulated elapsed wait time (in seconds) due to physical Locks for pagesets or partitions.

PLOCKS_PAGE_DLY

The accumulated elapsed wait time (in seconds) due to page contention.

PLOCKS_OTHER_DLY

The accumulated elapsed wait time (in seconds) for other physical contention.

UDF_SCHED_DLY

The accumulated elapsed wait time (in seconds) for scheduling user defined functions.

LOCK_LATCH_EVT

The accumulated lock and latch elapsed wait time (in seconds) for lock and latch suspensions.

SYNC_IO_EVT

The number of synchronous I/O events.

OTHER_READ_EVT
The number of I/O read events.

OTHER_WRITE_EVT
The number of I/O write events.

SERVTASK_SW_EVT
The number of synchronous switch to DB2 services to DB2 services which include OPEN/CLOSE data set, SYSLGRNG update, HSM recall data set, dataspace manager, define data set, extend data sets and delete data sets.

ARCHLOG_QS_EVT
The number of archive log quiese commands.

ARCHLOG_RD_EVT
The number of archive log reads.

DRAIN_LOCK_EVT
The number of drain lock events.

CLAIM_REL_EVT
The number of waits for claims to be released prior to a drain.

PAGE_LATCH_EVT
The number of page latch contentions.

SP_EVT
The number of stored procedures.

NOTIFY_MSGS_EVT
The number of IRLM notify messages sent.

GLOBAL_CONT_EVT
The number of global contentions.

LOG_WRITE_EVT
The number of log write events.

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 number of parent lock requests.

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 processing is used.

RID_FAIL_NO_STOR
The number of times DB2 detected that no storage was available to hold a list of rids.

RID_LIMIT_EXC
The number of times DB2 detected that a RID list exceeded one or more internal limits.

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.

RID_RAN_PLANNED
The total number of parallel groups that executed in the planned parallel degree.

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 a SQL call statement was rejected due to the procedure being in the stop 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.

RID_ONE_DB2_ISO
The total number of parallel groups executed on a single DB2 subsystem due to RR or RS 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.

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.

RID_PREP_PURGED
The number of times statements are invalidated in the local dynamic SQL cache.

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 tablespace 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 a SQL error occurred during the execution of a trigger action.

MAX_CASCADE_LEVEL
The maximum cascade level.

TOTAL_GETPAGES
The accumulated 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.

ZIIP_CPU_TIME
The amount of CPU time accumulated while executing in DB2 on a zIIP processor.

DB2_GROUP_NAME
The active DB2 Query Monitor subsystem ID or DS Group.

STATEMENT_COUNT

The number of SQL calls that occurred for the displayed activity.

EXECUTION_COUNT

The number of times an SQL statement executed.

CURRENT_SCHEMA

The current schema associated with the displayed activity.

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.

DB2_VERSION_LONG

A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

ACCEL_ELIGIBLE_ELAPSED

The amount of elapsed time saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

ACCEL_ELIGIBLE_CPU

The amount of CPU time spent on a non-specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

ACCEL_ELIGIBLE_ZIIP

The amount of CPU time spent on a specialty engine that would be saved if the statement or call was run on an accelerator. This column contains a value only if the statement or call is eligible to run on an accelerator.

CORRNAME

The correlation ID adjusted by the conventions used by IMS and CICS.

ORIGINAL_TEXT_TOKEN

The text token of unstripped SQL text.

DATABASE_IO_DLY

The accumulated elapsed wait time due to database IO.

UPDATE_COMMIT_DLY

The accumulated elapsed wait time due to update commits.

LLOCK_PARENT_DLY

The accumulated elapsed wait time due to locks requested by parent processes.

DATABASE_IO_EVT

The number of database IO events.

UPDATE_COMMIT_EVT

The number of update commit events.

LLOCK_PARENT_EVT

The number of parent lock requests.

CQM32_SUMM_OBJECTS

The CQM32_SUMM_OBJECTS table contains information about objects. This table is associated with a metric row by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START and METRICS_TOKEN.

SMFID

The MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

METRICS_TOKEN

When combined with SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, and DB2_VERSION, the combined key can be used to find metric row associated with this object

METRICS_TIMESTAMP

The time of the activity.

DBID The database ID.

OBID The object ID.

PSID The pageset ID.

BUFFERPOOL_NORM

The bufferpool number normalized (BP0, BP16K0).

BUFFERPOOL_NUM

The bufferpool number.

OBJECT_TYPE

The object type. Valid values are I (index) and T (table).

DATABASE_NAME

The database name.

PAGESET_NAME

The pageset name.

OBJECT_CREATOR

The object creator.

OBJECT_NAME

The object name.

TBCREATOR

For indexes, it is the table creator for the table associated with the index, otherwise it is the table creator of the table

TBNAME

For indexes, it is the table name of the table associated with the index, otherwise it is the table name of the table.

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 end time of interval.

DB2_SUBSYSTEM

The DB2 subsystem which generated the data associated with this interval.

DB2_VERSION

A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

DB2_GROUP_NAME

The DB2 data sharing group name.

LOCK_EVENTS

The number of lock events detected for the object.

LOCK_DELAYS

The total amount of lock delay time for the object spent in DB2.

LATCH_EVENTS

The number of latch events detected for the object.

LATCH_DELAYS

The total amount of latch delay time for the object spent in DB2.

SYNC_IO_EVENTS

The number of synchronous IO events detected for the object.

SYNC_IO_DELAYS

The total amount of Sync IO delay time for the object spent in DB2.

LOG_WRITE_EVENTS

The number of log write IO events detected.

LOG_WRITE_DELAYS

The total amount of log write IO delay time for the object spent in DB2.

PAGE_LATCH_EVENTS

The number of page latch events detected for the object.

PAGE_LATCH_DELAYS

The total amount of page latch delay time for the object spent in DB2.

DB2_VERSION_LONG

A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

CQM32_SUMM_TEXT

The CQM32_SUMM_TEXT table contains summary information about SQL text. This table is associated with metrics by SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START and TEXT_TOKEN. When combined with SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, and INTERVAL_START, the combined key can be used to find the metric row associated with this SQL text.

SMFID

The MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

INTERVAL_END

The timestamp of the end time.

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 SQL text.

DB2_GROUP_NAME

The DB2 data sharing group name.

STRIPPED_TEXT

Indicates if the SQL text is stripped or not.

CQM32_EXCEPTIONS

The CQM32_EXCEPTIONS table holds exceptions generated based on the profile. This table is uniquely identified by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM and DB2_VERSION.

A query for exception calls, host variables, or exception objects with the SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and EXCEPTION_TOKEN will yield associated data in other tables.

A query for text with the same SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, and TEXT_TOKEN will yield all SQL text associated with the exception.

SMFID

The MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

DB2_SUBSYSTEM

The DB2 subsystem that generated the data associated with this interval.

DB2_VERSION

A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

EXCEPTION_TOKEN

The exception token.

EXCEPTION_TIMESTMP

The time of the exception

TEXT_TOKEN

The text token.

THREAD_TOKEN

Uniquely identifies an individual connection to a DB2 subsystem.

CONSISTENCY_TOKEN

The timestamp of DBRM or package.

ACCOUNTING_TOKEN

The accounting token associated with the SQL activity.

ORIGINATING_TOKEN

The thread token assigned to the thread that generated the parallel task(s) on the parallelism coordinator.

PLAN The plan name.

COLLECTION
The collection ID.

PROGRAM
The DBRM or package name.

SECTION
The section number.

CORRID
The correlation ID.

AUTHID
The primary authorization ID.

WORKSTATION_USER
The workstation user ID.

WORKSTATION_TRAN
The workstation transaction.

WORKSTATION_NAME
The name of the workstation.

IMPLICIT_QUALIFIER
The implicit qualifier.

WORKLOAD_NAME
The workload name.

JOBNAME
The jobname.

CONNECTION
The connection name.

NETID
The network ID.

LUNAME
The logical unit name.

UNIQUENESS_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.
- SQLCODE**
The SQL return code.
- 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.

LAST_SQLCODE

The last SQL return code.

DB2_CPU

The accumulated DB2 CPU time.

DB2_ELAPSED

The accumulated DB2 elapsed time.

SQL_CALLS

The total SQL calls for this activity.

TRG_DB2_ELAPSED

The accumulated trigger inside DB2 elapsed time.

TRG_DB2_CPU

The accumulated trigger inside DB2 time.

UDF_APP_ELAPSED

The accumulated UDF application elapsed time.

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 exceptional SQL activity in stored procedures.

SP_APP_CPU
The total CPU time spent by the exceptional 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 I/O elapsed wait time for all I/O activity.

OTHER_READ_DLY
The accumulated read I/O elapsed wait time.

OTHER_WRITE_DLY
The accumulate write I/O elapsed wait time.

SERVTASK_SW_DLY
The accumulated elapsed wait time due to synchronous switch 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_DLY
The accumulated elapsed wait time due to archive log quiesce commands.

ARCHLOG_RD_DLY
The accumulated elapsed wait time due to archive log read requests.

DRAIN_LOCK_DLY
The accumulated elapsed wait time due to drain locks.

CLAIM_REL_DLY
The accumulated elapsed wait time due to waiting for claims to be released prior to a drain.

PAGE_LATCH_DLY
The accumulated elapsed wait time due to page latch contention.

SP_DLY
The accumulated elapsed wait time due to stored procedures.

NOTIFY_MSGS_DLY
The accumulated elapsed wait time spent sending IRLM 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 accumulated elapsed wait time due to OPEN/CLOSE of data sets.

SYSLOG_REC_DLY

The accumulated elapsed wait time due to SYSLGRNG updates.

EXTDEL_DEF_DLY

The accumulated elapsed wait time due to extend, delete, or define data sets.

OTHER_SERVE_DLY

The accumulated elapsed wait time due to other services which include HSM recall and dataspace manager.

ASYNCH_CFREQ_DLY

The accumulated elapsed wait time due for IXLCACHE and IXLFCOMP asynchronous requests.

COMM_PH1WRT_DLY

The accumulated elapsed wait time due to CommitPhase 1 Write IO Delays.

LLOCKS_CHILD_DLY

The accumulated elapsed wait time due to locks requested by child processes.

LLOCKS_OTHER_DLY

The accumulated elapsed wait time for other Physical contention.

PLOCKS_PAGESET_DLY

The accumulated elapsed wait time due to physical Locks for pagesets or partitions.

PLOCKS_PAGE_DLY

The accumulated elapsed wait time due to page contention.

PLOCKS_OTHER_DLY

The accumulated elapsed wait time for other physical contention.

UDF_SCHED_DLY

The accumulated elapsed wait time for scheduling user defined functions.

LOCK_LATCH_EVT

The accumulated lock and latch elapsed wait time for lock and latch suspensions.

SYNC_IO_EVT

The number of synchronous I/O events.

OTHER_READ_EVT

The number of I/O read events.

OTHER_WRITE_EVT

The number of I/O write events.

SERVTASK_SW_EVT

The number of synchronous switch to DB2 services to DB2 services which include OPEN/CLOSE data set, SYSLGRNG update, HSM recall data set, dataspace manager, define data set, extend data sets and delete data sets.

ARCHLOG_QS_EVT

The number of archive log quiese commands.

ARCHLOG_RD_EVT

The number of archive log reads.

DRAIN_LOCK_EVT
The number of drain lock events.

CLAIM_REL_EVT
The number of waits for claims to be released prior to a drain.

PAGE_LATCH_EVT
The number of page latch contentions.

SP_EVT
The number of stored procedures.

NOTIFY_MSGS_EVT
The number of IRLM notify messages sent.

GLOBAL_CONT_EVT
The number of global contentions.

LOG_WRITE_EVT
The number of log write events.

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 lock suspensions.

LOCK_TIMEOUTS
The number of lock timeouts.

LATCH_SUSPENSIONS
The number of latch suspensions.

OTHER_SUSPENSIONS
The number of other 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 other requests.

CLAIM_REQUESTS
The number of claim requests.

CLAIM_FAILED
The number of claims that failed.

DRAIN_REQUESTS
The number of drain requests.

DRAIN_FAILED
The number of drains that failed.

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 number of global contention waits due to parent L-locks.

XES_GLOBAL_CONT
The number of XES global contention waits due to parent L-locks.

FALSE_RES_CONT
The number of false resource contentions.

INCOMPAT_RET_LOCK
The number of incompatible retain locks.

SHARED_LOCK_ESC
The number of shared lock escalations.

EXCL_LOCK_ESC
The number of exclusive lock escalations.

LOCK_REQ_PLOCKS
The number of parent lock requests.

CHANGE_REQ_PLOCKS
The number of parent lock change requests.

UNLOCK_REQ_PLOCKS

The number of parent lock unlock requests.

NOTIFY_MSGS_SENT

The number of notify messages sent.

RID_USED

The number of times RID list processing is used.

RID_FAIL_NO_STOR

The number of times DB2 detected that no storage was available to hold a list of rids.

RID_LIMIT_EXC

The number of times DB2 detected that a RID list exceeded one or more internal limits.

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.

RID_RAN_PLANNED

The total number of parallel groups that executed in the planned parallel degree.

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 a SQL call statement was rejected due to the procedure being in the stop 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.

RID_ONE_DB2_ISO

The total number of parallel groups executed on a single DB2 subsystem due to RR or RS isolation.

RID_REOPTIMIZED

The number of times the access path for static and dynamic SQL Queries were reoptimized 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 count not find a suitable prepared statement.

RID_IMP_PREPS

The number of implicit prepares.

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.

RID_PREP_PURGED

The number of times statements are invalidated in the local dynamic SQL cache.

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 tablespace 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 a SQL error occurred during the execution of a trigger action.

MAX_CASCADE_LEVEL

UNUSED

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.

CLIENT_ENDUSER
The client enduser.

CORRNAME
The correlation ID adjusted by the conventions used by IMS and CICS.

INTERVAL_END
Timestamp identifying end time of interval.

DB2_GROUP_NAME
DB2 data sharing group name.

ZIIP_CPU_TIME
The amount of CPU time accumulated while executing in DB2 on a zIIP processor.

STRIPPED_TEXT_TOKEN
The stripped text token.

DB2_VERSION_LONG
A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

CURRENT_SCHEMA
The current schema.

DATABASE_IO_DLY
The accumulated elapsed wait time due to database IO.

UPDATE_COMMIT_DLY
The accumulated elapsed wait time due to update commits.

LLOCK_PARENT_DLY

The accumulated elapsed wait time due to locks requested by parent processes.

DATABASE_IO_EVT

The number of database IO events.

UPDATE_COMMIT_EVT

The number of update commit events.

LLOCK_PARENT_EVT

The number of parent lock requests.

CQM32_EXCP_CALLS

The CQM32_EXCP_CALLS table contains information about the exceptions statement detail for exceptions. This table is associated by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, and EXCEPTION_TOKEN.

SMFID

The z/OS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

EXCEPTION_TOKEN

When combined with the columns SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, the combined key will yield the exception row associated with this call.

EXCEPTION_TIMESTAMP

The time of the exception

STMT Statement number assigned by PRECOMPILER

TYPE Key to STATEMENT_DESC table to find type of statement such as OPEN, FETCH, etc.

SQLCAID

SQLCA eyecatcher

SQLCABC

Length of SQLCA

SQLCODE

SQL return code

SQLERRM

SQL error message

SQLERRP

SQL diagnostic information

SQLERRD1

Contains 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

Contains 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

Contains the position or column number for a syntax error during a PREPARE or EXECUTE IMMEDIATE statement

SQLERRD5

Contains an internal error code

SQLERRD6

Contains an internal error code

SQLWARN0

Blank if no other SQLWARNx indicator is set, otherwise it is a W

SQLWARN1

Contains a W if a value was truncated when assigned to a HOSTVAR, an N for a non-scrollable cursor, an S for a scrollable cursor.

SQLWARN2

Set to W if null values were excluded but it is not necessarily set for a MIN function since the result is not dependent on null values.

SQLWARN3

Set to a W if the number of result columns is large than the number of HOSTVARS or set to Z if fewer locators were provided in the associated locators statement than the stored procedure returned

SQLWARN4

Set to W if a prepared UPDATE or DELETE statement does not include a WHERE clause, set to I for a scrollable insensitive cursor, set to S for a scrollable sensitive cursor, or set to blank if the cursor is not scrollable

SQLWARN5

Set to W if the SQL statement was invalid for this DB2 system, otherwise set to 1 if cursor is read only, to 2 if cursor is read and delete, to 4 if cursor is read, delete, and update.

SQLWARN6

Set to W if the addition of a date or timestamp yields an invalid date. The code indicates the date was reset to a valid date.

SQLWARN7

Set to W if one or more nonzero digits were eliminated from fractional parts of a number as a result of a decimal multiply or divide

SQLWARN8

Set to W if a character could not be converted and was replaced with a substitute character

SQLWARN9

Set to W if arithmetic exceptions were ignored during count or count big processing or set to Z if the stored procedure returned multiple result sets

SQLWARNA

Set to W if at least one character field of the SQLCA or SQLDA names or labels is invalid due to a character conversion error

SQLSTATE
Contains a return code for the outcome of the most recent execution of an SQL statement

DB2_CPU
Accumulated DB2 CPU time

DB2_ELAPSED
Accumulated DB2 elapsed time

SQL_CALLS
Total SQL calls for this activity

TRG_DB2_ELAPSED
Accumulated Trigger inside DB2 Elapsed time

TRG_DB2_CPU
Accumulated Trigger inside DB2 time

UDF_APP_ELAPSED
Accumulated UDF application elapsed time

UDF_APP_CPU
Accumulated UDF application cpu time

UDF_DB2_ELAPSED
Accumulated UDF DB2 elapsed time

UDF_DB2_CPU
Accumulated UDF DB2 cpu time

SP_APP_ELAPSED
Accumulated stored procedure application elapsed time

SP_APP_CPU
Accumulated stored procedure application cpu time

SP_DB2_ELAPSED
Accumulated stored procedure DB2 elapsed time

SP_DB2_CPU
Accumulated stored procedure DB2 cpu time

LOCK_LATCH_DLY
Accumulated lock and latch elapsed wait time for lock and latch suspensions

SYNC_IO_DLY
Accumulated I/O elapsed wait time for all I/O activity

OTHER_READ_DLY
Accumulated read I/O elapsed wait time

OTHER_WRITE_DLY
Accumulate write I/O elapsed wait time

SERVTASK_SW_DLY
Accumulated elapsed wait time due to synchronous switch which include OPEN/CLOSE data set, SYSLGRNG update, HSM recall, dataspace manager, define data set, extend and delete data sets

ARCHLOG_QS_DLY
Accumulated elapsed ait time due to Archive log quiesce commands

ARCHLOG_RD_DLY
Accumulated elapsed wait time due to Archive log read requests

DRAIN_LOCK_DLY
Accumulated elapsed wait time due to drain locks

CLAIM_REL_DLY
Accumulated elapsed wait time due to waiting for claims to be released prior to a drain

PAGE_LATCH_DLY
Accumulated elapsed wait time due to page latch contention

SP_DLY
Accumulated elapsed wait time due to stored procedures

NOTIFY_MSGS_DLY
Accumulated elapsed wait time spent sending IRLM notify messages

GLOBAL_CONT_DLY
Accumulated elapsed wait time due to global contention for parent L-LOCKS

LOG_WRITE_DLY
Accumulated elapsed wait time due to log writes

OPEN_CLOSE_DLY
LOSE of data sets

SYSLOG_REC_DLY
Accumulated elapsed wait time due to SYSLGRNG updates

EXTDEL_DEF_DLY
Accumulated elapsed wait time due to extend, delete, or define data sets

OTHER_SERVE_DLY
Accumulated elapsed wait time due to other services which include HSM recall and dataspace manager

ASYNCH_CFREQ_DLY
Accumulated elapsed wait time due for IXLCACHE and IXLFCOMP asynchronous requests.

COMM_PH1WRT_DLY
Accumulated elapsed wait time due to CommitPhase 1 Write IO Delays

LLOCKS_CHILD_DLY
Accumulated elapsed wait time due to locks requested by child processes.

LLOCKS_OTHER_DLY
Accumulated elapsed wait time for other Physical contention.

PLOCKS_PAGESET_DLY
Accumulated elapsed wait time due to physical Locks for pagesets or partitions.

PLOCKS_PAGE_DLY
Accumulated elapsed wait time due to page contention.

PLOCKS_OTHER_DLY
Accumulated elapsed wait time for other physical contention.

UDF_SCHED_DLY
Accumulated elapsed wait time for scheduling user defined functions.

LOCK_LATCH_EVT
Accumulated lock and latch elapsed wait time for lock and latch suspensions.

SYNC_IO_EVT
The number of synchronous I/O events

OTHER_READ_EVT
The number of I/O read events

OTHER_WRITE_EVT
The number of I/O write events

SERVTASK_SW_EVT
The number of synchronous switch to DB2 services to DB2 services which include OPEN/CLOSE data set, SYSLGRNG update, HSM recall data set, dataspace manager, define data set, extend data sets and delete data sets

ARCHLOG_QS_EVT
The number of Archive log Quiese commands

ARCHLOG_RD_EVT
The number of Archive log reads

DRAIN_LOCK_EVT
The number of drain lock events

CLAIM_REL_EVT
The number of waits for claims to be released prior to a drain

PAGE_LATCH_EVT
The number of page latch contentions

SP_EVT
The number of stored procedures

NOTIFY_MSGS_EVT
The number of IRLM notify messages sent

GLOBAL_CONT_EVT
The number of global contentions

LOG_WRITE_EVT
The number of log write events

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 pages ets 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 lock suspensions

LOCK_TIMEOUTS
The number of lock timeouts

LATCH_SUSPENSIONS
The number of latch suspensions

OTHER_SUSPENSIONS
The number of other 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 other requests

CLAIM_REQUESTS
The number of claim requests

CLAIM_FAILED
The number of claims that failed

DRAIN_REQUESTS
The number of drain requests

DRAIN_FAILED
The number of drains that failed

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 number of global contention waits due to parent L-locks.

XES_GLOBAL_CONT
The number of XES global contention waits due to parent L-locks.

FALSE_RES_CONT
The number of False Resource Contentions.

INCOMPAT_RET_LOCK
The number of Incompatible retain locks

SHARED_LOCK_ESC
The number of Shared Lock Escalations.

EXCL_LOCK_ESC
The number of Exclusive Lock Escalations.

LOCK_REQ_PLOCKS
The number of Parent Lock Requests.

CHANGE_REQ_PLOCKS
The number of Parent Lock Change Requests.

UNLOCK_REQ_PLOCKS
The number of Parent Lock Unlock Requests.

NOTIFY_MSGS_SENT
The number of Notify Messages Sent.

RID_USED
The number of times RID list processing is used.

RID_FAIL_NO_STOR
The number of times DB2 detected that no storage was available to hold a list of rids.

RID_LIMIT_EXC
The number of times DB2 detected that a RID list exceeded one or more internal limits.

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.

RID_RAN_PLANNED
The total number of parallel groups that executed in the planned parallel degree.

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 a SQL call statement was rejected due to the procedure being in the stop 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.

RID_ONE_DB2_ISO

The total number of parallel groups executed on a single DB2 subsystem due to RR or RS isolation.

RID_REOPTIMIZED

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

RID_PREP_MATCHED

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

RID_PREP_NOMATCH

The The number of times that DB2 searched the prepared statement cache but count not find a suitable prepared statement.

RID_IMP_PREPS

The number of implicit prepares.

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.

RID_PREP_PURGED

The number of times statements are invalidated in the local dynamic SQL cache.

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 use direct row access reverted to using a tablespace 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 a SQL error occurred during the execution of a trigger action.

MAX_CASCADE_LEVEL
UNUSED

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
Timestamp identifying end time of interval

DB2_GROUP_NAME
The DB2 data sharing group name.

ZIIP_CPU_TIME
The amount of CPU time accumulated while executing in DB2 on a ZIIP processor

DATABASE_IO_DLY

The accumulated elapsed wait time due to database IO.

UPDATE_COMMIT_DLY

The accumulated elapsed wait time due to update commits.

LLOCK_PARENT_DLY

The accumulated elapsed wait time due to locks requested by parent processes.

DATABASE_IO_EVT

The number of database IO events.

UPDATE_COMMIT_EVT

The number of update commit events.

LLOCK_PARENT_EVT

The number of parent lock requests.

CQM32_EXCP_HOSTV

The CQM32_EXCP_HOSTV table contains information about the exceptions statement detail for exceptions. This table is associated by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START and THREAD_TOKEN.

SMFID

The z/OS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

EXCEPTION_TOKEN

When combined with the columns SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, the combined key will yield the exception row associated with this call

HOSTV_TIMESTAMP

The processing time of the host variable

THREAD_TOKEN

The DB2 thread token

STMT Statement number assigned by PRECOMPILER

TYPE Key to STATEMENT_DESC table to find type of statement such as 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

Timestamp identifying end time of interval

DB2_GROUP_NAME

The DB2 data sharing group name.

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).

CQM32_EXCP_OBJS

The CQM32_EXCP_OBJS table contains information about objects for exceptions. This table is associated by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, and EXCEPTION_TOKEN.

SMFID

The z/OS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

EXCEPTION_TOKEN

When combined with the columns SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION, the combined key will yield the exception row associated with this object

EXCEPTION_TIMESTMP

The time of the exception

THREAD_TOKEN

Uniquely identifies an individual connection to a DB2 subsystem.

DBID Data base id

OBID Object id

PSID Pageset id

BUFFERPOOL_NORM
Bufferpool number normalized: BP0, BP16K0

BUFFERPOOL_NUM
Bufferpool number

OBJECT_TYPE
I for index or T for table

DBNAME
The database name

PAGESET_NAME
The pageset name

OBJECT_CREATOR
The object creator

OBJECT_NAME
The object name

TBCREATOR
For indexes, it is the table creator for the table associated with the index, otherwise it is the table creator of the table

TBNAME
For indexes, it is the table name of the table associated with the index, otherwise it is the table name of the table

GETPAGE_ELAPSED
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

Timestamp identifying end time of interval

DB2_GROUP_NAME

The DB2 data sharing group name.

CQM32_EXCP_TEXT

The CQM32_EXCP_TEXT table contains SQL text for exceptions. This table is associated with exceptions by SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START and TEXT_TOKEN.

SMFID

The MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

INTERVAL_END

The timestamp of the end time.

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

System generated row id

SQLTEXT

The SQL text

DB2_GROUP_NAME

The DB2 data sharing group name.

STRIPPED_TEXT

Indicates if the SQL text is stripped or not.

CQM32_DB2_COMMANDS

The CQM32_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 DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

DB2_SUBSYSTEM

The DB2 subsystem that generated the data associated with this interval.

DB2_VERSION

A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

COMMAND_TIMESTAMP

Timestamp, in GMT, when the command was issued

JOBNAME

Jobname

AUTHID

Authorization id

COMMAND_TEXT

First 500 characters of command text

INTERVAL_END

Timestamp identifying end time of interval

DB2_GROUP_NAME

The DB2 data sharing group name.

DB2_VERSION_LONG

A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

CQM32_SQLCODES

The CQM32_SQLCODES table contains information about negative SQLCODES collected for a monitored DB2. It is uniquely identified by the columns: SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, DB2_SUBSYSTEM, DB2_VERSION and SQLCODE.

SMFID

The MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

DB2_SUBSYSTEM

The DB2 subsystem that generated the data associated with this interval.

DB2_VERSION

A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

SQLCODE

Negative SQLCODE value

SQLCODE_COUNT

The number of occurrences

SQLCODE_DETAIL

The number of details captured

INTERVAL_END

Timestamp identifying end time of interval

DB2_GROUP_NAME

The DB2 data sharing group name.

DB2_VERSION_LONG

A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

CQM32_SQLCODE_DET

The CQM32_SQLCODE_DET table contains detailed information about negative 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 MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

DB2_SUBSYSTEM

The DB2 subsystem that generated the data associated with this interval.

DB2_VERSION

A 3-digit value indicating the version of DB2. For example, the DB2_VERSION for DB2 V10 is 100 and the DB2_VERSION for DB2 V11 is 110.

TEXT_TOKEN

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.

THREAD_TOKEN

Uniquely identifies an individual connection to a DB2 subsystem.

CONSISTENCY_TOKEN

Timestamp of DBRM or package

SQLCODE_TOKEN
Kept for compatibility with 2.1

SQLCODE_TIMESTAMP
Timestamp of SQLCODE

IMPLICIT_QUALIFIER
UNUSED

DETAIL_COUNT
The number of details collected

PLAN Plan name

COLLECTION
Collection name

PROGRAM
DBRM or package name

SECTION
Section number

STMT Statement number assigned by PRECOMPILER

TYPE Key to STATEMENT_DESC table to find type of statement such as OPEN, FETCH, etc.

AUTHID
Primary authorization id associated with agent

JOBNAME
Job name

CONNECTION
Connection name

CURSOR_NAME
Cursor name

SQLCAID
SQLCA eyecatcher

SQLCABC
Length of SQLCA

SQLCODE
SQL return code

SQLERRM
SQL error message

SQLERRP
SQL diagnostic information

SQLERRD1
Contains 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
Contains 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

Generally contains a floating point number indicative of the amount of resources used.

SQLERRD5

Contains the position or column number for a syntax error during a PREPARE or EXECUTE IMMEDIATE statement

SQLERRD6

Contains an internal error code

SQLWARN0

Blank if no other SQLWARNx indicator is set, otherwise it is a W

SQLWARN1

Contains a W if a value was truncated when assigned to a HOSTVAR, an N for a non-scrollable cursor, an S for a scrollable cursor.

SQLWARN2

Set to W if null values were excluded but it is not necessarily set for a MIN function since the result is not dependent on null values.

SQLWARN3

Set to a W if the number of result columns is large than the number of HOSTVARS or set to Z if fewer locators were provided in the associated locators statement than the stored procedure returned

SQLWARN4

Set to W if a prepared UPDATE or DELETE statement does not include a WHERE clause, set to I for a scrollable insensitive cursor, set to S for a scrollable sensitive cursor, or set to blank if the cursor is not scrollable

SQLWARN5

Set to W if the SQL statement was invalid for this DB2 system, otherwise set to 1 if cursor is read only, to 2 if cursor is read and delete, to 4 if cursor is read, delete, and update.

SQLWARN6

Set to W if the addition of a date or timestamp yields an invalid date. The code indicates the date was reset to a valid date.

SQLWARN7

Set to W if one or more nonzero digits were eliminated from fractional parts of a number as a result of a decimal multiply or divide

SQLWARN8

Set to W if a character could not be converted and was replaced with a substitute character

SQLWARN9

Set to W if arithmetic exceptions were ignored during count or count big processing or set to Z if the stored procedure returned multiple result sets

SQLWARNA

Set to W if at least one character field of the SQLCA or SQLDA names or labels is invalid due to a character conversion error

SQLSTATE

Contains a return code for the outcome of the most recent execution of an SQL statement

INTERVAL_END

Timestamp identifying end time of interval

DB2_GROUP_NAME

The DB2 data sharing group name.

DB2_VERSION_LONG

A 4-digit value indicating the version of DB2. For example, the DB2_VERSION_LONG for DB2 V10 is 1010 and the DB2_VERSION_LONG for DB2 V11 is 1110.

CURRENT_SCHEMA

The current schema

CQM32_SQLCODE_TEXT

The CQM32_SQLCODE_TEXT table contains information about the SQL text. This table is uniquely identified by SMFID, CQM_SUBSYSTEM, INTERVAL_NUMBER, INTERVAL_START, and TEXT_TOKEN.

SMFID

The MVS SMFID.

CQM_SUBSYSTEM

The DB2 Query Monitor subsystem ID that created the interval.

INTERVAL_NUMBER

The DB2 Query Monitor subsystem assigned interval number.

INTERVAL_START

The timestamp of the start time.

INTERVAL_END

The timestamp of the end time.

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 SQL text.

DB2_GROUP_NAME

The DB2 data sharing group name.

STRIPED_TEXT

Indicates if the SQL text is stripped or not.

Chapter 24. DB2 Query Monitor parameters

DB2 Query Monitor uses the parameters described in this section to control the behavior of the mainframe and CAE components.

Topics:

- “DB2 Query Monitor subsystem parameters - CQMPARMS”
- “CAE Agent parameters - CQMCPARMS” on page 576
- “CAE Server parameters - USS” on page 579
- “CAE Server parameters - Windows” on page 585

DB2 Query Monitor subsystem parameters - CQMPARMS

This topic describes the parameters that are used in CQMPARMS to control the DB2 Query Monitor subsystem.

The parameters defined in CQMPARMS specify the DB2 Query Monitor subsystem name, the monitored DB2 subsystems, the length of the recording interval, and other characteristics that control how DB2 Query Monitor functions.

ALERT_LIMIT

(Optional) The maximum number of alerts that can be queued for the CAE Agent alert processor. When the alert limit has been reached, no more alerts are queued and all subsequent alerts are discarded.

The alert system is not designed to be a high-volume system. An alert is a condition that requires short-term attention. Alert criteria should not generate more than 3 alerts per second, at peak. As you increase the value specified for the ALERT_LIMIT parameter, the DB2 Query Monitor subsystem requires greater amounts of storage for the additional alert data retained. The CAE Agent alert processor drains the queue of alerts at a rate of once every 5000 milliseconds. If you need to alter this rate, please contact IBM Software Support.

Default value

10

Syntax

ALERT_LIMIT(*n*)

n The number of alerts that are to be queued for the alert processor.

Range 1 - 99999

Example

ALERT_LIMIT(350)

ALERT_OBJECTS_PER_ALERT

(Optional) The maximum number of objects per alert that are collected. This parameter enables you to control the amount of storage that is used when collecting alerts. Under most circumstances, the default value is appropriate. However, if your workloads average more than 8 objects per alert, this parameter can be adjusted to allow for that behavior.

Default

8

SyntaxALERT_OBJECTS_PER_ALERT(*nnnnn*)*nnnnn* The maximum number of objects per alert that are collected.**Range** 1 - 99999**Example**

ALERT_OBJECTS_PER_ALERT(10)

ALERT_HOSTV_PER_ALERT

(Optional) The maximum number of host variables per alert that are collected. This parameter enables you to control the amount of storage that is used when collecting alerts. Under normal circumstances, the default value is appropriate. However, if your workloads average more than 16 host variables per alert, then this parameter can be adjusted to allow for that behavior.

Default

16

SyntaxALERT_HOSTV_PER_ALERT(*nnnnn*)*nnnnn* The maximum number of host variables per alert that are collected.**Range** 1 - 99999**Example**

ALERT_HOSTV_PER_ALERT(18)

AUTHID

(Optional) The DB2 AUTHID that is used to establish a connection to DB2 during interval processing.

Default

Defaults to the user ID under which the started task will run.

SyntaxAUTHID(*db2authid*)***db2authid***

The DB2 AUTHID that DB2 Query Monitor uses when establishing a connection to DB2 during interval processing.

Note:

- If you are using RACF on your DB2 system, the AUTHID must be defined to RACF.
- The specified AUTHID must be authorized by the resident security package, such as RACF, to perform the functions needed for all processes run by the DB2 Query Monitor subsystem. These processes include connecting to each of the monitored DB2 subsystems and performing file update activities using the DB2 Query Monitor VSAM control file.
- The specified AUTHID must be a valid TSO user ID and not a RACF group name.
- Do not specify an AUTHID for this parameter that is defined in the RACF Started Procedures Table (ICHRIN03). The

Started Procedures Table (ICHRIN03) associates the names of started procedures with specific RACF user IDs and group names.

- The specified AUTHID can contain a generic entry that assigns a user ID or group name to any started task that does not have a matching entry in the table. However, it is recommended that you use the STARTED class instead of the started procedures table.

Example

AUTHID(DB2USER)

CAE_SERVER_ADDRESS

(Optional) The IP address or DNS name of the CAE Server that is available for ISPF view of a data sharing group.

Default

None

Syntax

CAE_SERVER_ADDRESS(*address*)

address

The IP address or DNS name of the CAE Server that is available for ISPF view of a data sharing group (128 bytes, character).

Example

CAE_SERVER_ADDRESS(SRVR01.COMPANYNAME.COM)

Also known as

CAE Agent System - CAE Server Access Listener Address

CAE_SERVER_PORT

(Optional) The port number at which the CAE Server accepts connections for ISPF view of data sharing group.

Default

3448

Syntax

CAE_SERVER_PORT(*portnumber*)

portnumber

The port number at which the CAE Server accepts connections for ISPF view of data sharing group.

Range 1 - 65535

Example

CAE_SERVER_PORT(53006)

Also known as

CAE Agent System - CAE Server Access Listener Port

CATALOG_OBJECTS

(Optional) Controls whether or not object statistics are collected for catalog objects. This parameter, when set to N, enables you to reduce dataspace storage consumption resulting from dynamic SQL prepare calls.

Default

Y

Syntax

CATALOG_OBJECTS(Y|N)

- Y** (Default) DB2 Query Monitor collects object statistics for catalog objects.
- N** DB2 Query Monitor does not collect statistics for catalog objects. This option enables you to reduce dataspace storage consumption resulting from dynamic SQL prepare calls.

Example

CATALOG_OBJECTS(N)

DATACLAS

(Optional) The SMS data class that is used for allocation of the performance history files. This startup parameter may be overridden by the data class specifications for the individual performance history files.

Note: The performance history files must be defined with VSAM SHAREOPTIONS(3,3) to avoid the overhead of SHAREOPTIONS(2,x).

Default

Null

Syntax

DATACLAS(*dataclass*)

dataclass

The SMS data class used for the allocation of the performance history files.

Example

DATACLAS(VSHAR33)

DATASET_FULL

(Optional) Controls what to do when a performance history file cannot be extended.

Default

IGNORE

Syntax

DATASET_FULL(IGNORE|ABORT)

IGNORE

(Default) DB2 Query Monitor ignores the error and records no further data to the failing performance history file until the next interval.

ABORT

DB2 Query Monitor aborts when the performance history file cannot be extended.

Example

DATASET_FULL(ABORT)

DB2CDATA_DATACLAS

(Optional) The SMS data class that is used for the allocation of the DB2CDATA performance history file.

Default

If no value is specified for DB2CDATA_DATACLAS and a value has been specified for the DATACLAS parameter, DB2CDATA_DATACLAS defaults to the data class defined by the DATACLAS parameter.

SyntaxDB2CDATA_DATACLAS(*dataclass*)***dataclass***

The SMS management class that is used for the allocation of the DB2CDATA performance history files.

Example

DB2CDATA_DATACLAS(DATACLAS)

DB2CDATA_DSN

(Required) The data set name that is used for the DB2CDATA performance history file. The specified data set name can contain valid system symbols as well as the symbol &INTV (the &INTV symbolic resolves to the current interval number).

Note:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the DB2CDATA_DSN parameter. It is recommended that you use the date and time symbolics to ensure that the names for the performance history files generated by DB2 Query Monitor using the DB2CDATA_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes because the system appends .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

SyntaxDB2CDATA_DSN(*dsn*)

dsn The data set name mask for the DB2CDATA performance history file.

Example

DB2CDATA_DSN(CQM.TEST.DB2CD.D&LYYMMDD..T&LHR.&LMIN..&INTV.)

DB2CDATA_MGMTCLAS

(Optional) The SMS management class that is used for the DB2CDATA performance history file.

Default

If no value is specified for DB2CDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, DB2CDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

SyntaxDB2CDATA_MGMTCLAS(*mgtclass*)***mgtclass***

The SMS management class that is used for the allocation of the DB2CDATA performance history file.

Example

DB2CDATA_MGMTCLAS(MGMTCLAS)

DB2CDATA_PRIMARY

(Optional) The primary space quantity that is used for the DB2CDATA performance history file.

Default

5

Syntax

DB2CDATA_PRIMARY(*n*)

n The primary space quantity that is used for the DB2CDATA performance history file.

Range ≥ 5

Example

DB2CDATA_PRIMARY(1)

DB2CDATA_SECONDARY

(Optional) The secondary space quantity that is used for the DB2CDATA performance history file.

Default

2

Syntax

DB2CDATA_SECONDARY(*n*)

n The secondary space quantity that is used for the DB2CDATA performance history file.

Example

DB2CDATA_SECONDARY(0)

DB2CDATA_SPACE_UNITS

(Optional) The space units that are used for the allocation of the DB2CDATA performance history file.

Default

CYLS

Syntax

DB2CDATA_SPACE_UNITS(*unit*)

unit The space unit for allocation of the DB2CDATA performance history file. Valid values are CYLS (cylinders) and TRKS (tracks).

Example

DB2CDATA_SPACE_UNITS(TRKS)

DB2CDATA_STORCLAS

(Optional) The DB2CDATA_STORCLAS parameter specifies the SMS storage class that is used for the DB2CDATA performance history files.

Default

If no value is specified for DB2CDATA_STORCLAS and a value has been specified for the STORCLAS parameter, DB2CDATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax

DB2CDATA_STORCLAS(*storclass*)

storclass

The SMS storage class for allocation of the DB2CDATA performance history files.

Example

DB2CDATA_STORCLAS(STORCLAS)

DB2CDATA_UNITNAME

(Optional) An esoteric name, generic device type or a device address for the DB2CDATA performance history files.

Default

If no value is specified for DB2CDATA_UNITNAME and a value has been specified for the UNITNAME parameter, DB2CDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax

DB2CDATA_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the DB2CDATA performance history files.

Example

DB2CDATA_UNITNAME(CQMDB2CDATA)

DB2CDATA_VOLUME

(Optional) The volume for the DB2CDATA performance history files.

Default

If no value is specified for DB2CDATA_VOLUME and a value has been specified for the VOLUME parameter, DB2CDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

DB2CDATA_VOLUME(*volume*)

volume

The volume for allocation of the DB2CDATA performance history files.

Example

DB2CDATA_VOLUME(CQMDBV)

DEBUG

(Optional) The DEBUG parameter turns on debug mode and produces diagnostic messages (in the range CQM9000-CQM-9999) for use by IBM Software Support.

Default

N

Syntax

DEBUG(Y|N)

Example

DEBUG(Y)

EXCEPTION_SPACE_SIZE

(Optional) The maximum amount of storage, in megabytes, available for storing exceptions during an interval.

Default

128

Range 64-1024**Syntax**EXCEPTION_SPACE_SIZE(*n*)

n The number of megabytes available for storing exceptions during an interval.

Example

EXCEPTION_SPACE_SIZE(1024)

EXCEPTION_CALLS_PER_EXCEPT_AVG

(Optional) The average number of calls per exception that are to be expected.

Default

3

Range 2-64**Syntax**EXCEPTION_CALLS_PER_EXCEPT_AVG(*n*)

n An integer between 2 and 64 (default 64).

Example

EXCEPTION_CALLS_PER_EXCEPT_AVG(64)

EXCEPTION_CALLS_PER_EXCEPT_MAX

(Optional) The maximum ownership count for exception calls during the interval.

Default

64

Range 16-64**Syntax**EXCEPTION_CALLS_PER_EXCEPT_MAX(*n*)

n The maximum ownership count for exception calls during the interval.

Example

EXCEPTION_CALLS_PER_EXCEPT_MAX(16)

EXCEPTION_OBJECTS_PER_EXCEPT_AVG

(Optional) The average number of objects per exception that are to be expected.

Default

17

Range 8-1024**Syntax**EXCEPTION_OBJECTS_PER_EXCEPT_AVG(*n*)

n The average number of objects per exception that are to be expected.

Example

EXCEPTION_OBJECTS_PER_EXCEPT_AVG(8)

EXCEPTION_OBJECTS_PER_EXCEPT_MAX

(Optional) The maximum ownership count for exception objects during an interval.

Default

768

Range 256-8192

Syntax

EXCEPTION_OBJECTS_PER_EXCEPT_MAX(*n*)

n The maximum ownership count for exception objects during an interval.

Example

EXCEPTION_OBJECTS_PER_EXCEPT_MAX(256)

EXCPDATA_DATACLAS

(Optional) The SMS data class for the EXCPDATA performance history files.

Default

If no value is specified for EXCPDATA_DATACLAS and a value has been specified for the DATACLAS parameter, DB2CDATA_DATACLAS defaults to the data class defined by the DATACLAS parameter.

Syntax

EXCPDATA_DATACLAS(*dataclass*)

dataclass

The SMS management class for allocation of the EXCPDATA performance history files.

Example

EXCPDATA_DATACLAS(DATACLAS)

EXCPDATA_DSN

(Required) The data set name for the EXCPDATA performance history file. The EXCPDATA data set contains information related to exception SQL calls, text, SQLCA, and host variables. The data set name might contain valid system symbolics and also include the DB2 Query Monitor symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the EXCPDATA_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the performance history file names that are generated by DB2 Query Monitor using the EXCPDATA_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

Syntax

EXCPDATA_DSN(*dsn*)

dsn The data set name mask for the EXCPDATA performance history file.

Example

EXCPDATA_DSN(CQM.TEST.EDATA.D&LYYMMDD..T&LHR.&LMIN..
&INTV.)

EXCPDATA_MGMTCLAS

(Optional) The SMS management class for the EXCPDATA performance history files.

Default

If no value is specified for EXCPDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, EXCPDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax

EXCPDATA_MGMTCLAS(*managementclass*)

managementclass

The SMS management class for allocation of the EXCPDATA performance history files.

Example

EXCPDATA_MGMTCLAS(MGMTCLAS)

EXCPDATA_PRIMARY

(Optional) The primary space quantity for the EXCPDATA performance history file.

Default

5

Syntax

EXCPDATA_PRIMARY(*n*)

n The primary space quantity for the EXCPDATA performance history file. Valid values of *n* are greater than or equal to 5.

Example

EXCPDATA_PRIMARY(1)

EXCPDATA_SECONDARY

(Optional) The secondary space quantity for the EXCPDATA performance history file.

Default

2

Syntax

EXCPDATA_SECONDARY(*n*)

n The secondary space quantity for the EXCPDATA performance history file.

Example

EXCPDATA_SECONDARY(1)

EXCPDATA_SPACE_UNITS

(Optional) The space units (CYLS or TRKS) for allocation of the EXCPDATA performance history file.

Default

CYLS

Syntax

EXCPDATA_SPACE_UNITS(*unit*)

unit The space unit for allocation of the EXCPDATA performance history file. Valid values are CYLS or TRKS.

Example

EXCPDATA_SPACE_UNITS(CYLS)

EXCPDATA_STORCLAS

(Optional) The SMS storage class for the EXCPDATA performance history files.

Default

If no value is specified for EXCPDATA_STORCLAS and a value has been specified for the STORCLAS parameter, EXCPDATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax

EXCPDATA_STORCLAS(*storageclass*)

storageclass

The SMS storage class for allocation of the EXCPDATA performance history files.

Example

EXCPDATA_STORCLAS(STORCLAS)

EXCPDATA_UNITNAME

(Optional) The esoteric name, generic device type or a device address for the EXCPDATA performance history files.

Default

If no value is specified for EXCPDATA_UNITNAME and a value has been specified for the UNITNAME parameter, EXCPDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax

EXCPDATA_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the EXCPDATA performance history files.

Example

EXCPDATA_UNITNAME(CQMEXCPDATA)

EXCPDATA_VOLUME

(Optional) The volume for the EXCPDATA performance history files.

Default

If no value is specified for EXCPDATA_VOLUME and a value has been specified for the VOLUME parameter, EXCPDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

EXCPDATA_VOLUME(*volume*)

volume

The volume for allocation of the EXCPDATA performance history files.

Example

EXCPDATA_VOLUME(CQMEDV)

EXCPHSTV_DATACLAS

(Optional) The SMS data class for the EXCPHSTV performance history files.

Default

If no value is specified for EXCPHSTV_DATACLAS and a value has been specified for the DATACLAS parameter, EXCPHSTV_DATACLAS defaults to the data class defined by the DATACLAS parameter.

Syntax

EXCPHSTV_DATACLAS(*dataclass*)

dataclass

The SMS data class for allocation of the EXCPINDX performance history files.

Example

EXCPHSTV_DATACLAS(DATACLAS)

EXCPHSTV_DSN

(Required) The data set name for the EXCPHSTV performance history file. The EXCPHSTV data set contains information related to exception hostv variables and exception SQL text. The data set name might contain valid system symbolics and also include the DB2 Query Monitor symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the EXCPHSTV_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the performance history file names that are generated by DB2 Query Monitor using the EXCPHSTV_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

Syntax

EXCPHSTV_DSN(*dsn*)

dsn The data set name mask for the EXCPHSTV performance history file.

Example

EXCPHSTV_DSN(CQM.TEST.EDATA.D&LYYMMDD..T&LHR.&LMIN..
&INTV.)

EXCPHSTV_MGMTCLAS

(Optional) The SMS management class for the EXCPHSTV performance history files.

Default

If no value is specified for EXCPHSTV_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, EXCPHSTV_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax

EXCPHSTV_MGMTCLAS(*managementclass*)

managementclass

The SMS management class for allocation of the EXCPHSTV performance history files.

Example

EXCPHSTV_MGMTCLAS(MGMTCLAS)

EXCPHSTV_PRIMARY

(Optional) The primary space quantity for the EXCPHSTV performance history file.

Default

5

Syntax

EXCPHSTV_PRIMARY(*n*)

n The primary space quantity for the EXCPHSTV performance history file. Valid values of *n* are greater than or equal to 5.

Example

EXCPHSTV_PRIMARY(1)

EXCPHSTV_SECONDARY

(Optional) The secondary space quantity for the EXCPHSTV performance history file.

Default

2

Syntax

EXCPHSTV_SECONDARY(*n*)

n The secondary space quantity for the EXCPHSTV performance history file.

Example

EXCPHSTV_SECONDARY(1)

EXCPHSTV_SPACE_UNITS

(Optional) The space units (CYLS or TRKS) for allocation of the EXCPHSTV performance history file.

Default

CYLS

Syntax

EXCPHSTV_SPACE_UNITS(*unit*)

unit The space unit for allocation of the EXCPHSTV performance history file. Valid values are CYLS or TRKS.

Example

EXCPHSTV_SPACE_UNITS(CYLS)

EXCPHSTV_STORCLAS

(Optional) The SMS storage class for the EXCPHSTV performance history files.

Default

If no value is specified for EXCPHSTV_STORCLAS and a value has been specified for the STORCLAS parameter, EXCPHSTV_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax

EXCPHSTV_STORCLAS(*storageclass*)

storageclass

The SMS storage class for allocation of the EXCPINDX performance history files.

Example

EXCPHSTV_STORCLAS(STORCLAS)

EXCPHSTV_UNITNAME

(Optional) The esoteric name, generic device type or a device address for the EXCPHSTV performance history files.

Default

If no value is specified for EXCPHSTV_UNITNAME and a value has been specified for the UNITNAME parameter, EXCPHSTV_UNITNAME defaults to the data class defined by the UNITNAME parameter.

Syntax

EXCPHSTV_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the EXCPHSTV performance history files.

Example

EXCPHSTV_UNITNAME(CQMEXCPDATA)

EXCPHSTV_VOLUME

(Optional) The volume for the EXCPHSTV performance history files.

Default

If no value is specified for EXCPHSTV_VOLUME and a value has been specified for the VOLUME parameter, EXCPHSTV_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

EXCPHSTV_VOLUME(*volume*)

volume

The volume for allocation of the EXCPHSTV performance history files.

Example

EXCPHSTV_VOLUME(CQMVOLUM)

EXCPINDX_DATACLAS

(Optional) The SMS data class for the EXCPINDX performance history files.

Default

If no value is specified for EXCPINDX_DATACLAS and a value has been specified for the DATACLAS parameter, EXCPINDX_DATACLAS defaults to the data class defined by the DATACLAS parameter.

SyntaxEXCPINDX_DATACLAS(*dataclass*)***dataclass***

The SMS data class for allocation of the EXCPINDX performance history files.

Example

EXCPINDX_DATACLAS(DATACLAS)

EXCPINDX_DSN

(Required) The data set name for the EXCPINDX performance history file. The EXCPINDX data set contains information related to statement-level exceptions. The data set name might contain valid system symbols and may also include the DB2 Query Monitor-specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the EXCPINDX_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the performance history file names that are generated by DB2 Query Monitor using the EXCPINDX_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

SyntaxEXCPINDX_DSN(*dsn*)

dsn The data set name mask for the EXCPINDX performance history file.

Example

EXCPINDX_DSN(CQM.TEST.EINDEX.D&LYMMDD..T&LHR.&LMIN..&INTV.)

EXCPINDX_MGMTCLAS

(Optional) The SMS management class for the EXCPINDX performance history files.

Default

If no value is specified for EXCPINDX_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, EXCPINDX_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

SyntaxEXCPINDX_MGMTCLAS(*managementclass*)***managementclass***

The SMS management class for allocation of the EXCPINDX performance history files.

Example

EXCPINDX_MGMTCLAS(MGMTCLAS)

EXCPINDX_PRIMARY

(Optional) The primary space quantity for the EXCPINDX performance history file.

Default

5

Syntax

EXCPINDX_PRIMARY(*n*)

n The primary space quantity for the EXCPINDX performance history file. Valid values of *n* are greater than or equal to 5.

Example

EXCPINDX_PRIMARY(5)

EXCPINDX_SECONDARY

(Optional) The secondary space quantity for the EXCPINDX performance history file.

Default

2

Syntax

EXCPINDX_SECONDARY(*n*)

n The secondary space quantity for the EXCPINDX performance history file.

Example

EXCPINDX_SECONDARY(3)

EXCPINDX_SPACE_UNITS

(Optional) The space units (CYLS or TRKS) for allocation of the EXCPINDX performance history file.

Default

CYLS

Syntax

EXCPINDX_SPACE_UNITS(*unit*)

unit The space unit for allocation of the EXCPINDX performance history file. Valid values are CYLS or TRKS.

Example

EXCPINDX_SPACE_UNITS(CYLS)

EXCPINDX_STORCLAS

(Optional) The SMS storage class for the EXCPINDX performance history files.

Default

If no value is specified for EXCPINDX_STORCLAS and a value has been specified for the STORCLAS parameter, EXCPINDX_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax

EXCPINDX_STORCLAS(*storageclass*)

storageclass

The SMS storage class for allocation of the EXCPINDX performance history files.

Example

EXCPINDX_STORCLAS(STORCLAS)

EXCPINDX_UNITNAME

(Optional) An esoteric name, generic device type, or device address for the EXCPINDX performance history files.

Default

If no value is specified for EXCPINDX_UNITNAME and a value has been specified for the UNITNAME parameter, EXCPINDX_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax

EXCPINDX_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the EXCPINDX performance history files.

Example

EXCPINDX_UNITNAME(CQMEXCPINDX)

EXCPINDX_VOLUME

(Optional) The volume for the EXCPINDX performance history files.

Default

If no value is specified for EXCPINDX_VOLUME and a value has been specified for the VOLUME parameter, EXCPINDX_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

EXCPINDX_VOLUME(*volume*)

volume

The volume for allocation of the EXCPINDX performance history files.

Example

EXCPINDX_VOLUME(CQMEXV)

EXCPTEXT_DATACLAS

(Optional) The SMS data class for the EXCPTEXT performance history files.

Default

If no value is specified for EXCPTEXT_DATACLAS and a value has been specified for the DATACLAS parameter, EXCPTEXT_DATACLAS defaults to the data class defined by the DATACLAS parameter.

Syntax

EXCPTEXT_DATACLAS(*dataclass*)

dataclass

The SMS data class for allocation of the EXCPTEXT performance history files.

Example

EXCPTEXT_DATACLAS(DATACLAS)

EXCPTEXT_DSN

(Required) The data set name for the EXCPTEXT performance history file. The EXCPTEXT data set contains information related to exception hostv variables and exception SQL text. The data set name might contain valid system

symbolics and also include the DB2 Query Monitor-specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the EXCPTEXT_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the performance history file names that are generated by DB2 Query Monitor using the EXCPTEXT_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

Syntax

EXCPTEXT_DSN(*dsn*)

dsn The data set name mask for the EXCPTEXT performance history file.

Example

EXCPTEXT_DSN(CQM.TEST.EDATA.D&LYMMDD..T&LHR.&LMIN..
&INTV.)

EXCPTEXT_MGMTCLAS

(Optional) The SMS management class for the EXCPTEXT performance history files.

Default

If no value is specified for EXCPTEXT_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, EXCPTEXT_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax

EXCPTEXT_MGMTCLAS(*managementclass*)

managementclass

The SMS management class for allocation of the EXCPTEXT performance history files.

Example

EXCPTEXT_MGMTCLAS(MGMTCLAS)

EXCPTEXT_PRIMARY

(Optional) The primary space quantity for the EXCPTEXT performance history file.

Default

5

Syntax

EXCPTEXT_PRIMARY(*n*)

n The primary space quantity for the EXCPTEXT performance history file. Valid values of *n* are greater than or equal to 5.

Example

EXCPTEXT_PRIMARY(1)

EXCPTEXT_SECONDARY

(Optional) The secondary space quantity for the EXCPTEXT performance history file.

Default

2

Syntax

EXCPTEXT_SECONDARY(*n*)

n The secondary space quantity for the EXCPTEXT performance history file.

Example

EXCPTEXT_SECONDARY(1)

EXCPTEXT_SPACE_UNITS

(Optional) The space units (CYLS or TRKS) for allocation of the EXCPTEXT performance history file.

Default

CYLS

Syntax

EXCPTEXT_SPACE_UNITS(*unit*)

unit The space unit for allocation of the EXCPTEXT performance history file. Valid values are CYLS or TRKS.

Example

EXCPTEXT_SPACE_UNITS(CYLS)

EXCPTEXT_STORCLAS

(Optional) The SMS data class for the EXCPTEXT performance history files.

Default

If no value is specified for EXCPHSTV_STORCLAS and a value has been specified for the STORCLAS parameter, EXCPTEXT_STORCLAS defaults to the data class defined by the STORCLAS parameter.

Syntax

EXCPTEXT_STORCLAS(*storageclass*)

storageclass

The SMS storage class for allocation of the EXCPTEXT performance history files.

Example

EXCPTEXT_STORCLAS(STORCLAS)

EXCPTEXT_UNITNAME

(Optional) An esoteric name, generic device type or a device address for DB2 Query Monitor's EXCPTEXT performance history files.

Default

If no value is specified for EXCPTEXT_UNITNAME and a value has been specified for the UNITNAME parameter, EXCPTEXT_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax

EXCPHSTV_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the EXCPTEXT performance history files.

Example

EXCPTEXT_UNITNAME(CQMEXCPDATA)

EXCPTEXT_VOLUME

(Optional) The volume for the EXCPTEXT performance history files.

Default

If no value is specified for EXCPTEXT_VOLUME and a value has been specified for the VOLUME parameter, EXCPTEXT_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

EXCPTEXT_VOLUME(*volume*)

volume

The volume for allocation of DB2 Query Monitor's EXCPTEXT performance history files.

Example

EXCPTEXT_VOLUME(CQMTVOLU)

FORCE

(Optional) Forces the installation of a monitoring agent. If you use this parameter, any return codes from any failure reported in message CQM2002E are overridden.

Default

N

Syntax

FORCE(Y|N)

Valid values are:

Y Forces the installation of a monitoring agent.

CAUTION:

Do not specify FORCE(Y) unless instructed to do so by IBM Software Support.

N (Default) Does not force the installation of a monitoring agent.

Example

FORCE(Y)

HOSTVAR_LIMIT

(Optional) Designates the amount of storage to be allocated for host variable collection per event.

Note:

- If you are using InfoSphere Guardium S-TAP for DB2 on z/OS, InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS, and DB2 Query Monitor to simultaneously monitor the same DB2 subsystem, all products must have matching HOSTVAR_LIMIT settings to avoid receiving a mismatch error.

- If error message CQM1203I is encountered, with RC=0008, RSN=003F, increase the HOSTVAR_LIMIT setting to accommodate the collection of host variables for the monitored workload.

Default

1500

Range 1-9999

Syntax

HOSTVAR_LIMIT(*n*)

n An integer between 1 - 9999.

Example

HOSTVAR_LIMIT(1000)

INFLIGHT

(Optional) Determines whether or not DB2 Query Monitor displays long running SQL calls executing in DB2 before they complete.

Default

Syntax

INFLIGHT(Y|N)

Valid values are:

Y (Default) Long running SQL calls executing within DB2 are displayed before they complete.

N Long running SQL calls executing within DB2 are not displayed before they complete.

Example

INFLIGHT(Y)

INTERVAL

(Optional) The length of time that DB2 Query Monitor holds SQL performance data in memory before writing it to performance history files.

Default

720

Range 1-99999

Syntax

INTERVAL(*length*)

length The length of the recording interval in minutes. The length of the recording interval can range from 1 to 99999 minutes.

Example

INTERVAL(20)

INTERVAL_MIDNIGHT

(Optional) Aligns interval start times to midnight. If an interval of eight hours is specified and DB2 Query Monitor is started at 2 a.m., the first interval will end at 8 a.m. then the next interval will end at 4 p.m. and the final interval of the day will end at approximately midnight (the calculated time may differ from midnight by a few seconds, for example, 23:59:58 instead of 00:00:00). If an interval spans midnight the interval will end at midnight. 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 at approximately midnight (23:59:58) the cycle will repeat itself.

Default

N

Syntax

INTERVAL_MIDNIGHT(Y|N)

Valid values are:

Y Aligns interval start times to midnight.

N (Default) Does not align interval start times to midnight.

Example

INTERVAL_MIDNIGHT(Y)

ISM_CONSTRAINT_AGE

Determines the amount of time that must pass after a storage constraint occurrence before the constraint event is considered to be relieved.

Default

300

Range 1 - 60000

Syntax

ISM_CONSTRAINT_AGE(*n*)

n An integer between 1 - 60000. The units for *n* are in .01 seconds (hundredths of seconds).

Example

ISM_CONSTRAINT_AGE(600)

ISM_ERROR_BLOCKS

(Optional) The number of ISM error blocks that are allocated when DB2 Query Monitor initializes. If this value is too low, message CQM1219W might be issued. ISM error blocks are used to communicate a storage constraint event from somewhere in the product to the task that issues storage constraint messages. If you run out of ISM error blocks, it means that the storage constraint message will not be issued. However, an abend table entry will be created to document this event. It is important to realize that this is most likely a temporary situation and it does not impact overall performance.

Default

256

Range 16 - 8192

Syntax

ISM_ERROR_BLOCKS(*n*)

n The number of ISM error blocks that are allocated when DB2 Query Monitor initializes.

Example

ISM_ERROR_BLOCKS(16)

ISM_ERROR_DETAIL

(Optional) Controls whether CQM1203I and CQM1204I messages are issued to provide detailed information for ISM storage constraints.

Note: This setting can be overridden at runtime with the /f cqmstc, ISMERROR_DETAIL command.

Default

Y

Syntax

ISM_ERROR_DETAIL(Y|N)

Valid values are:

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

(Optional) The number of ISM error message blocks that are allocated when DB2 Query Monitor initializes. If this value is too low, duplicate ISM error messages may 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.

Default

256

Range 16 - 8192

Syntax

ISM_ERROR_MSG_BLOCKS(*n*)

n The number of ISM error message blocks that are allocated when DB2 Query Monitor initializes.

Example

ISM_ERROR_MSG_BLOCKS(16)

MASTER_PROCNAME

(Required) The Support Services Address Space that is used by an installation of DB2 Query Monitor, InfoSphere Optim Workload Replay S-TAP, InfoSphere Guardium S-TAP. The MASTER_PROCNAME must be specified for each product that uses the IBM DB2 Data Access Common Collector for z/OS. When the same MASTER_PROCNAME value is specified among product installations, this causes the product installations to use the same Support Services Address Space.

If you are running two versions of DB2 Query Monitor, you must specify different values for the MASTER_PROCNAME parameters for each version.

For more information, see "Support Services Address Space" on page 5.

Default

None. You must provide a value for MASTER_PROCNAME, it may not be omitted. The MASTER_PROCNAME must not be the same as DB2 Query Monitor procedure name.

Syntax

MASTER_PROCNAME(*procname*)

procname

The procedure name for the Support Services Address Space. Valid values are character, 8-byte.

Example

MASTER_PROCNAME(CQMMASSTR)

MAX_SQLCODES

(Optional) The maximum number of unique SQLCODES for which performance data is collected. The limit defined by the MAX_SQLCODES parameter applies to a given interval, not the entire time the IBM DB2 Data Access Common Collector for z/OS is running.

Default

0

Range 0-99999**Syntax**

MAX_SQLCODES(*n*)

n The maximum number of unique SQLCODES for which performance data is collected. If MAX_SQLCODES is set to 0 (the default), SQLCODE collection and display is disabled.

Example

MAX_SQLCODES(100)

MAX_SQLCODE_DETAIL

(Optional) The maximum number of times detailed information for each occurrence of an SQLCODE is collected.

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. If MAX_SQLCODE_DETAIL is set to a high value and workload floods DB2 Query Monitor with numerous -SQLCODEs, DB2 Query Monitor might experience decreased performance.
- The MAX_SQLCODE_DETAIL limit applies to a given interval, not the entire time the IBM DB2 Data Access Common Collector for z/OS is running.

Default

0

Range 0-99999**Syntax**

MAX_SQLCODE_DETAIL(*n*)

n The maximum number of times detailed information for each occurrence of an SQLCODE is collected. If

MAX_SQLCODE_DETAIL is set to 0 (the default) SQLCODE detail collection and display is disabled.

Example

MAX_SQLCODE_DETAIL(10)

MAXIMUM_ALLOCATIONS

(Optional) The maximum amount of global shared memory that can be allocated by DB2 Query Monitor for internal Integrated Storage Manager spaces.

Default

2048

Range 512-9999999

Syntax

MAXIMUM_ALLOCATIONS(*n*)

n The maximum amount of global shared memory that can be allocated by DB2 Query Monitor for internal Integrated Storage Manager spaces, in megabytes. The value you specified for the SMEM_SIZE parameter must be 3 times greater than that specified for the MAXIMUM_ALLOCATIONS parameter.

Example

MAXIMUM_ALLOCATIONS(4096)

METRDATA_DATACLAS

(Optional) The SMS data class for the METRDATA performance history files.

Default

If no value is specified for METRDATA_DATACLAS and a value has been specified for the DATACLAS parameter, METRDATA_DATACLAS defaults to the data class defined by the DATACLAS parameter.

Syntax

METRDATA_DATACLAS(*dataclass*)

dataclass

The SMS management class for allocation of the METRDATA performance history files.

Example

METRDATA_DATACLAS(DATACLAS)

METRDATA_DSN

(Required) The data set name for the METRDATA performance history file. The METRDATA data set contains summary level information related to SQL call execution. The METRDATA data set is written at interval expiration. The data set name might contain valid system symbols and may also include the Query Monitor-specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the METRDATA_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the performance history file names that are generated by Query Monitor using the METRDATA_DSN parameter are unique.

2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

Syntax

METRDATA_DSN(*dsn*)

dsn The data set name mask for the METRDATA performance history file.

Example

METRDATA_DSN(CQM.TEST.METRD.D&LYYMMDD..T&LHR.&LMIN..&INTV.)

METRDATA_MGMTCLAS

(Optional) The SMS management class for DB2 Query Monitor's METRDATA performance history files.

Default

If no value is specified for METRDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, METRDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax

METRDATA_MGMTCLAS(*managementclass*)

managementclass

The SMS management class for allocation of DB2 Query Monitor's METRDATA performance history files.

Example

METRDATA_MGMTCLAS(MGMTCLAS)

METRDATA_PRIMARY

(Optional) The primary space quantity for the METRDATA performance history file.

Default

5

Syntax

METRDATA_PRIMARY(*n*)

n The primary space quantity for the METRDATA performance history file. Valid values of *n* are greater than or equal to 5.

Example

METRDATA_PRIMARY(5)

METRDATA_SECONDARY

(Optional) The secondary space quantity for the METRDATA performance history file.

Default

2

Syntax

METADATA_SECONDARY(*n*)

n The secondary space quantity for the METADATA performance history file.

Example

METADATA_SECONDARY(3)

METADATA_SPACE_UNITS

(Optional) The space units that are used for the allocation of the METADATA performance history file.

Default

CYLS

Syntax

METADATA_SPACE_UNITS(*unit*)

unit The space unit for allocation of the METADATA performance history file. Valid values are CYLS or TRKS.

Example

METADATA_SPACE_UNITS(TRKS)

METADATA_STORCLAS

(Optional) The SMS storage class for the METADATA performance history files.

Default

If no value is specified for METADATA_STORCLAS and a value has been specified for the STORCLAS parameter, METADATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax

METADATA_STORCLAS(*storageclass*)

storageclass

The SMS storage class for allocation of the METADATA performance history files.

Example

METADATA_STORCLAS(STORCLAS)

METADATA_UNITNAME

(Optional) An esoteric name, generic device type or a device address for the METADATA performance history files.

Default

If no value is specified for METADATA_UNITNAME and a value has been specified for the UNITNAME parameter, METADATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax

METADATA_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the METADATA performance history files.

Example

METADATA_UNITNAME(CQMMTRDATA)

METADATA_VOLUME

(Optional) The volume for the METADATA performance history files.

Default

If no value is specified for METRDATA_VOLUME and a value has been specified for the VOLUME parameter, METRDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

METRDATA_VOLUME(*volume*)

volume

The volume for the METRDATA performance history files.

Example

METRDATA_VOLUME(CQMMMEV)

MGMTCLAS

(Optional) The MGMTCLAS parameter defines the SMS management class for allocation of DB2 Query Monitor's performance history files. This parameter may be overridden by the management class specifications for the individual performance history files.

Default

This parameter defaults to null. If this parameter is null, DB2 Query Monitor does not use this parameter when making allocations for the performance history files.

Syntax

MGMTCLAS(*mgmtclass*)

mgmtclass

The SMS management class for allocation of DB2 Query Monitor's performance history files.

Example

MGMTCLAS(DB2)

MONITOR

(Required) 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. For example:

```
MONITOR (SS01,,SS02,PROF,SS03)
```

In this example, 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.

Default**Syntax**

MONITOR(*ss01,profilea,ss02profileb, ... ssn,profilex*)

ss01, ss02, ... ssn

The DB2 subsystem IDs of the DB2 subsystems to be monitored.

profilea, profileb, ... profilex

The optional monitoring profile names associated with the monitoring of each DB2 subsystem. A monitoring profile name must not begin with spaces or numerics, must not contain imbedded spaces, and must not contain characters other than "A-Z", "0-9", "#", "\$", or "@". If a monitoring profile contains invalid characters, it will be ignored. For example, MONITOR (SS01,PROF!,SS02,PROF,SS03) will be treated the same as MONITOR (SS01,,SS02,PROF,SS03) due to the presence of the invalid character ("!" in "PROF!").

Example

MONITOR(SS01,SS01PROF,SS02,SS02PROF)

OBJECTS

(Optional) Controls the collection of statistics for all objects. This parameter enables you to control the size of the DB2 Query Monitor data spaces. This parameter affects all DB2 subsystems monitored by the IBM DB2 Data Access Common Collector for z/OS.

Default

Y

Syntax

OBJECTS(Y|N)

Valid values are:

Y (Default) Statistics are gathered for objects

N No statistics are gathered for objects.

Example

OBJECTS(N)

OBJSDATA_DATACLAS

(Optional) The OBJSDATA_DATACLAS parameter specifies an SMS data class for the OBJSDATA performance history files.

Default

If no value is specified for OBJSDATA_DATACLAS and a value has been specified for the DATACLAS parameter, OBJSDATA_DATACLAS defaults to the data class defined by the DATACLAS parameter.

Syntax

OBJSDATA_DATACLAS(*dataclass*)

dataclass

The SMS management class for allocation of the OBJSDATA performance history files.

Example

OBJSDATA_DATACLAS(DATACLAS)

OBJSDATA_DSN

(Required) The data set name for the OBJSDATA performance history file. The OBJSDATA dataset contains summary object level data. The OBJSDATA data set is written at interval expiration. The data set name might contain valid system symbols and may also include the DB2 Query Monitor specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the OBJSDATA_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the performance history file names that are generated by Query Monitor using the OBJSDATA_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

Syntax

OBJSDATA_DSN(*dsn*)

dsn The data set name mask for the OBJSDATA performance history file.

Example

OBJSDATA_DSN(CQM.TEST.OBJSD.D&LYYMMDD..T&LHR.&LMIN..
&INTV.)

OBJSDATA_MGMTCLAS

(Optional) The SMS management class for the OBJSDATA performance history files.

Default

If no value is specified for OBJSDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, OBJSDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax

OBJSDATA_MGMTCLAS(*managementclass*)

managementclass

The SMS management class for allocation of DB2 Query Monitor's OBJSDATA performance history files.

Example

OBJSDATA_MGMTCLAS(MGMTCLAS)

OBJSDATA_PRIMARY

(Optional) The primary space quantity for the OBJSDATA performance history file.

Default

Syntax

OBJSDATA_PRIMARY(*n*)

n The primary space quantity for the OBJSDATA performance history file. Valid values of n are greater than or equal to 5.

Example

OBJSDATA_PRIMARY(5)

OBJSDATA_SECONDARY

(Optional) The secondary space quantity for the OBJSDATA performance history file.

Default

2

Syntax

OBJSDATA_SECONDARY(*n*)

n The secondary space quantity for the OBJSDATA performance history file.

Example

OBJSDATA_SECONDARY(3)

OBJSDATA_SPACE_UNITS

(Optional) The space units that are used for the allocation of the OBJSDATA performance history file.

Default

CYLS

Syntax

OBJSDATA_SPACE_UNITS(*unit*)

unit The space units for allocation of the OBJSDATA performance history file. Valid values are CYLS or TRKS.

Example

OBJSDATA_SPACE_UNITS(TRKS)

OBJSDATA_STORCLAS

(Optional) The SMS storage class for the OBJSDATA performance history files.

Default

If no value is specified for OBJSDATA_STORCLAS and a value has been specified for the STORCLAS parameter, OBJSDATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax

OBJSDATA_STORCLAS(*storageclass*)

storageclass

The SMS storage class for allocation of the OBJSDATA performance history files.

Example

OBJSDATA_STORCLAS(STORCLAS)

OBJSDATA_UNITNAME

(Optional) An esoteric name, generic device type or a device address for DB2 Query Monitor's OBJSDATA performance history files.

Default

If no value is specified for OBJSDATA_UNITNAME and a value has been specified for the UNITNAME parameter, OBJSDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax

OBJSDATA_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the OBJSDATA performance history files.

Example

OBJSDATA_UNITNAME(CQMMTRDATA)

OBJSDATA_VOLUME

(Optional) The volume for DB2 Query Monitor's OBJSDATA performance history files.

Default

If no value is specified for OBJSDATA_VOLUME and a value has been specified for the VOLUME parameter, OBJSDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

OBJSDATA_VOLUME(*volume*)

volume

The volume for allocation of the OBJSDATA performance history files.

Example

OBJSDATA_VOLUME(CQMOBV)

OPTKEYS

(Optional) The OPTKEYS parameter specifies the level of granularity for summary buckets. For example, if you specify OPTKEYS(TEXT), DB2 Query Monitor will collect information down to the level of the individual SQL text statement. If you specify OPTKEYS(TEXT, AUTHID), DB2 Query Monitor will collect information down to the level of the individual SQL text statement and to the level of the individual DB2 authorization ID.

The specification of the OPTKEYS parameter in the CQMPARMS data set is optional. If OPTKEYS is not specified, Query Monitor collects the following information about query activity: DB2 subsystem, plan name, program name, section number, statement number, statement type, collection ID, consistency token. Specifying OPTKEYS values enables the collection of additional information about query activity to help determine the origin of query activity and problems.

Note: As you specify more OPTKEYS values, DB2 Query Monitor requires greater amounts of storage for the additional bucketing.

Default

Syntax

OPTKEYS(*option1,option2,...*)

Where *option1,option2,...* are those values that specify the level of granularity for which DB2 Query Monitor collects information. Valid values are TEXT, AUTHIDS, CORRNAME, CORRID, CALLS, WSUSER, WSTRAN, WSNAME. The OPTKEY value and the information collected when that value is included in the OPTKEYS parameter are:

AUTHIDS

Reduces collected information down to the level of individual DB2 authorization IDs.

CALLS

Reduces collected information down to the level of the individual SQL calls.

Note: If the CALLS option is not specified in the OPTKEYS parameter, the statement number and description can contain N/A in the operational summaries.

CORRID

Reduces collected information down to the level of the individual correlation ID.

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.

CORRNAME

Directs 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, 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 (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.

PTEXT

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.

Note:

- OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.
- Stripping is done after a conversion to UTF-8 (codepage 1208).

SCHEMA

Reduces collected information down to the level of the individual schema.

TEXT Reduces collected information down to the level of the unique piece of SQL text.

Note: OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

WSUSER

Reduces collected information down to the level of the individual workstation user ID.

WSTRAN

Reduces collected information down to the level of the individual workstation transaction.

WSNAME

Reduces collected information down to the level of the individual workstation name.

Example

OPTKEYS(TEXT,AUTHIDS)

QM_GROUP

(Required) The name of group to which this DB2 Query Monitor subsystem belongs. All DB2 Query Monitor subsystems in this group will coordinate the setting of INTERVAL and INTERVAL_MIDNIGHT parameter values.

When QM_GROUP is specified, INTERVAL_MIDNIGHT(Y) is the default and a warning message will be issued if INTERVAL_MIDNIGHT(N) is specified.

Note: INTERVAL_MIDNIGHT(Y) is the recommended setting when QM_GROUP is specified.

When a DB2 Query Monitor subsystem connects to a group, the INTERVAL and INTERVAL_MIDNIGHT parameters should be consistent across all DB2 Query Monitor subsystems connected to that group. The first DB2 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 DB2 Query Monitor subsystems that connect will be overridden by the values established by the first DB2 Query Monitor subsystem to connect to the group.

If a DB2 Query Monitor subsystem connects to the group and has different values for INTERVAL and INTERVAL_MIDNIGHT a warning message will be issued.

Default

None

Syntax

QM_GROUP(*groupname*)

groupname

The name (8-byte, character) of the group to which the DB2 Query Monitor subsystem belongs..

Example

QM_GROUP(QMGRP001)

RETAIN

The number of prior intervals that are to be retained on DASD after interval processing is complete.

Notes:

1. As you specify higher values for the RETAIN parameter, the DB2 Query Monitor subsystem requires greater amounts of storage for the additional intervals retained on DASD.
2. The RETAIN parameter indicates the number of completed intervals to retain on DASD.
3. You can use the DB2 offload process to keep data that has been collected beyond the retention period specified by the RETAIN parameter.

Default

6

Range 2-99999

Syntax

RETAIN(*n*)

n The number of prior intervals to be retained on DASD after interval processing is complete.

Example

RETAIN(12)

SMEM_SIZE

(Optional) The maximum amount global shared memory (in gigabytes) that will be allocated by DB2 Query Monitor for all purposes.

Default

4

Range 3-16

Syntax

SMEM_SIZE(*n*)

n The maximum amount global shared memory, in gigabytes. The value you specified for the SMEM_SIZE parameter must be 3 times greater than that specified for the MAXIMUM_ALLOCATIONS parameter.

Example

SMEM_SIZE(8)

SQLCDA_DATACLAS

(Optional) The SMS data class for the SQLCDA performance history files.

Default

If no value is specified for SQLCDA_DATACLAS and a value has been specified for the DATACLAS parameter, SQLCDA_DATACLAS defaults to the data class defined by the DATACLAS parameter.

Syntax

SQLCDA_DATACLAS(*dataclass*)

dataclass

The SMS management class for allocation of the SQLCDA performance history files.

Example

SQLCADATA_DATACLAS(DATACLAS)

SQLCADATA_DSN

(Required) The data set name for the SQLCADATA performance history file. The SQLCADATA data set contains information about negative SQLCODES collected during the course of an interval. Summary level -SQLCODE data is recorded at interval expiration. Detail level -SQLCODE data is recorded as the interval progresses. The data set name might contain valid system symbols and may also include the DB2 Query Monitor specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the SQLCADATA_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the performance history file names that are generated by Query Monitor using the SQLCADATA_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

Syntax

SQLCADATA_DSN(*dsn*)

dsn The data set name mask for the SQLCADATA performance history file.

Example

SQLCADATA_DSN(CQM.TEST.SQLCD.D&LYYMMDD..T&LHR.&LMIN..
&INTV.)

SQLCADATA_MGMTCLAS

(Optional) The SMS management class for the SQLCADATA performance history files.

Default

If no value is specified for SQLCADATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, SQLCADATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax

SQLCADATA_MGMTCLAS(*managementclass*)

managementclass

The SMS management class for allocation of the SQLCADATA performance history files.

Example

SQLCADATA_MGMTCLAS(MGMTCLAS)

SQLCDA_T_PRIMARY

(Optional) The primary space quantity for the SQLCDA_T performance history file.

Default

5

Syntax

SQLCDA_T_PRIMARY(*n*)

n The primary space quantity for the SQLCDA_T performance history file. Valid values of *n* are greater than or equal to 5.

Example

SQLCDA_T_PRIMARY(5)

SQLCDA_T_SECONDARY

(Optional) The secondary space quantity for the SQLCDA_T performance history file.

Default

2

Syntax

SQLCDA_T_SECONDARY(*n*)

n The secondary space quantity for the SQLCDA_T performance history file.

Example

SQLCDA_T_SECONDARY(3)

SQLCDA_T_SPACE_UNITS

(Optional) The space units that are used for the allocation of the SQLCDA_T performance history file.

Default

CYLS

Syntax

SQLCDA_T_SPACE_UNITS(*unit*)

unit The space unit for allocation of the SQLCDA_T performance history file. Valid values are CYLS or TRKS.

Example

SQLCDA_T_SPACE_UNITS(TRKS)

SQLCDA_T_STORCLAS

(Optional) The SMS storage class for DB2 Query Monitor's SQLCDA_T performance history files.

Default

If no value is specified for SQLCDA_T_STORCLAS and a value has been specified for the MGMTCLAS parameter, SQLCDA_T_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax

SQLCDA_T_STORCLAS(*storageclass*)

storageclass

The SMS storage class for allocation of DB2 Query Monitor's SQLCDA_T performance history files.

Example

SQLCDATA_STORCLAS(STORCLAS)

SQLCDATA_UNITNAME

(Optional) An esoteric name, generic device type or a device address for the SQLCDATA performance history files.

Default

If no value is specified for SQLCDATA_UNITNAME and a value has been specified for the UNITNAME parameter, SQLCDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax

SQLCDATA_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the SQLCDATA performance history files.

Example

SQLCDATA_UNITNAME(CQMSQLCDATA)

SQLCDATA_VOLUME

(Optional) The volume for the SQLCDATA performance history files.

Default

If no value is specified for SQLCDATA_VOLUME and a value has been specified for the VOLUME parameter, SQLCDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

SQLCDATA_VOLUME(*volume*)

volume

The volume for allocation of the SQLCDATA performance history files.

Example

SQLCDATA_VOLUME(CQMSQV)

STORCLAS

(Optional) The SMS storage class for allocation of the performance history files. This startup parameter may be overridden by the storage class specifications for the individual performance history files.

Default

This parameter defaults to null. If this parameter is null, DB2 Query Monitor does not use this parameter when making allocations for the performance history files.

Syntax

STORCLAS(*storageclass*)

storageclass

Example

STORCLAS(DB2TEMP)

SUBSYS

(Optional) The DB2 Query Monitor subsystem name. The DB2 Query Monitor subsystem name does not need to correspond to a DB2 subsystem nor an MVS operating system name.

Default

DBQM

SyntaxSUBSYS(*qmid*)*qmid* The 1-4 character DB2 Query Monitor subsystem name.

Note: The DB2 Query Monitor subsystem ID must be unique across the sysplex. A DB2 Query Monitor subsystem must be running on each LPAR that has a DB2 subsystem to be monitored. Therefore when choosing a DB2 Query Monitor subsystem ID name, be sure it will not conflict with another on the sysplex.

Example

SUBSYS(DBQM)

TEXTDATA_DATACLAS

(Optional) The SMS data class for the TEXTDATA performance history files.

Default

If no value is specified for TEXTDATA_DATACLAS and a value has been specified for the DATACLAS parameter, TEXTDATA_DATACLAS defaults to the data class defined by the DATACLAS parameter.

SyntaxTEXTDATA_DATACLAS(*dataclass*)*dataclass*

The SMS management class for allocation of the TEXTDATA performance history files.

Example

TEXTDATA_DATACLAS(DATACLAS)

TEXTDATA_DSN

(Required) The data set name for the TEXTDATA performance history file. The TEXTDATA data set contains summary level SQL text data. This data set is written as SQL text is being captured for OPTKEYS(TEXT) during the course of an interval. The data set name might contain valid system symbols and may also include the DB2 Query Monitor specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Notes:

1. To ensure that the performance history file name mask you specify generates unique data set names, you should use the &INTV symbolic when you define the TEXTDATA_DSN parameter. We also recommend that you use the date and time symbolics to ensure that the performance history file names that are generated by Query Monitor using the TEXTDATA_DSN parameter are unique.
2. Data set name specifications in CQMPARMS must not resolve to a length greater than 38 bytes since the system will append .DATA and .INDEX to the end of the VSAM data and index components.
3. It is recommended that you use the full local date format (date, hour, minute, interval number) to ensure that fully qualified data set names are used and that you avoid any potential duplicate data set name allocations during interval switch processing.

Default

None

Syntax

TEXTDATA_DSN(*dsn*)

dsn The data set name mask for the TEXTDATA performance history file.

Example

TEXTDATA_DSN(CQM.TEST.TEXTD.D&LYYMMDD..T&LHR.&LMIN..
&INTV.)

TEXTDATA_MGMTCLAS

(Optional) The SMS management class for the TEXTDATA performance history files.

Default

If no value is specified for TEXTDATA_MGMTCLAS and a value has been specified for the MGMTCLAS parameter, TEXTDATA_MGMTCLAS defaults to the storage class defined by the MGMTCLAS parameter.

Syntax

TEXTDATA_MGMTCLAS(*managementclass*)

managementclass

The SMS management class for allocation of the TEXTDATA performance history files.

Example

TEXTDATA_MGMTCLAS(MGMTCLAS)

TEXTDATA_PRIMARY

(Optional) The primary space quantity for the TEXTDATA performance history file.

Default

5

Syntax

TEXTDATA_PRIMARY(*n*)

n The primary space quantity for the TEXTDATA performance history file. Valid values of *n* are greater than or equal to 5.

Example

TEXTDATA_PRIMARY(5)

TEXTDATA_SECONDARY

(Optional) The secondary space quantity for the TEXTDATA performance history file.

Default

2

Syntax

TEXTDATA_SECONDARY(*n*)

n The secondary space quantity for the TEXTDATA performance history file.

Example

TEXTDATA_SECONDARY(3)

TEXTDATA_SPACE_UNITS

(Optional) The space units that are used for the allocation of the TEXTDATA performance history file.

Default

CYLS

Syntax

TEXTDATA_SPACE_UNITS(*unit*)

unit The space units for allocation of the TEXTDATA performance history file. Valid values are CYLS or TRKS.

Example

TEXTDATA_SPACE_UNITS(TRKS)

TEXTDATA_STORCLAS

(Optional) The SMS storage class for the TEXTDATA performance history files.

Default

If no value is specified for TEXTDATA_STORCLAS and a value has been specified for the STORCLAS parameter, TEXTDATA_STORCLAS defaults to the storage class defined by the STORCLAS parameter.

Syntax

TEXTDATA_STORCLAS(*storageclass*)

storageclass

The SMS storage class for allocation of the TEXTDATA performance history files.

Example

TEXTDATA_STORCLAS(STORCLAS)

TEXTDATA_UNITNAME

(Optional) An esoteric name, generic device type or a device address for the TEXTDATA performance history files.

Default

If no value is specified for TEXTDATA_UNITNAME and a value has been specified for the UNITNAME parameter, TEXTDATA_UNITNAME defaults to the unit name defined by the UNITNAME parameter.

Syntax

TEXTDATA_UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the TEXTDATA performance history files.

Example

TEXTDATA_UNITNAME(CQMTEXTDATA)

TEXTDATA_VOLUME

(Optional) The volume for the TEXTDATA performance history files.

Default

If no value is specified for TEXTDATA_VOLUME and a value has been specified for the VOLUME parameter, TEXTDATA_VOLUME defaults to the volume defined by the VOLUME parameter.

Syntax

TEXTDATA_VOLUME(*volume*)

volume

The volume for allocation of the TEXTDATA performance history files.

Example

TEXTDATA_VOLUME(CQMTEV)

UNITNAME

(Optional) An esoteric name, generic device type or a device address for the performance history files.

Default

This parameter defaults to null. If this parameter is null, DB2 Query Monitor does not use this parameter when making allocations for the performance history files.

Syntax

UNITNAME(*unitname*)

unitname

The unit name, generic device type, or device address for allocation of the performance history files.

Example

UNITNAME(SYSALLDA)

VOLUME

(Optional) The volume for the performance history files.

Default

This parameter defaults to null. If this parameter is null, DB2 Query Monitor does not use this parameter when making allocations for the performance history files.

Syntax

VOLUME(*volume*)

volume

The volume for allocation of the performance history files.

Example

VOLUME(CQMVOL)

Related concepts:

“About SQLCODEs” on page 239

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.

Tips and recommendations for CQMPARMS

Review the following tips and recommendations for CQMPARMS.

CQMPARMS DD requirements

DB2 Query Monitor's parameters are defined in an 80-byte sequential or partitioned data set that you must allocate to the CQMPARMS DD.

When coding the parameter file, note the following:

- The end of any parameter is denoted by a close parenthesis ')'. The absence of a close parenthesis on any non-commented line indicates that the parameter is to

be continued. To continue it, simply start in column 1 on the next line (the continuation line **must** start in column 1).

- A continuation is limited to 360 characters. The leading and trailing blanks on each line are not counted towards that limit so you can specify approximately 40 DB2 and profile pairs.
- Use a hyphen to continue the parameter file after the end of an individual parameter.
- Do not place characters in columns 73 through 80
- Do not code line numbers
- Comments may appear anywhere after a hyphen
- The valid character set for CQMPARMS is EBCDIC
- Underlines indicate the minimum acceptable abbreviation for each keyword
- Variables are shown in italicized lower-case type
- Keyword options are separated by vertical lines, |

The following example shows the MONITOR parameter continued over three lines. Note that there is not a continuation character "-" at the end of the first and second lines. The first and second lines end without a close parenthesis anywhere before column 72. The second and third lines continue in column 1 and the third line ends with a hyphen "-" after the close parenthesis, indicating the parameter file continues:

```
MONITOR (DB21,PROFILE1,DB22,PROFILE2,  
DB23,PROFILE3,DB24,PROFILE4,  
DB25,PROFILE5) -
```

Data set name guidelines for CQMPARMS

Data set names in CQMPARMS must not resolve to lengths of greater than 38 bytes since the system appends ".DATA" and ".INDEX" to the end of VSAM data and index components.

Additionally, data set names might contain valid system symbols and may also include the DB2 Query Monitor-specific symbol &INTV (the &INTV symbolic resolves to the current interval number).

Thus, when specifying data set names for DB2 Query Monitor's performance history files (using parameters such as DB2CDATA_DSN, EXCPDATA_DSN, 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 (&LYYMMDD) for data set naming conventions.

Non-SMS allocation of performance history files

DB2 Query Monitor's STORCLASS, DATACLAS, MGMTCLAS, and VOLUME parameters (including DB2CDATA_VOLUME, EXCPDATA_VOLUME, 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's performance history files.

The specification of values for the parameters listed above (as well as the data set naming parameters, DB2CDATA_DSN, EXCPDATA_DSN, 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.

Notes:

1. When using these new parameters, please note that the STORCLAS, MGMTCLAS, and DATACLAS parameters must be commented out or they will override the volume specifications for the individual performance history files.
2. DB2 Query Monitor does not attempt to look anywhere else for storage other than the specified volume in the volume parameters.
3. No informational message is generated if the DATACLAS, STORCLAS, MGMTCLAS parameters are not commented out.
4. In the absence of SMS-management of the performance history file allocations and if no volume-specific parameters are specified in the CQMPARMS file, the performance history files will be allocated on storage volumes, as determined by the operating system, provided space is available.

Parameter specification errors

The following non DB2 Query Monitor messages may occur when an invalid value is left in any of the parameters (including DB2CDATA_VOLUME, EXCPDATA_VOLUME, EXCPINDX_VOLUME, METRDATA_VOLUME, OBJSDATA_VOLUME, SQLCDATA_VOLUME, TEXTDATA_VOLUME, and VOLUME).

If these message occur, DB2 Query Monitor stops the startup process and terminates:

- IKJ56231I DATA SET <data set name> NOT ALLOCATED, IKJ56231I TEXT UNIT X'0010' CONTAINS INVALID PARAMETER
- IKJ56248I DATA SET <data set name> NOT ALLOCATED, REQUESTED AS NEW BUT CURRENTLY ALLOCATED
- IKJ56883I type NOT operation, REQUEST CANCELED

- IKJ56893I type_name NOT operation (Allocation, LACS, and/or Storage Management Subsystem messages are displayed)

Note: One possible reason for the generation of these messages is the use of duplicate variables in parameters used to define data set names.

The following message is issued by the started task if there is a problem allocating the data set:

```
CQM2601E ALLOCATION FAILED FOR VSAM DATASET <data set name>
RETCD=<return code> REAS=<reason code>
```

When this message occurs, DB2 Query Monitor will stop the start-up process and terminate. Refer to *MVS Programming Authorized Assembler Services Guide* (SA22-7608-07) for information about return and reason codes. Error messages CQM2100E, CQM2101E, and CQM2110E will be issued if the parameters or their values are incorrectly defined.

Reduced object details for prepare SQL calls

When DB2 Query Monitor collects object details for a site that runs a large number of dynamic SQL statements, the number of catalog objects that are tracked by DB2 Query Monitor may grow quite large.

For instance, numerous catalog objects are accessed during the bind (prepare) process for a dynamic SQL statement. Since DB2 Query Monitor collects statistics on those objects, a large number of objects are tracked when numerous dynamic SQL statements execute. This results in the increased consumption of dataspace storage per interval.

DB2 Query Monitor enables you to turn off the collection of catalog object statistics and thus reduce dataspace storage consumption resulting from dynamic SQL prepare calls by specifying a value of N for the CATALOG_OBJECTS startup parameter.

Enhanced security for HOSTVAR and SQL text viewing

These startup parameters control the enhanced security for viewing HOSTVAR and SQL exceptions:

- EXCPHSTV_DSN
- EXCPHSTV_PRIMARY
- EXCPHSTV_SECONDARY
- EXCPHSTV_SPACE_UNITS
- EXCPHSTV_UNITNAME
- EXCPHSTV_STORCLAS
- EXCPHSTV_DATACLAS
- EXCPHSTV_MGMTCLAS
- EXCPHSTV_VOLUME
- EXCPTEXT_DSN
- EXCPTEXT_PRIMARY
- EXCPTEXT_SECONDARY
- EXCPTEXT_SPACE_UNITS
- EXCPTEXT_UNITNAME
- EXCPTEXT_STORCLAS

- EXCPTEXT_DATACLAS
- EXCPTEXT_MGMTCLAS
- EXCPTEXT_VOLUME

If you use the EXCPHSTV_* parameter set, exception HOSTVAR information will be recorded in the EXCPHSTV performance history file and can be protected using a RACF data set profile. If you do not use the EXCPHSTV_* parameter set, the data will be recorded in the EXCPDATA performance history file.

If you use the EXCPTEXT_* parameter set, exception SQL text information will be recorded in the EXCPTEXT performance history file and can be protected using a RACF data set profile. If you do not use the EXCPTEXT_* parameter set, the data will be recorded in the EXCPDATA performance history file.

Note:

1. The EXCPHSTV and EXCPTEXT parameter sets are required. If not specified, DB2 Query Monitor will issue error message CQM1061E.
2. If you use RACF profiles to protect HOSTVAR or SQLTEXT information that has been recorded in the EXCPHSTV or EXCPTEXT performance history files, note that this only protects exception information. To protect current activity or summaries, the appropriate RACF facility class profile must be in place. To protect data in interval data sets, you must create RACF data set profiles to protect those performance history files as well.

CAE Agent parameters - CQMCPRMS

The parameters defined in CQMCPRMS 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.

The following parameters can be defined in CQMCPRMS.

BACKUP_ADDRESS

(Optional) The IP address or DNS at which the Backup CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

0.0.0.0

Syntax

BACKUP_ADDRESS(*address*)

address

The IP address or DNS name of the Backup CAE Server.

Example

BACKUP_ADDRESS(192.168.55.22)

Also referred to as

CAE Agent System - Backup CAE Server Access Listener Address

BACKUP_PORT

(Optional) The port at which the Backup CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

3448

Syntax

BACKUP_PORT(*port*)

port The port number at which the Backup CAE Server is accepting connections from the CAE Agent.

Example

BACKUP_PORT(53006)

Also referred to as

CAE Agent System - Backup CAE Server Access Listener Port

CALLBACK_ADDRESS

(Optional) The IP address the CAE Server uses to respond to the CAE Agent. The IP address specified with this parameter is used instead of host names when the CAE Server sends meta data to IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS (OWQT).

Default

0.0.0.0

Syntax

CALLBACK_ADDRESS(*address*)

address

The IP address that is to be used instead of host names when the CAE Server sends meta data to IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS (OWQT).

Example

CALLBACK_ADDRESS(192.168.55.22)

LISTENER_ADDRESSES

(Optional) A list of IP addresses or DNS names at which the CAE Agent listens for incoming connections from the CAE Server.

Default

0.0.0.0

Note: This value enables the CAE Agent to listen at all IP addresses defined for the z/OS image on which the CAE Agent is running.

Syntax

LISTENER_ADDRESSES(*address,address2,address1*)

addressn

The IP addresses or DNS names (comma-separated) at which the CAE Agent listens for incoming connections from the CAE Server.

Example

LISTENER_ADDRESSES(SRVR01.COMPANYNAME.COM,SRVR02.COMPANYNAME.COM)

Also referred to as

CAE Agent System - CAE Agent Access Listener Addresses

LISTENER_PORTS

(Required) The port range used by the CAE Agent to accept communication requests from the CAE Server.

Default

None

Syntax

LISTENER_PORTS(*port1-port2*)

port1-port2

The port range used by the CAE Agent to accept communication requests from the CAE Server.

Example

LISTENER_PORTS(60000-60004)

Also referred to as

CAE Agent System - CAE Agent Access Listener Port Range

Usage recommendations

- If you allow only one listener port, you will not be able to restart the CAE Agent until at least 2 minutes after the previous CAE Agent address space was terminated (even if terminated normally using /P).
- A port range of at least 2 but preferably 5 ports is recommended. For example, LISTENER_PORTS(60000-60004).

MIXED_CASE_PASSWORDS

(Optional) Indicates whether or not mixed-case passwords are accepted.

Default

N

Syntax

MIXED_CASE_PASSWORDS(Y|N)

N (Default) Mixed-case passwords are not required; users can enter passwords in any case and passwords will be upper-cased.

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 (RACF, ACF2, TopSecret) does not use mixed-case passwords.

Example

MIXED_CASE_PASSWORDS(Y)

SERVER_ADDRESS

(Required) A list of IP addresses or DNS names at which the CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

0.0.0.0

Syntax

SERVER_ADDRESS(*address*)

address

A list of IP addresses or DNS names at which the CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Example

SERVER_ADDRESS(SRVR01.COMPANYNAME.COM)

Also referred to as

CAE Agent System - CAE Server Access Listener Address

SERVER_POLL_PERIOD

(Optional) The CAE Server poll period, in seconds. When the CAE Agent is not connected to a CAE Server, it will attempt to connect by polling the CAE Server (defined by the SERVER_ADDRESS parameter) at the specified CAE Agent System - CAE Server Access Listener Port (defined by the SERVER_PORT parameter) at a frequency defined by the SERVER_POLL_PERIOD parameter.

Default

10

Syntax

SERVER_POLL_PERIOD(*n*)

Example

SERVER_POLL_PERIOD(20)

SERVER_PORT

(Optional) The port at which the CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

3448

Syntax

SERVER_PORT(*port_number*)

Example

SERVER_PORT(53006)

Also referred to as

CAE Agent System - CAE Server Access Listener Port

CAE Server parameters - USS

These parameters are available for use with USS installations of the CAE Server and are defined in the STDENV DD statement of SAMPLIB member CQMCAESV.

CQM_CAE_AGENT_LISTENER_PORT

(Optional) The port at which the CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

3448

Syntax

CQM_CAE_AGENT_LISTENER_PORT=*port*

port The port number.

Example

CQM_CAE_AGENT_LISTENER_PORT=3450

Also referred to as

CAE Agent System - CAE Server Access Listener Port

CQM_CAE_KEYSTORE_TYPE

(Optional) The type of both the truststore and keystore. The truststore and keystore types cannot be different.

Default

JKS

Syntax

CQM_CAE_KEYSTORE_TYPE=*type*

type Valid values for *type* include:

JKS (or JAVA)

(Default) The **defaultKeystore.jks** file is used for the keystore and truststore.

Note: If you specify JKS (or JAVA), do not specify the CQM_CAE_TRUSTSTORE and CQM_CAE_KEYSTORE parameters.

RACF (JCERACFKS, ACF2, or SAF)

Certificates and keys are stored in SAF (for example, RACF or ACF2). 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.

CQM_CAE_TRUSTSTORE

(Optional) The location of the truststore. The key ring must be set up for the user ID under which the CAE server will be run. This parameter should only be specified if the CQM_CAE_KEYSTORE_TYPE is either RACF or CCA (or their synonyms). Do not specify this parameter if CQM_CAE_KEYSTORE_TYPE=JKS (or its synonym) is specified.

Default

None

Syntax

CQM_CAE_TRUSTSTORE=safkeyring:///ringname

ringname

The name of the SAF keyring that contains the trusted certificate.

CQM_EXPIRED_FAILOVER_WAIT_TIME

(Optional) How long in seconds the Watchdog waits after communication with the Primary CAE Server has been lost before it starts the Backup CAE Server.

Set this parameter to the number of seconds it usually takes for the Backup CAE Server to restart after a power failure or explicit shutdown or restart.

Default

0

Syntax

CQM_EXPIRED_FAILOVER_WAIT_TIME=*n*

n The number of seconds the Watchdog waits after communication with the Primary CAE Server has been lost before it starts the Backup CAE Server.

Example

CQM_EXPIRED_FAILOVER_WAIT_TIME=10

CQM_HEAP

(Optional) The amount of memory in MB that the Java virtual machine heap can use.

Note: It is recommended that your USS environment includes the following setting: _BPX_SHAREAS=NO.

Default

500

Syntax

CQM_HEAP=*n*

n The amount of memory in MB that the Java virtual machine heap can use.

Example

CQM_HEAP=550

CQM_HTTPS_PORT

(Optional) The HTTPS port on the CAE Server that the CAE Browser Client connects to.

Default

443

Syntax

CQM_HTTPS_PORT=(*port*)

port The HTTPS port on the CAE Server that the CAE Browser Client connects to.

Example

CQM_HTTPS_PORT=8443

Also referred to as

HTTPS Port

CQM_INITIAL_FAILOVER_WAIT_TIME

(Optional) How long in seconds 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 Backup CAE Server.

Default

18000

Syntax

CQM_INITIAL_FAILOVER_WAIT_TIME=*n*

n The number of seconds the Watchdog waits after it starts to receive a response from the Primary CAE Server before starting a Backup CAE Server.

Example

CQM_INITIAL_FAILOVER_WAIT_TIME=20000

CQM_JAVA

(Optional) The location of Java 1.6.

Default

/user/lpp/java/IBM/J1.6

Syntax

CQM_JAVA=*path*

path The path of the Java 1.6 installation.

Example

CQM_JAVA=/user/lpp/java/IBM/Java16

CQM_JDBC_PORT

(Optional) The Java Database Connectivity port used by the CAE Server.

Default

1112

Syntax

CQM_JDBC_PORT=*port*

port The Java Database Connectivity port used by the CAE Server.

Example

CQM_JDBC_PORT=1114

Also referred to as

JDBC Port

CQM_LOCAL_PORTAL_PORT

(Optional) The port that the Java Agent listens on.

Note:

- If you change the Java Agent System - Local Portal Port of the CAE Server, the Java Agent System - Remote Portal Port of the Backup CAE Server and the Watchdog must be changed to match that value too.
- When specifying the Java Agent System - Local Portal Port and Java Agent System - Remote Portal Port, make sure they are not within the RMI Port Range, which by default is 3445-3455. If you specify a Java Agent System - Local Portal Port within the RMI Port Range, there is a chance of a conflict.
- The port 3444 has been registered with IANA for use by DB2 Query Monitor. With the exception of IBM Tivoli Storage Optimizer for z/OS, no third-party application should default to that port.

Default

3444

Syntax

CQM_LOCAL_PORTAL_PORT=*port*

port The port that the CAE Server listens on.

Example

CQM_LOCAL_PORTAL_PORT=3460

Also referred to as

Java Agent System - Local Portal Port

CQM_LOGS

(Required) The location to which CAE Agent logs are stored on z/OS.

Note: The directory part of the path of the STDOUT DD statement must be the same as the directory specified for the CQM_LOGS parameter in STDENV. For example, if /u/username/cqm31/bin/start_cae_agent is in the STDOUT DD statement, then the CQM_LOGS must be /u/username/cqm31/logs (the /u/username/cqm31 portion of the path must match for both).

Default

None

Syntax

CQM_LOGS=*path*

path The location to which CAE Agent logs are stored on z/OS.

Example

CQM_LOGS=/u/username/cqm31/logs

CQM_LOGS_TO_KEEP

(Optional) The number of agent logs that are kept.

Default

5

Syntax

CQM_LOGS_TO_KEEP=*n*

n The number of agent logs that are kept.

Syntax

CQM_LOGS_TO_KEEP=10

CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME

(Optional) Instructs the CAE Server to use the IP address instead of the host name to send metadata to IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS (OWQT).

Default

false

Syntax

CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME=true | false

Example

CQM_OQWT_DO_NOT_USE_CANONICAL_HOST_NAME=true

CQM_REMOTE_PORTAL_PORT

(Optional) The port that the Java Agent attempts to connect to.

Default

3444

Syntax

CQM_REMOTE_PORTAL_PORT=*port*

port The port that the CAE Server attempts to connect to.

Example

CQM_REMOTE_PORTAL_PORT=3460

Also referred to as

Java Agent System - Remote Portal Port

CQM_RMI_PORT_RANGE

(Optional) The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication.

Default

3445-3455

Syntax

CQM_RMI_PORT_RANGE=*port1-port2*

port1-port2

The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication.

Example

CQM_RMI_PORT_RANGE=3465-3475

Also referred to as

RMI Port Range

CQM_SHTDWN_FAILOVER_WAIT_TIME

(Optional) How long in seconds the Watchdog waits after receiving a message from the Primary CAE Server that it is shutting down. That is, the Primary CAE Server was given an explicit stop command. Set this timer to the average time it takes for the operator on the Primary CAE Server to perform maintenance and issue a start command for the Primary CAE Server.

Default

600

Syntax

CQM_SHTDWN_FAILOVER_WAIT_TIME=*n*

n The number of seconds the Watchdog waits after receiving a message from the Primary CAE Server that it is shutting down.

Example

CQM_SHTDWN_FAILOVER_WAIT_TIME=800

CQM_TZ

(Optional) Overrides the TZ (TIMEZONE) variable active for the USS segment of the user submitting the CQMCAE JCL.

Default

None. If you do not specify CQM_TZ, the CAE Server uses system properties to determine your time zone.

Syntax

CQM_TZ=zulu

CQM_VAR_HOME

(Required) The location of the configuration and data files for the CAE Server.

Default

userhome/cqmv3r2/var

Syntax

CQM_VAR_HOME=*path*

path The location of the configuration and data files for the CAE Server.

Example

CQM_VAR_HOME=/proj/qmcaedata

REGION

(Optional) The region size in MB for the CAE Server. The value you specify for REGION must be at least 300 MB more than the value you specify for CQM_HEAP.

Note: It is recommended that your USS environment includes the following setting: `_BPX_SHAREAS=NO`.

Default

800

Syntax

REGION=*size*

size The region size in MB for the CAE Server.

Example

REGION=1000

Related concepts:

“Using certificates and keys that are stored in keyrings - USS” on page 26
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.

CAE Server parameters - Windows

These parameters are available for use with Windows installations of the CAE Server and are defined in `rocket.kbm.server.properties`.

com.rocketsoft.nm.qm.caeAgent.listenerPort

(Optional) This port identifies the port at which the CAE Server listens for incoming connections from the CAE Agent and for requests that come from ISPF.

Default

3448

Syntax

`com.rocketsoft.nm.qm.caeAgent.listenerPort=port`

port The port number.

Example

`com.rocketsoft.nm.qm.caeAgent.listenerPort=(need info)`

Also referred to as

CAE Agent System - CAE Server Access Listener Port

com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames

(Optional) Instructs the CAE Server to use the IP address instead of the host name to send metadata to IBM InfoSphere Optim Query Workload Tuner for DB2 for z/OS (OWQT).

Default

false

Syntax

`com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames=true | false`

Example

`com.rocketsoft.nm.qm.ipc.oqwt.doNotuseCanonicalHostNames=true`

com.rocketsoft.denali.agents.localPort

(Optional) The port that the Java Agent listens on.

Note:

- If you change the Java Agent System - Local Portal Port of the CAE Server, the Java Agent System - Remote Portal Port of the Backup CAE Server and the Watchdog must be changed to match that value too.
- When specifying the Java Agent System - Local Portal Port and Java Agent System - Remote Portal Port, make sure they are not within the RMI Port Range, which by default is 3445-3455. If you specify a Java Agent System - Local Portal Port within the RMI Port Range, there is a chance of a conflict.
- The port 3444 has been registered with IANA for use by DB2 Query Monitor. With the exception of IBM Tivoli Storage Optimizer for z/OS, no third-party application should default to that port.

Default

3444

Syntax

`com.rocketsoft.denali.agents.localPort=port`

port The port that the Java Agent listens on.

Example

`com.rocketsoft.denali.agents.localPort=3460`

Also referred to as

Java Agent System - Local Portal Port

com.rocketsoft.denali.agents.remotePort

(Optional) The port that the Java Agent attempts to connect to.

Default

3444

Syntax

`com.rocketsoft.denali.agents.remotePort=port`

port The port that the Java Agent attempts to connect to.

Example

`com.rocketsoft.denali.agents.remotePort=3460`

Also referred to as

Java Agent System - Remote Portal Port

com.rocketsoft.denali.agents.rmiPortRange

(Optional) The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication.

Default

3445-3455

Syntax

`com.rocketsoft.denali.agents.rmiPortRange=port1-port2`

port1-port2

The range of ports used by CAE Server, Watchdog and Backup CAE Server for ongoing communication.

Example

`com.rocketsoft.denali.agents.rmiPortRange=3465-3475`

Also referred to as
RMI Port Range

Chapter 25. Troubleshooting

Use these topics to diagnose and correct problems that you experience with DB2 Query Monitor.

Topics:

- “Recovery procedures”
- “Messages” on page 591
- “Gathering diagnostic information” on page 721
- “NORUN parameter” on page 722

Recovery procedures

Recovery procedures have been developed for many common DB2 Query Monitor problems.

Topics:

- “Recovering from disk failure”
- “Recovering from subsystem termination” on page 590

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(volser)
```

If you initialize a 3380 or 3390 volume, use REVAL with the VERIFY parameter to ensure that you initialize the intended volume, or to revalidate the home address of the volume and record 0. Alternatively, use ISMF to initialize the disk unit.

- 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 master terminal:

```
DSNM002I  IMS/TM xxxx DISCONNECTED FROM SUBSYSTEM
          yyyy RC=rc
```

The following message might be issued to the CICS transient data error destination, which is defined in the RDO:

```
DSNC2025I - THE ATTACHMENT FACILITY IS INACTIVE
```

Environment

- IMS and CICS continue.
- In-process IMS and CICS applications receive SQLCODE -923 (SQLSTATE '57015') when accessing DB2.
In most cases, if an IMS or CICS application program is running when a -923 SQLCODE is returned, an abend occurs. This is because the application program generally terminates when it receives a -923 SQLCODE. To terminate, some synchronization processing occurs (such as a commit). If DB2 is not operational when synchronization processing is attempted by an application program, the application program abends. In-process applications can abend with an abend code X'04F'.
- IMS applications that begin to run after subsystem termination begins are handled according to the error options.
 - For option R, SQL return code -923 is sent to the application, and IMS pseudo abends.
 - For option Q, the message is enqueued again, and the transaction abends.
 - For option A, the message is discarded, and the transaction abends.
- CICS applications that begin to run after subsystem termination begins are handled as follows:
 - If the CICS attachment facility has not terminated, the application receives a -923 SQLCODE.
 - If the CICS attachment facility has terminated, the application abends (code AEY9).

Resolving the problem

Operator response:

1. Restart DB2 Query Monitor by issuing the START command.
2. For IMS environments, reestablish the IMS connection by issuing the IMS command /START SUBSYS DB2.
3. For CICS environments, reestablish the CICS connection by issuing the CICS attachment facility command DSNCL STRT.

Messages

All messages generated by DB2 Query Monitor have a severity code printed as the last character of the message ID.

The severity codes are **I** (Information only, no user action required), **W** (Warning message, results may not be as expected), and **E** (Error message, some errors may be user-correctable, read the User Response to determine the course of action).

DB2 Query Monitor's message information can be broken down into these categories:

- **Product panel messages**—Messages that display when using the ISPF interface for 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 Query Monitor functions such as column sorting and display.
- **Return codes**—Information pertaining to return codes that may appear during 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 DB2 Query Monitor Subsystem ID is a required field. Please enter a valid DB2 Query Monitor subsystem ID.

Explanation: The DB2 DB2 Query Monitor subsystem ID field is blank. You must specify a valid DB2 Query Monitor subsystem before attempting to use product functions.

User response: Enter a valid DB2 Query Monitor subsystem ID in the **DB2 DB2 Query Monitor subsystem ID** field. You can view information about DB2 Query Monitor subsystems available for use by typing a ? in the **DB2 DB2 Query Monitor subsystem ID** field and pressing Enter. The **QM Subsystem Discovery** panel displays where you can select a DB2 Query Monitor subsystem for use.

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 a ? 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 enter Query Monitor is not authorized to use the product.

User response: Verify that you are using the correct user ID and if so, contact your system administrator for assistance.

CQM005E Query Monitor Subsystem not active. You must start the DB2 QM Subsystem to view current activity or to work with monitoring agents.

Explanation: The DB2 QM subsystem you specified has not been started, either via started task or job. It is required that the QM subsystem be started prior to issuing the requested option.

User response: Start the DB2 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 subsystem. The DB2 QM subsystem specified is not valid or has not been activated.**

Explanation: This message displays if any of the following situations occur:

- The specified subsystem is not a valid DB2 QM subsystem.
- The DB2 QM subsystem has not been started.
- The QM subsystem is invalid and you have attempted to enter any of the main menu selections.

User response: Ensure that the specified subsystem is a valid DB2 QM subsystem. If it is, then start is a valid DB2 QM subsystem and that it has been properly configured using QM main menu option S (Setup). If the problem persists after verifying this, then check to see if the QM subsystem needs to be started and if so, start it.

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 has been selected and no data matches the profile selection criteria or no data has been gathered by the selected DB2 QM subsystem.**

Explanation: There is no data to display due to one of the following reasons:

- A filter is in effect and no data matches the display criteria of that filter
- No data has been collected by the QM 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 so as 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 QM. 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.

User response: Increase the REGION size for the DB2

Query Monitor subsystem and retry your request or use the RANGE or FILTER functions to reduce the amount of data being displayed.

CQM078E Not authorized. You are not authorized to access this DB2/QM subsystem.

Explanation: You are not authorized to use the requested DB2 QM subsystem.

User response: Ensure you have READ access to the CQM.ACCESS.*qmid* profile in your security system (where *qmid* is the QM subsystem you are attempting to access).

CQM081E A truncation error displaying the panel - RC=16

Explanation: A truncation error occurred when displaying the panel.

User response: Contact IBM Technical Support.

CQM082E A severe error occurred while trying to display the panel - RC=20

Explanation: A severe error occurred when displaying the panel. The return code is 20.

User response: Contact IBM Technical Support.

CQM083E An unexpected return code was received while attempting to display the panel - RC=24

Explanation: When attempting to display the panel and unexpected return code was received.

User response: Contact IBM Technical Support.

CQM088E Cannot delete last line of profile. Either update the last line or cancel out of profile update.

Explanation: A monitoring profile must contain at least one profile line. Deleting the last line of a profile is not allowed.

User response: Delete the entire monitoring profile (instead of attempting to delete its only profile line) or update the last profile line to reflect your monitoring profile needs.

CQM089E Cannot delete last line of filter. Either update the last line or cancel out of the filter update.

Explanation: A filter must contain at least one filter line. Deleting the last line of a filter is not allowed.

User response: Either update the last filter line to reflect your filtering needs or cancel the filter update.

CQM091E 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:

- QM did not collect information about any host variables for the selected call.
- The active monitoring profile specified that host variables were not to be collected.

User response: If you expected to see host variable information, check that the monitoring profile in use does not improperly specify that host variables are not to be collected.

CQM105E Missing member name. The member name was missing for an export data set with DSORG=PO.

Explanation: The data set to which you were attempting to export did not have a member name associated with it.

User response: Specify a member name for the export data set name.

CQM106E Invalid value. Valid values are "Y" or "N".

Explanation: The specified value was not valid.

User response: Specify either Y or N.

CQM107E Invalid line command. Enter "D" to display data sets, or "S" to select interval.

Explanation: The line command you specified on the Interval Selection panel is not valid. Valid line commands for the Interval Selection panel include D (displays the data sets for one or more intervals) or S (selects one or more intervals for viewing).

User response: Specify either D (to display data sets for an interval) or S (to select an interval for viewing).

CQM108I Not active. The statement under review is no longer active.

Explanation: The SQL statement for which you are attempting to view information is no longer active and can no longer be viewed under the View Current Activity option. If information about the statement has been collected by QM, you can view it via the View Activity Summaries option, provided any filter or range settings you are 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 or Alert SQLCODE Exclusion List panel is not within the valid range of -1 to -99,999.

User response: Specify an SQLCODE within the valid range.

Note: When specifying a negative SQLCODE for exclusion, ensure that you used 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 negative SQLCODES to exclude when using the SQLCODE exclusion list.

User response: Specify 64 or fewer negative SQLCODES for exclusion. If you need to exclude additional SQLCODES from Query Monitor 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: Please 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: Please 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 Query Monitor subsystem.

User response: No action is required.

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

Explanation: You are attempting to perform an operation for which you do not currently have authorization.

User response: Do not perform the function or contact your system administrator for assistance in obtaining the appropriate authorization to perform the function.

CQM133I Reactivation complete. Monitoring has been resumed for the selected DB2 subsystem.

Explanation: The monitoring agent for which you requested reactivation has now resumed monitoring for the selected DB2 subsystem.

User response: No action is required.

CQM134I Profile in use. The selected profile is in use by *jobname* on *member*. Please retry the operation again at a later time.

Explanation: The monitoring profile you selected is not available because it is currently being used by the job and member indicated in the message.

User response: No action is required.

CQM135I Target profile in use. The profile name targeted for use for a copy or rename operation is currently in use by another user. Please retry the operation again at another time.

Explanation: You cannot copy or rename the profile while it is being used by another Query Monitor user.

User response: Wait to perform the copy or rename until after the profile is no longer in use by another user.

CQM136I Profile change failed. The load for the selected profile has failed.

Explanation: The requested profile change did not complete successfully.

User response: Verify that the profile you specified on the Change Monitoring Profile panel is a valid profile. Correct as needed and resubmit the profile change request.

CQM137I Profile changed. The profile has been changed for the selected monitoring agent.

Explanation: The monitoring profile has now been changed for the monitoring agent.

User response: No action is required.

CQM138I Profile refreshed. The profile has been refreshed for the selected monitoring agent.

Explanation: The profile refresh action that you requested for the monitoring agent has now completed.

User response: No action is required.

CQM139I Profile refreshed failed. The load for the selected profile has failed.

Explanation: The requested refresh of the monitoring profile has failed. The profile could not reload.

User response: Verify that the profile associated with the monitoring agent still exists. If necessary, re-create the profile or change the profile for the monitoring agent.

CQM140I Profile change in progress. Please wait.

Explanation: Query Monitor cannot process your request due to a monitoring profile change that is currently in progress.

User response: Wait until the monitoring profile change has completed and reissue your request.

CQM141I No object data. No object data was present for DB2 QM to gather for this statement.

Explanation: Query Monitor did not collect any object data for the selected statement (no object data was present for collection).

User response: No action is required.

CQM142E Invalid line command. Enter "A" to analyze SQL text, "B" for Buffers, "C" for SQL Calls, "D" for Delays, "H" for Host Variables, "L" for Locks, "O" for Objects, "P" for Parallel Activity, "Q" for Misc Statistics or "S" for SQL Text.

Explanation: The line command you specified was not valid for the panel.

User response: Please enter one of the valid line commands listed in the message.

CQM143I Command not processed. You are currently viewing the last available interval.

Explanation: The interval navigation command you specified was not processed because you are already viewing the last interval available.

User response: Navigate in the other direction if needed.

CQM144I Command not processed. You are currently viewing the current interval.

Explanation: The navigational command you specified is not valid because you are already viewing the current interval. No intervals yet exist that follow the interval you are viewing.

CQM145I • CQM153E

User response: No action is required. If you want to view a different interval, consider using the INTV command to access the Interval Selection panel where you can select from a list of available intervals.

CQM145I SQL text not available. The SQL text for the item under review is not available in the DB2 catalog.

Explanation: SQL cannot be displayed for the item being reviewed because it is not available in the DB2 catalog. CQM145I might be generated in the following situations:

- If an SQL cannot be displayed for the item being reviewed because it is not available in the DB2 catalog.
- If a rebind of the plan, package, stored procedure, etc. occurs, because the consistency token used to locate the SQL text of interest is replaced when a bind occurs
-

If the call is an EXECUTE (there is no SQL for an EXECUTE call)

User response: No action is required.

CQM146E Command processor not installed. The CLIST to process the interval data set command has not been installed or is missing from the SYSPROC concatenation.

Explanation: A required CLIST is missing or has not been installed. To process the interval data set command you issued, Query Monitor requires that the CLIST is installed and is included in your SYSPROC concatenation.

User response: Verify that the CLIST has been configured and properly included in your SYSPROC concatenation.

CQM147E Command not allowed. The command you entered is not valid when the DB2 subsystem is not monitored.

Explanation: Query Monitor must be monitoring the DB2 subsystem for the command you specified to be allowed.

User response: Initiate[®] monitoring of the DB2 subsystem prior to issuing the command.

CQM148E Invalid operand. The operand is not valid for the command entered.

Explanation: The operand you specified is not valid for the command.

User response: Specify a valid operand.

CQM149E RETURN CODE *return_code* REASON CODE *reason_code* WAS ENCOUNTERED DURING DYNAMIC ALLOCATION OF *data_set*.

Explanation: A return code was produced during the dynamic allocation of the data set indicated in the message.

User response: Diagnose the error as needed given the return code information. Please refer to *z/OS DFSMS Macro Instructions for Data Sets* (SC26-7408-03) for additional information about the return and reason codes displayed in the message text.

CQM150E No monitoring profile. The requested operation is not valid on an agent without a valid monitoring profile.

Explanation: The operation you requested is not valid because the monitoring agent does not have a valid monitoring profile associated with it.

User response: Do not attempt to perform the operation or specify an appropriate monitoring profile for use with the monitoring agent.

CQM151E Duplicate profile name. The requested operation failed due to the existence of a profile with the same name.

Explanation: The profile name you specified already exists. Profile names must be unique.

User response: Specify a unique profile name.

CQM152E Profile not found. The requested operation failed because the profile no longer exists.

Explanation: The operation you requested for the profile could not be performed because the profile no longer exists.

User response: No action is required.

CQM153E RETURN CODE *return_code* REASON CODE *reason_code* WAS ENCOUNTERED DURING TRANSLATION. SOURCE CCSID=*ccsid* TARGET CCSID=*ccsid*

Explanation: At ISPF dialog startup DB2 Query Monitor verifies that translations are available from the CCSIDs 37, 500, 1208, and 1388 and the CCSID of the user's terminal. Conversion services must be configured to support the translations. This message is issued upon entry to options A, E, P, N and U if any of these translations are not available. Additionally, this message is issued when you attempt to convert from one CCSID to another when there is no direct conversion available (for example, the conversion requested may be from CCSID 500 to CCSID 8229).

Note: If an object is created from an application bound in a single byte CCSID, DB2 translates the object name to unicode using the application encoding scheme as the source CCSID. If the source CCSID is not a mixed byte CCSID, the characters are treated as single byte characters and none of the imbedded DBCS characters are translated correctly.

User response: Configure conversion services to support the translations. Verify that the appropriate CCSID (code page) conversion has been added to the MVS unicode table in SYS1.PARMLIB. Unicode conversion services support states that a direct conversion between the two CCSIDs is not available, but an indirect one is available, from CCSID 500 -> CCSID 1200 -> CCSID 8829. The application code may also receive a return code 8, with reason code 3 when the initial conversion is attempted. Common code processing has been changed to allow applications to invoke the conversion services to attempt indirect conversions between CCSIDs. Please refer to *z/OS Support for Unicode (TM) - Using Conversion Services (SA22-7649)* for additional information about the return codes and reason codes displayed in the message.

CQM154E 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. Please refer to *z/OS DFSMS Macro Instructions for Data Sets (SC26-7408-03)* for additional information about the return and reason codes displayed in the message text. If you cannot resolve the issue, please contact IBM Technical support.

Note: The return and reason codes produced by messages CQM154E are intended for internal diagnostic purposes. If you encounter this message, contact IBM Software Support.

CQM155E ERROR OPENING *data_set*. RETURN CODE *return_code* ACBERFLG=X"*code*".

Explanation: An error was encountered while attempting to open the data set indicated in the message.

User response: Please refer to *z/OS DFSMS Macro Instructions for Data Sets (SC26-7408-03)* for additional information about the return code displayed in the message

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: Please refer to *DB2 UDB for z/OS Messages (GC18-9602)* and *DB2 UDB for z/OS Codes (GC18-9603)* for additional information about the return and reason codes displayed in the message.

CQM159E Workload name not unique. Workload names must be unique within a monitoring profile. Please choose another name.

Explanation: Another workload in the monitoring profile already uses the workload name you specified.

User response: Specify a unique workload name. Query Monitor requires workload names to be unique within a monitoring profile.

CQM160E Workloads not unique. The profile contains non-unique workload names. Please make them unique and retry the operation.

Explanation: The workloads in the monitoring profile are not unique.

User response: Specify a unique workload name for each workload within the profile. Query Monitor requires workload names to be unique within a monitoring profile.

CQM161I Filters saved.

Explanation: The updates you made to filters have now been saved.

User response: No action is required.

CQM162E Return code *return_code* reason code *reason_code* received from the DB2 command processor.

Explanation: The DB2 command processor encountered problems. Reason and return codes provided in the message enable further diagnosis.

User response: Refer to *DB2 UDB for z/OS Messages* (GC18-9602) and *DB2 UDB for z/OS Codes* (GC18-9603) for additional information about the return and reason codes displayed in the message.

CQM163I Cancel Thread has been issued successfully.

Explanation: The cancel thread command you requested has been issued successfully.

User response: No action is required.

CQM164I *filtermsg*

Explanation: This message indicates filter message that applies to the usage of filters in the ISPF interface in Query Monitor.

User response: No action is required. If you need to alter the current filter settings, you can do so via the FILTERS command.

CQM165E RETURN CODE *return_code* REASON CODE *reason_code* WAS ENCOUNTERED DURING DYNAMIC ALLOCATION OF *data_set*.

Explanation: Dynamic allocation of the data set shown in the message failed. Reason and return codes provided in the message enable further diagnosis.

User response: Please refer to *z/OS DFSMS Macro Instructions for Data Sets* (SC26-7408-03) for additional information about the return and reason codes displayed in the message.

CQM166E RETURN CODE *return_code* REASON CODE *reason_code* WAS ENCOUNTERED DURING DYNAMIC DE-ALLOCATION OF *data_set*.

Explanation: Dynamic de-allocation of the data set shown in the message failed. Reason and return codes provided in the message enable further diagnosis.

User response: Please refer to *z/OS DFSMS Macro Instructions for Data Sets* (SC26-7408-03) for additional

information about the return and reason codes displayed in the message.

CQM167E Filter not found. The requested operation failed because the filter no longer exists.

Explanation: Query Monitor could not perform the requested operation for the filter because that filter no longer exists.

User response: No action is required.

CQM168E Filter name invalid. A filter name must not begin with spaces or numerics, must not contain imbedded spaces, must not contain 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 command you specified is not valid for this panel. Valid commands include C to view SQLCA information and S to select SQL text.

User response: Specify a valid command.

CQM173E Command not allowed. The command you entered is not valid when the DB2 subsystem is already monitored.

Explanation: You attempted to activate monitoring for a DB2 subsystem that is already monitored. This is not a valid action.

User response: No action is required.

CQM174I *message_text*

Explanation: This message accompanies other messages.

User response: No action is required.

CQM175I Interval process in progress; reached current end of data.

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.

CQM180E TBCLOSE failed for filter table.
RC=*return_code*

Explanation: A CLOSE operation failed for the filter table producing the return code listed in the message.

User response: Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.

CQM181E TBDELETE failed for filter table.
RC=*return_code*

Explanation: A DELETE operation failed for the filter table, producing the return code listed in the message.

User response: Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.

CQM182E TBGET failed for filter table.
RC=*return_code*

Explanation: A GET operation failed for the filter table, producing the return code listed in the message.

User response: Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.

CQM183E TBOPEN failed for filter table.
RC=*return_code*

Explanation: An OPEN operation failed for the filter table, producing the return code indicated in the message.

User response: Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.

CQM184E CQMFILTS library not allocated.

Explanation: The CQMFILTS library is not allocated. Query Monitor requires a CQMFILTS library to be allocated.

User response: Allocate a CQMFILTS library.

CQM186E TBCREATE failed for a filter table.
RC=*return_code*

Explanation: A CREATE operation failed for the filter table, producing the return code indicated in the message.

User response: Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.

CQM187E TBSAVE failed for filter table.
RC=*return_code*

Explanation: A SAVE operation failed for the filter table due to insufficient space in the output data set, producing the return code indicated in the message.

User response: Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.

CQM188E TBMOD failed for filter table.
RC=*return_code*

Explanation: A MODIFY operation failed for the filter table, producing the return code indicated in the message.

User response: Refer to the *ISPF Services Guide* (SC34-4819-03) for information about the listed return codes.

CQM189E Invalid line command. Valid non-blanks are S, C, and D.

Explanation: The line command you specified is not valid for the panel.

User response: Specify a valid line command. Valid line commands are S, C, and D.

CQM190E Mixture of line commands. Only one type at a time.

Explanation: You specified a more than one line command.

User response: Please type only one line command at a time. 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 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 can therefore cannot be canceled.

User response: No action is required.

CQM206E Filter data set not found.

Explanation: The data set name specified in the Filter Data Set Name field could not be found.

User response: Please verify that the data set name you specified in the Filter Data Set Name field correctly identifies the data set that holds your filter definitions.

CQM207E DB2 Query Monitor was unable to connect to DB2 *db2name* and retrieve information from the DB2 catalog

Explanation: Possible causes for this message include:

- The control file you specified does not contain a record for the DB2 *db2name* specified in the message.
- A user ID lacks authorization to connect to DB2 or execute the plan used for DB2 Query Monitor or perform some of the functions within DB2 Query Monitor.

User response:

1. Ensure the user ID has the ability to perform the desired function within DB2 Query Monitor, for example, viewing SQLTEXT requires both READ access to the CQM.SQLTEXT.*qmid* RACF Facility Class Profile, and also EXECUTE authority on the plan used by DB2 Query Monitor. For more information, see "Reviewing and setting proper authorizations" on page 44.
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: Please enter a valid time value according to the specifications set forth in the message text.

CQM234E Invalid filter data set attributes. The stored filter data set must be allocated with LRECL=80, RECFM=FB, and DSORG=PO.

Explanation: The filter data set attributes you specified are not valid.

User response: Please allocate a filter data set with LRECL=80, RECFM=FB, and DSORG=PO.

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.

CQM236E • CQM244E

User response: Specify a valid value for alert threshold. Valid values are numeric. Specify 0 for no alert threshold or an integer between 1 and 2,147,483,647 for an alert threshold.

CQM236E LMCOPY failed for filter table
RC=*return_code*

Explanation: You attempted to copy a filter to a filter that already exists and the copy failed.

User response: Please refer to the *ISPF Services Guide* (SC34-4819-03) documentation for more information.

CQM237E Invalid filter data set name. Please enter a valid MVS data set name.

Explanation: The filter data set name you specified is not a valid MVS data set name.

User response: Specify a valid MVS filter data set name.

CQM238E TBOPEN failed for filter table *member..*
RC=*return_code*

Explanation: Query Monitor has encountered a problem during TBOPEN processing of a particular member within the filter data set. All members that are successfully TBOPENed will be displayed. Any member that failed TBOPEN processing will be excluded from the list of available filters.

User response: Please refer to the *ISPF Services Guide* (SC34-4819-03) documentation for more information.

CQM239E VIRTUAL STORAGE EXHAUSTED
WHILE OPENING &DATASET..
RETURN CODE *rc* RECEIVED FROM
OPEN.

Explanation: Query Monitor cannot open the data set indicated in the message since it requires more virtual storage than is currently available.

User response: Please refer to the *DB2 z/OS DFSMS Macro Instructions for Data Sets* (SC26-7408-03) documentation for more information.

CQM240E Call attach failed. Return code
return_code reason code *reason_code* was
received during initialization of the call
attach facility.

Explanation: Query Monitor cannot perform the requested call attach due to errors during the initialization of the call attach facility.

User response: Please refer to *DB2 UDB for z/OS Messages* (GC18-9602) and *DB2 UDB for z/OS Codes* (GC18-9603) for additional information about the return and reason codes displayed in the message.

CQM241E Invalid target name. The target of a rename or copy operation cannot equal the name of the source. Please choose another name.

Explanation: The target name you specified is not valid because it is the same as the name of the item you are attempting to copy or rename.

User response: Specify a new name (for the item you are copying or renaming) that is different from the existing name for the source item.

CQM242E Invalid export data set name. Please enter a valid data set name that conforms to MVS standards within quotation marks without imbedded PDS member names.

Explanation: The export data set name you specified is not valid. You must specify a valid data set name. The data set name must be placed within quotation marks and must not have a PDS member name imbedded within it.

User response: Verify that the data set name you specified conforms to MVS standards and is enclosed in single quotation marks for example,
'TWTEST.CQM.SQLTEXT'

CQM243E Invalid export data set attributes. The export data set must be either DSORG=PS or DSORG=PO and LRECL=80.

Explanation: The export data set attributes you specified are not valid.

User response: Specify DSORG=PS or DSORG=PO and LRECL=80 for the data set attributes.

CQM244E Unable to determine terminal CCSID. The Coded Character Set Identifier (CCSID) of the terminal cannot be determined.

Explanation: Query Monitor is not able to determine the Coded Character Set Identifier for the terminal. The ZTERMCID may be blank or zeros.

User response: In order to circumvent this situation, please try specifying the CCSID in the Query Monitor startup CLIST. There is a keyword that can be passed to CQM\$MAIN in the CQMCLIST CLIST. The parameter name is ZTERMCID and it is passed to CQM\$MAIN as follows: CQM\$MAIN ZTERMCID(*nnnn*) Where *nnnn* is the CCSID of the ISPF user's terminal. Another possibility is to update VTAM® definitions so ISPF reports a valid value in ZTERMCID, possibly a LOGMODE setting. For additional information, contact IBM Technical Support.

CQM245I No parallel task data. No parallel task data exists for the selected item.

Explanation: There is no parallel task data for the selected item.

User response: No action is required.

CQM246E Invalid line command. Enter "B" for Buffers, "C" for SQL Calls, "D" for Delays, "E" for Cancel Thread, "L" for Locks, "O" for Objects, or "Q" for Misc Statistics.

Explanation: The line command you entered is not valid.

User response: Specify one of the valid line commands listed in the message.

CQM247E Cursor not on valid choice. The cursor must be placed on a column within the dynamic area of the panel in order to process the CHELP command.

Explanation: Your cursor must be placed on a column within the dynamic area of the panel in order to process the CHELP command.

User response: Type the CHELP command in the option line and then place your cursor within the dynamic area of the panel (on the column for which you want help). Then press Enter.

CQM248I SQL text not collected. The SQL text was not collected due to OPTKEYS settings.

Explanation: No SQL text is available for display due to the OPTKEYS settings.

User response: No action is required.

CQM249I Profile refresh in progress. Please wait.

Explanation: The requested operation cannot be completed because a monitoring profile refresh is in progress.

User response: Wait until the profile refresh has completed and reissue the request.

CQM250E Authorization failed. You do not have authority in the target DB2 subsystem to execute the selected operation.

Explanation: You do not have the necessary authority to issue the cancel thread command for a given DB2 subsystem.

User response: No action is required. You cannot issue the cancel thread command for the DB2 subsystem. Contact your system administrator if necessary.

CQM251E Required FEC maintenance has not been installed. Query Monitor will not start up an ISPF session until the correct FEC maintenance has been installed.

Explanation: You do not have the necessary maintenance on the FEC component required for correct operation of CQM.

User response: Contact IBM to acquire the required maintenance. Please note, Query Monitor must be recycled after FEC code is updated.

CQM252E Authorization failure encountered when opening data set *data_set*.

Explanation: Query Monitor encountered an authorization failure when attempting to open the data set indicated in the message.

User response: No action is required. You do not have sufficient authority to open the requested data set. If you require access, please contact your security administrator for assistance.

CQM254E Mutually exclusive parameters coded. OPTKEYS(CORRNAME) cannot be specified if OPTKEYS(CORRID) is also specified.

Explanation: Both OPTKEYS(CORRNAME) and OPTKEYS(CORRID) have been specified but these parameters are mutually exclusive. You cannot specify both parameters simultaneously.

User response: Specify either OPTKEYS(CORRNAME) or OPTKEYS(CORRID) but not both.

CQM260E Unable to create log

Explanation: Query Monitor was unable to create a log. The MEMLIMIT parameter has been specified with a value of less than 1M and Query Monitor will not initialize under ISPF.

User response: Specify a value for the MEMLIMIT parameter of 1M or greater. For more information, see "Setting MEMLIMIT" on page 187.

CQM261E INVALID LINE COMMAND ENTER *command*

Explanation: The specified line command is not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM262E **INVALID LINE COMMAND. ENTER**
command

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM263E **Invalid line command. Enter "9" for**
Objs, "12" for Call, "19" for Delay, "20"
for Lock, "21" for Misc, or "22" for
Buffstat or "27" for "Cancel Thread".

Explanation: The specified line command is not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM264E **Invalid command. Valid commands are**
"1" to group by plans, "3" to group by
DBRM/Packages or "4" to group by
AUTHIDs.

Explanation: The specified line command is not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM265E **Invalid command. Valid commands are**
"3" for DBRMs/packages, "4" for
AUTHIDs or "S" to select detail.

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 "9" for**
Objs, "12" for Call, "16" for SQL, "18" for
Analyze, "19" for Delay, "20" for Locks,
"21" for Misc, "22" for Buffstat, "25" for
Host Variables, "26" for Parallel Activity
or "27" for Cancel Thread.

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 "9" for**
Objs, "12" for Call, "16" for SQL, "18" for
Analyze, "19" for Delay, "20" for Locks,
"21" for Misc, "22" for Buffstat, "25" for
Host Variables, or "26" for Parallel
Activity.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM270E **Invalid line command. Enter "16" for**
SQL, "19" for Delay, "20" for Locks, "21"
for Misc, "22" for Buffstat, "25" for Host
Variables or "28" to format the SQLCA.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM271E **Invalid line command. Enter "22" for**
Buffstat.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM272E **Invalid command. Valid commands are**
"1" for plans, "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 CQM 2.2 or lower.

User response: Please connect to a CQM 3.1 system or above to use this function.

CQM281E You are not RACF authorized for SETSLIP.

Explanation: The SETSLIP function is RACF protected.

User response: Please contact your system administrator for RACF authority to use SETSLIP.

CQM282E Invalid completion code. Completion codes are S for system followed by three digit hexadecimal code or U followed by a 4 digit number between 0001 and 4095.

Explanation: The completion code is not valid.

User response: Respecify the abend completion code and press Enter.

CQM283E Invalid jobname. It must be set to your TSO userid *userid* or the *cqmssid* jobname *jobname*.

Explanation: SETSLIP only supports a jobname set to your TSO userid or the CQM subsystem started task or jobname.

User response: Respecify the jobname and press Enter.

CQM284E You may select only one item for a SLIP.

Explanation: You can only set a SLIP for one program at a time.

User response: Select a single program and press Enter.

CQM285E Selection is invalid for reason listed.

Explanation: When issuing SLIPs for the CQM collector, the collector must be active for the selected program.

User response: Start the collector and retry.

CQM286E Displacement is a 6 digit hexadecimal number provided by technical support. It must end in 0,2,4,6,8,A,C or E and contain the digits 0-9 or the characters A-F without intervening blanks.

Explanation: Program displacements are provided by technical support and must be entered as provided.

User response: Verify that you have entered the program displacement as provided. If you cannot

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verify, contact technical support. Please be sure to provide the version data displayed on the panel.

CQM287E Verify data must be an even number of hexadecimal digits as provided by technical support. It must contain the digits 0-9 or the characters A-F without intervening blanks.

Explanation: Verify data are provided by technical support and must be entered as provided.

User response: Verify that you have entered the verify data as provided. If you cannot verify, contact technical support. Please be sure to provide the version data displayed on the panel.

CQM288E Program *program* does not verify at *disp* with the provided verify data *data*. Please verify the data and if it matches what was provided by technical support. Call and provide the version shown on this screen to verify that the verify data matches your system.

Explanation: The verify data did not match the values found in the program.

User response: Verify that you have entered the verify data and program displacement as provided by technical support. If in doubt, contact technical support. Please be sure to provide the version data displayed on the panel.

CQM289E Program abend verifying collector program *program*. Make the collector is still active and retry. If problem persists, report it to technical support.

Explanation: An abend occurred trying to verify the program.

User response: Make sure the CQM subsystem is active and retry. If the problem persists, contact technical support. Please be sure to provide the version data displayed in the panel.

CQM290E Displacement exceeds the program length. This value must be entered as provided by technical support.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM291E Length= may specify a 1 to 3 digit number between 1 and 255.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.s

CQM292E Invalid command. Valid commands are "16" to view SQL text or "28" to view the SQLCA.

Explanation: The command you specified is not valid for the panel. Valid commands include C to view SQLCA information and S to select SQL text.

User response: Specify a valid command.

CQM293E Invalid command. Valid commands are "S" to select SQLCODE detail.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM294E Invalid command. Valid commands are "1" to select plans or "S" to select SQLCODE detail.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM295E Invalid command. Valid commands are "4" to select AUTHIDs or "S" to select SQLCODE detail.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid 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 and "1" to list interval datasets.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line command listed in the message.

CQM300E Errors occurred reading the VSAM files for an XQM group. Enter XQMVSAM to see details on this error.

Explanation: A VSAM error occurred on one or more members of an XQM group.

User response: Use the EXPLAIN command to display a screen with an explanation of the VSAM errors by a group member.

CQM301I There are no XQM VSAM errors to explain.

Explanation: You entered EXPLAIN to view VSAM errors for members of an XQM group and there were no errors found.

User response: No action is required.

CQM302E Invalid command. Valid commands are "3" to view filter line.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

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" for Delete, "6" for Copy, "10" for Before, or "11" for After.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

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.

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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: Please provide a dataset so that the ISPF log can be exported to be provided to technical support for diagnosis.

CQM325E Invalid command. Valid commands are "1" to select plans or "S" to select SQLCODE detail.

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM326E **INVALID COMMAND. VALID COMMANDS ARE "4" TO SELECT AUTHIDS OR "S" TO SELECT SQLCODE DETAIL.**

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM327E **Invalid command. Valid commands are "3" to select DBRMs/Packages or "S" to select SQLCODE detail.**

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM328E **Invalid command. Valid commands are "30" to select SQLCODES.**

Explanation: The specified line command was not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM329E **FEC apar PK52221 is required to view host variables with a REAL type.**

Explanation: The CQM administrator must apply PK52221 to the FEC subcomponent to view host variables with a REAL type.

User response: Have PK52221 installed.

CQM330E **Invalid line command. Enter "O" for Objs, "C" for Call, "D" for Delay, "L" for Lock, "Q" for Misc, or "B" for Buffstat.**

Explanation: The line command you entered is not valid.

User response: Specify one of the valid commands listed in the message.

CQM331E **Invalid line command. Enter "9" for Objs, "12" for Call, "19" for Delay, "20" for Lock, "21" for Misc or "22" for Buffstat.**

Explanation: The specified line command is not valid for the panel.

User response: Specify one of the valid line commands listed in the message.

CQM332E **RETURN CODE *rc* REASON CODE *rsn* WAS ENCOUNTERED WHILE ATTEMPTING TO FORMAT THE SQLCA.**

Explanation: The SQLCA formatting routine ended with an error. The return code and reason code are included in the message.

User response: Contact IBM Technical Support.

CQM501E **The "Setup" option is unavailable when a DB2 data sharing group has been selected.**

Explanation: The Setup option is not available when a DB2 data sharing group has been selected.

User response: Please select a DB2 Query Monitor subsystem before using this option.

CQM502E **The "Work with Profiles" option is unavailable when a DB2 data sharing group has been selected.**

Explanation: The Work with Profiles option is not available when a DB2 data sharing group has been selected.

User response: Please select a DB2 Query Monitor subsystem before using this option.

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:

User response:

CQM838E **Dataset *dsn* must be created as a sequential or PDS fixed length file with a logical record length of 4096 with or without blocking.**

Explanation:

User response:

CQM839I CQM ISPF log exported to dataset *dsn*.

Explanation: The CQM ISPF log has been exported to the specified data set.

User response: Record the data set name and member (if applicable) so the file can be transmitted to technical support for analysis.

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 has been successfully updated to include the specified changes and 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 has been successfully updated to include the new record, based on the specified 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.

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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 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.

CQM937E Allocation Error. An error was encountered allocating the ISPWRK1 or ISPWRK2 DD. Process not completed.

Explanation: The ISPWRK1 or ISPWRK2 DD allocation failed.

User response: Verify TSO session parameters are set correctly for your site prior to allocation of these DD

statements. The process did not complete successfully.

CQM938E **Field Required. The data set entered is a partitioned data set and the member name is required.**

Explanation: A required field was not specified. The data set entered is a PDS (partitioned data set) and a member in this PDS must be referenced.

User response: Please enter a valid member name for PDS access.

CQM939E **The only valid values are "T" for tracks and "C" for cylinders.**

Explanation: You specified an invalid value. The only valid values are "T" for tracks and "C" for cylinders

User response: Specify a valid value.

CQM940E **The specified data set could not be found in the MVS catalog.**

Explanation: The specified data set could not be found in the MVS catalog.

User response: Ensure that the data set name is correct.

CQM941E **The RFIND key works only after a FIND character string is entered.**

Explanation: 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.

CQM951E • CQM960E

User response: Either remove the invalid character or enter a valid one.

CQM951E Invalid entry. Must be numeric.

Explanation: An invalid Cmd value was entered. Cmd values must be numeric. If the column is fixed, the number must be in the fixed range. If the column is not fixed, the number must be in the unfixed range.

User response: Either remove the invalid number or enter a valid one.

CQM952E Invalid entry for fixed column.

Explanation: An invalid Cmd value was entered for a fixed column. Valid selections for fixed columns are up to the number of fixed columns.

User response: Either remove the invalid number or enter a valid one.

CQM953E Invalid entry for unfixed column.

Explanation: An invalid Cmd value was entered for an unfixed column. The number must be less than the number of columns, and greater than the number of fixed columns.

User response: Either remove the invalid number or enter a valid one.

CQM954E Invalid value entered for column size: non-numeric data.

Explanation: An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields.

User response: Either remove the invalid number or enter a valid one.

CQM955E Invalid value entered for column size: out of range.

Explanation: An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields. MIN is the smallest acceptable value. MAX is the largest acceptable value.

User response: Either remove the invalid number or enter a valid number.

CQM956E Total fixed column sizes cannot exceed screen size.

Explanation: The Cmd values entered would result in the sum of the fixed column sizes to exceed the screen size. This is not allowed. The fixed columns are those with an OR in the Fix column. Fixed columns are always displayed, and so must fit on the screen.

User response: Either change the fixed column sizes

so that the total is less than the screen size or cancel to return to the previous panel.

CQM957E New configuration makes column size invalid.

Explanation: The requested column sizes make at least one unfixed column unable to be displayed. The cursor is positioned on the value where the problem was detected. The unfixed area on the screen would be too small to show the column where the cursor is placed.

User response: Do one of the following:

- Make the column where the cursor is smaller so that it can fit in the available unfixed area.
- Set it to its maximum size (width).
- Make the fixed area smaller.
- Cancel to return to the previous panel.

CQM958E Column does not fit in unfixed area in new configuration.

Explanation: The requested column sizes would make the unfixed column (where the cursor is positioned) unable to be displayed. The unfixed area on the screen would be too small to show this column.

User response: Shrinking the fixed area by either unfixing columns or making fixed columns smaller. The column where the cursor is cannot be partially displayed (min-max) so its size cannot be changed.

CQM959E New configuration makes this column size invalid.

Explanation: Fixing the requested columns would shrink the available area for unfixed columns unacceptably. One or more unfixed columns would not fit in the remaining unfixed area of the screen. The cursor is placed on a row that represents one such column. Therefore, the requested configuration is not allowed.

User response: To change column sizes, cancel out of the CFIX function and invoke the CSIZE function. Either cancel to exit CFIX with no change or blank out one or more FIX selections until an allowable fixed size is reached.

CQM960E Invalid fixed selections. Would not leave enough space for this column.

Explanation: Fixing the columns requested would make at least one unfixed column unable to be displayed. The cursor is positioned on the row that represents one such unfixed column, whose minimum displayable size would not fit in the available screen area.

User response: Shrink the requested fixed area by either:

- Requesting fewer fixed columns.
- Unfixing one or more fixed columns.
- Cancel out of CFIX and invoke CSIZE in order to shrink one or more fixed columns enough so that all unfixed columns have the space they require.

CQM962E Duplicate Cmd values entered.

Explanation: Duplicate Cmd numbers were entered. The cursor points to the second instance of a Cmd value.

User response: Either change this value, clear it, or exit the CORDER function.

CQM963E Cursor not on data element.

Explanation: CEXPAND was issued and the cursor was not located on a valid (expandable) area. CEXPAND requires the cursor to be positioned on a data element (non-heading area) in the dynamic area of the display. Or CEXPAND can be issued specifying the row and column of the data element to expand.

User response: Ensure the cursor is located on a valid (expandable) area prior to issuing the CEXPAND command.

CQM964E Invalid scroll amount for CRIGHT. Must be numeric.

Explanation: Invalid (non-numeric) parameter to CRIGHT specified. CRIGHT accepts one numeric parameter: the number of columns to scroll right. If no parameter is entered a value of 1 is assumed.

User response: Specify a numeric parameter to the CRIGHT command.

CQM965E Invalid scroll amount for CLEFT. Must be numeric.

Explanation: Invalid (non-numeric) parameter to CLEFT specified. CLEFT accepts one numeric parameter: the number of columns to scroll left. If no parameter is entered, a value of 1 is assumed.

User response: Specify a numeric parameter to the CLEFT command.

CQM966E Invalid parameter to ICRIGHT; must be numeric.

Explanation: A parameter to ICRIGHT is 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: Please refer to *ISPF Services Guide* (SC34-4819-03) for (hex) return code descriptions. Also, review the ISPTLIB and ISPTABL allocations.

CQM985E View library not allocated.

Explanation: A view input library has not been allocated. In order for a user to save and use report customizations that are created via the CSET command, ISPTABL and ISPTLIB must be allocated.

User response: Refer to the *ISPF Services Guide* (SC34-4819-03) for more information about ISPTABL and ISPTLIB.

CQM986E TBCREATE failed. RC=*return_code*

Explanation: TBCREATE was issued to create a view. It failed with a (hex) return code as indicated in the message.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

CQM987E TBOPEN failed. RC=*return_code*

Explanation: TBOPEN was issued to open a view. It failed with a (hex) return code as indicated in the message.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

CQM988E TBGET failed. RC=*return_code*

Explanation: A TBGET produced a return code (as indicated in the message).

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

CQM989E TBMOD failed. RC=*return_code*

Explanation: A TBMOD produced an error and return code (as indicated in the message).

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

CQM990E TBCLOSE failed. RC=*return_code*

Explanation: TBCLOSE failed with a (hex) return code as indicated in the message.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

CQM991E TBDELETE failed. RC=*return_code*

Explanation: TBDELETE failed with a (hex) return code as indicated in the message.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the *ISPF Services Guide* (SC34-4819-03).

CQM992E Invalid selection.

Explanation: A command that is not supported on this panel was selected.

User response: Issue a valid command for the panel.

CQM993I Permanent view not supported.

Explanation: Query Monitor has detected something that prevents views from being saved. The permanent view flag cannot be set to Y. The most likely cause of this is that either ISPTLIB or ISPTABL (or both) have not been properly allocated.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

CQM994E Invalid row number.

Explanation: CEXPAND was issued with an invalid row number. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

CQM995E Invalid column number.

Explanation: CEXPAND was issued with an invalid column number. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

CQM996E Invalid digits.

Explanation: CEXPAND was issued with an invalid digits. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

CQM997E Too many digits.

Explanation: CEXPAND was issued with too many digits. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

CQM998E Zero parameter invalid.

Explanation: CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from

the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a non-zero parameter.

CQM999E Invalid parameter count. The parameter count must be either two or zero parms.

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.

WTO messages

These messages may appear as write-to-operator (WTO) messages in your SYSLOG or other appropriate output for your site.

CQM1000E NOT APF AUTHORIZED

Explanation: The DB2 Query Monitor started task or job is not APF authorized.

User response: DB2 Query Monitor requires that the target load libraries SCQMLOAD, SFECLOAD, and SCQCLOAD be APF-authorized. Include the following libraries as part of the system APF-authorized list:

- *highlevel.SCQMLOAD*
- *highlevel.SFECLOAD*
- *highlevel.SCQCLOAD*

CQM1000I INITIALIZING SYSTEM GLOBAL MEMORY

Explanation: Query Monitor is initializing system global memory.

User response: No action is required.

CQM1001I DB2 QUERY MONITOR INITIALIZATION IN PROGRESS FOR SUBSYSTEM *ssid*

Explanation: This message appears during the normal initialization process of the DB2 Query Monitor subsystem and identifies the QM subsystem that is undergoing initialization.

User response: No action is required.

CQM1002I DB2 QUERY MONITOR INITIALIZATION COMPLETE FOR SUBSYSTEM *ssid*

Explanation: This message appears during the normal initialization process of the DB2 Query Monitor subsystem and confirms that the QM subsystem initialization process has completed.

User response: No action is required.

CQM1003E SUBSYSTEM_{*ssid*} ALREADY ACTIVE

Explanation: The DB2 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 DB2 Query Monitor subsystem. If you are attempting to activate a DB2 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 DB2 Query Monitor subsystem and indicates the DB2 Query Monitor subsystem undergoing shutdown.

User response: No action is required.

**CQM1005I DB2 QUERY MONITOR
TERMINATION COMPLETE FOR
SUBSYSTEM *ssid***

Explanation: The DB2 Query Monitor subsystem has been terminated. This message could appear as part of normal shutdown or as a failure to connect to a subsystem.

User response: Investigate other WTO messages preceding this one to determine the reason for the termination.

CQM1006E *statement* DD STATEMENT MISSING

Explanation: The parameter DD statement (for example, CQMPARMS DD statement) is missing from the JCL for the DB2 Query Monitor started task or offload job.

User response: Create the necessary DD statement and code the appropriate parameters in the data set.

**CQM1007E INVALID USERID SPECIFIED FOR
AUTHID**

Explanation: The user ID entered in the AUTHID parm in the CQMPARMS data set has not been defined to RACF or an equivalent security system.

User response: Correct the user ID, or ensure the ID is defined to your security system.

**CQM1008E MUTUALLY EXCLUSIVE
PARAMETERS CODED FOR OPTKEYS
PARAMETER SPECIFICATION (PTEXT
and TEXT)**

Explanation: OPTKEYS(TEXT) and OPTKEYS(PTEXT) cannot be specified concurrently.

User response: Remove either OPTKEYS(TEXT) or OPTKEYS(PTEXT).

CQM1010I DEBUG MODE ON

Explanation: Debugging mode has been turned on.

User response: No action is required.

CQM1011I DEBUG MODE OFF

Explanation: Debugging mode has been turned off.

User response: No action is required.

**CQM1012E DB2 NAME IS INVALID IN
PARAMETERS STARTING AT LINE
line COLUMN *column* FOR KEYWORD
*keyword***

Explanation: The keyword specified in the message is invalid.

Note: The end of any parameter in CQMPARMS is denoted by a closed parenthesis ')'. The absence of a close parenthesis on any non-commented line indicates that it is to be continued and the continuation must begin in column 1 of the following line.

User response: Verify your parameter and keyword specifications and correct any errors.

**CQM1013E PROFILE NAME IS INVALID IN
PARAMETERS STARTING AT LINE *mm*
COLUMN *n* FOR KEYWORD
MONITOR**

Explanation: The profile name specified on the MONITOR parameter in the CQMPARMS file contains invalid characters.

User response: Correct the profile name so it contains only valid characters. A monitoring profile name must not begin with spaces or numerics, must not contain imbedded spaces, and must not contain characters other than "A-Z", "0-9", "#", "\$", or "@".

CQM1016E INVALID COMMAND SYNTAX

Explanation: The command syntax you used was invalid.

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: The DB2 subsystem indicated in the message is not defined.

User response: Verify that you have specified the correct DB2 subsystem.

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 CQMNAME DSN DOES NOT MATCH THE GLOBALLY DEFINED NAME: *name*

Explanation: The CQMNAME DSN does not match the globally defined name.

User response: Adjust CQMNAME DSN as needed.

CQM1026E SHARED MEMORY FAILURE FOR OBJECT *object* REQUEST, RC=*rc* RS=*rs*

Explanation: There has been a shared memory failure for the indicated object.

User response: Contact IBM Technical Support.

CQM1027E TERMINATING DUE TO STORAGE EXHAUSTION IN SHARED MEMORY OBJECT

Explanation: Query Monitor is terminating due to storage exhaustion in shared memory object.

User response: No action is required.

CQM1027I CPU=*CPU Type-CPU Model-CPU Manufacturer. OS Name OS Version.OS Release.OS Modification.*

Explanation: This message displays information about the CPU and the operating system.

User response: No action is required.

CQM1028E *component* REQUIRES a 64 BIT PROCESSOR AND ZOS1.5 OR HIGHER

Explanation: Your system does not meet the minimum system requirements.

User response: Upgrade to the minimum requirements.

CQM1029E INVALID PARAMETER DETECTED ON EXEC STATEMENT

Explanation: An invalid parameter has been detected on the EXEC statement.

User response: Correct the parameter.

CQM1030I RECOVERY BYPASSED, SHARED MEMORY REUSED

Explanation: Recovery has been bypassed.

User response: No action is required.

CQM1031E SERIOUS ERROR IN MASTER ADDRESS SPACE *address_space*

Explanation: A serious error has occurred in the master address space.

User response: Verify the master address space is available.

CQM1032I RECREATING MASTER ADDRESS SPACE

Explanation: Recreating the master address space.

User response: No action is required.

CQM1033E UNABLE TO CREATE MASTER ADDRESS SPACE, MISMATCHED MASTER CODE LEVELS

Explanation: DB2 Query Monitor is not able to create the master address space indicated in the message.

User response: The Support Services Address Space is unable to start or function properly.

- If this is an initial install, the problem is likely related to a security issue.
-

If you are running two versions of DB2 Query Monitor, you must specify different values for the MASTER_PROCNAME parameters for each version.

- If message IEE296I is issued, then the AUTHID for the Support Services Address Space assigned from the started task table may have been revoked or

never initialized. The installation's security settings should be reviewed by your Security or z/OS support areas to ensure that the settings are configured correctly before restarting DB2 Query Monitor. You can use the CQMPROC userid as a model to create a similar entry for the Support Services Address Space. If the message is issued after applying DB2 Query Monitor maintenance, one of the fixes is likely to have affected the Support Services Address Space.

You must cycle the DB2 Query Monitor started task and Support Services Address Space after applying maintenance. Refer to SAMPLIB member CQMMSTR for example on how to cycle the master. If you are unable to diagnose or resolve the problem, please send your console log to IBM Software Support.

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.

User response: Restart the master address space and the DB2 subsystem.

CQM1042E SYSTEM DUMP FAILED FOR *cqmpid.code* RC=rc

Explanation: The system dump failed.

User response: Contact Technical Support.

CQM1043E THE MASTER ADDRESS SPACE CANNOT BE STOPPED OR RESET WHILE IN USE

Explanation: You cannot stop or reset the master address space while it is still in use.

User response: Stop all processes that are using the master address space prior to attempting to stop it.

CQM1044I MASTER STOPPED

Explanation: The master address space has stopped.

User response: No action is required.

CQM1045I MASTER IS NOT ACTIVE

Explanation: The master address space is not active.

User response: No action is required.

**CQM1046E SMEM SIZE IS LESS THAN
MAXIMUM ALLOCATIONS**

Explanation: DB2 Query Monitor requires the SMEM_SIZE parameter to be larger than the MAXIMUM_ALLOCATIONS parameter. SMEM_SIZE determines the maximum amount of global shared memory that will be allocated by DB2 Query Monitor for all purposes. CQM issues the CQM1046E message then shuts down.

User response: Increase the value of the SMEM_SIZE parameter in the CQMPARMS file to a larger value than MAXIMUM_ALLOCATIONS. If this parameter is already set to a higher value and the problem persists, please contact IBM Software Support.

**CQM1051E INTEGRATED STORAGE MANAGER
ENCOUNTERED SERIOUS FAILURE
DURING EXTENT ACQUISITION.**

Explanation: The integrated storage manager encountered a serious failure.

User response: Contact Technical Support.

**CQM1052E xxx DETECTED CQM STARTED IN AN
XQM GROUP AND TIMED OUT
TRYING TO SYNCHRONIZE
INTERVALS**

Explanation: Query Monitor started in a data sharing group but timed out trying to synchronize intervals.

User response: No action is required.

**CQM1053E xxx INITIALIZATION FAILED,
UNABLE TO CONTINUE**

Explanation: Initialization failed.

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.
<descr> RC=xx RS=yyyyyyyyy**

Explanation: The messages displays the name of the IBM Workload Manager (WLM) service request that failed in place of the descr 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.

CQM1086E CSVDYLPA RACF FAILURE, DEFINE USERID ASSIGNED TO STARTED TASK WITH ACCESS TO CSVDYLPA.ADD.CQM*

Explanation: There has been a RACF authority failure.

User response: Define the userid assigned to the started task with access to CSVDYLPA.ADD.CQM*.

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*

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.

User response: To offload SQL text, verify that all necessary CCSID paths to 1208 are installed. You must define conversion paths between the CCSID of the collected SQL text and CCSID 1208.

CQM1202I STORAGE CONSTRAINT RELIEVED FOR SPACE – *space* – OCCURRENCES: *count*

Explanation: A Query Monitor Integrated Storage Manager error had previously occurred due to a storage constraint for the space named in the message. The storage constraint has now been relieved. The number of storage constraint occurrences for this incident is displayed in the message.

User response: None.

CQM1203I ASID=*asid*, TCB=*tcb*, CPID=*cpid*, MODULE=*module*, ADDR=*addr*, RC=*rc*, RSN=*rsn*

Explanation: An Integrated Storage Manager error has occurred. This message provides details that can be used by IBM Software Support to diagnose the situation.

User response: Verify that your SMEM_SIZE and MAXIMUM_ALLOCATIONS parameters are set to values that allow sufficient internal storage for DB2 Query Monitor and adjust as needed. If this does not resolve the issue, please provide IBM Software Support with the text of messages CQM1203I, CQM1204I, and CQM1205I and any dumps that were produced.

CQM1204I FUNC=*func*, SP=*subpool*, FLG2=*flag*, FLG3=*flag*

Explanation: An Integrated Storage Manager error has occurred. This message provides details that can be used by IBM Software Support to diagnose the situation.

User response: Verify that your SMEM_SIZE and MAXIMUM_ALLOCATIONS parameters are set to

values that allow sufficient internal storage for DB2 Query Monitor and adjust as needed. If this does not resolve the issue, please provide IBM Software Support with the text of messages CQM1203I, CQM1204I, and CQM1205I and any dumps that were produced.

CQM1205E ISM ERROR OCCURRED, DETAIL FOLLOWS: *note*

Explanation: An Integrated Storage Manager error has occurred. This message provides details that can be used by IBM Software Support to diagnose the situation.

User response: Verify that your SMEM_SIZE and MAXIMUM_ALLOCATIONS parameters are set to values that allow sufficient internal storage for DB2 Query Monitor and adjust as needed. If this does not resolve the issue, please provide IBM Software Support with the text of messages CQM1203I, CQM1204I, and CQM1205I and any dumps that were produced.

CQM1209W ISM ERROR RC=*rc*,RSN=*rsn*,SPACE – *space*

Explanation: A Query Monitor Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Software Support to diagnose the situation.

User response: Provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Software Support.

CQM1210E ISM SPACE IS DISABLED – *space*

Explanation: A Query Monitor Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

User response: Please provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.

CQM1211I AN ABEND OCCURRED DURING ISM PROCESSING FOR SPACE – *space*

Explanation: A Query Monitor Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

User response: Please provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.

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: Please 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, please 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: Please provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.

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, please provide the text of this message and messages CQM1203I and CQM1204I to IBM Technical Support.

CQM1216E EXTENT PROCESSING FAILED (ABEND) FOR SPACE – *space*

Explanation: A Query Monitor Integrated Storage Manager error has occurred. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

User response: Please provide the text of this message and messages CQM1203I and CQM1204I along with any dumps that may have been produced to IBM Technical Support.

CQM1217W SPACE IS FULL AND NO MORE LARGE EXTENTS CAN BE OBTAINED FOR SPACE – *space*

Explanation: A Query Monitor Integrated Storage Manager operation has failed because the request would have exceeded the maximum 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, please provide the text of this message and messages CQM1203I and CQM1204I to IBM Technical Support.

CQM1218W MAXIMUM EXTENTS HAS BEEN REACHED FOR SPACE – *space*

Explanation: A Query Monitor Integrated Storage Manager operation has failed because the request would have exceeded the maximum number of extents allowed for the space named in the message. This message and messages CQM1203I and CQM1204I provide details that can be used by IBM Technical Support to diagnose the situation.

User response: This may be a temporary situation due to the level of DB2 activity currently being monitored by Query Monitor. If message CQM1202I is issued later to indicate that the Storage Constraint has ended, then processing resumes normally. If this situation rarely occurs, it may not be a problem. If this situation frequently occurs, it may be possible to prevent it by adjusting the amount of data collected by Query Monitor within an interval. This could be accomplished by reducing the number of OPTKEYs that are specified for the workload, reducing the length of the INTERVAL, or increasing the amount of memory available to Query Monitor (MAXIMUM_ALLOCATIONS and SMEM_SIZE).

If you need assistance with tuning these parameters, please provide the text of this message and messages CQM1203I and CQM1204I to IBM Technical Support.

CQM1219W ALL ISMERROR MESSAGE BLOCKS ARE IN USE

Explanation: A Query Monitor Integrated Storage Manager error has occurred. However there were no free ISMERROR message blocks available.

User response: Increase the value of the ISM_ERROR_BLOCKS parameter in the CQMPARMS file. If this parameter is already set to the maximum value and the problem persists, please contact IBM Technical Support.

CQM1250E GQSCAN ERROR RC=rc,RSN=rsn

Explanation: The GQSCAN service returned an unexpected error.

User response: Please review the return and reason codes for the GQSCAN macro in the MVS Programming Assembler Services Reference manual. If you are unable to resolve the error, please contact IBM Technical Support and supply the text of this message for diagnosis.

CQM1251I Group INTERVAL value established INTERVAL(nnnnn)

Explanation: The INTERVAL value specified in this message has been established for the QM_GROUP of which this CQM started task is a member. This value was set since this is the first CQM started task to initialize as a member of this QM_GROUP.

User response: None.

CQM1252I Group INTERVAL_MIDNIGHT value established INTERVAL_MIDNIGHT(x)

Explanation: The INTERVAL_MIDNIGHT value specified in this message has been established for the QM_GROUP of which this CQM started task is a member. This value was set since this is the first CQM started task to initialize as a member of this QM_GROUP.

User response: None.

CQM1253W INTERVAL(iiiii) differs from Group INTERVAL(nnnnn)

Explanation: The INTERVAL(iiiii) is the INTERVAL value from the CQMPARMS file. Interval(nnnnn) is the QM_GROUP INTERVAL value.

User response: 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, please open a PMR and provide the dump for diagnostic purposes.

CQM2003I FORCING MONITORING AGENT INSTALLATION FOR *ssid*

Explanation: DB2 Query Monitor has detected that a monitoring agent is already active, but is forcing installation because FORCE (Y) was included.

User response: No action is required.

CQM2005I MULTIPLE MONITORING AGENT INSTALLATION FOR SUBSYSTEM *ssid*

Explanation: DB2 Query Monitor has installed multiple monitoring agents for the subsystem shown in the message.

User response: No action is required.

CQM2006E UNABLE TO MONITOR V7.1 OR BELOW DB2 SUBSYSTEM (*ssss*) IN SHARED MEMORY MODE

Explanation: (need info)

User response: (need info)

CQM2009E DB2 SYSTEM *ssid* WAS PREVIOUSLY MONITORED BY A 2.2 OR BELOW CQM SUBSYSTEM *qmid* WHICH HAS NOT APPLIED APAR PK55535.

Explanation: You must apply V2R2 APAR PK 55535.

User response: Apply the required maintenance.

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.

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 please note that this will prevent you from seeing any of the old back store data sets.

You could change the RETAIN parameter in the CQMPARMS file to force the prior level backstore data sets off and still keep the same interval data set along with any V2.2 back store data sets you want to keep.

Note: You would not be able to display the prior level backstore data sets.

CQM2408E INVALID REPLY. REPLY "U" TO ACCEPT OR "R" TO REJECT

Explanation: The replay you entered is not valid.

User response: Enter U to accept or R to reject.

CQM2409I TERMINATING DUE TO INTERVALS DATASET VERSION

Explanation: Query Monitor processing is terminating due to interval data set version.

User response: Contact IBM Technical Support.

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 REAS=rc*

Explanation: This message is issued by the started task if there is a problem during the dynamic allocation of a data set. When this message occurs, Query Monitor stops and the startup process and terminates.

User response: To further diagnose and resolve the problem using the return code and reason code listed in the message, refer to the *MVS Programming Authorized Assembler Services Guide* (SA22-7608-07).

CQM2602E OPEN FAILED FOR VSAM DATASET *dsn RC=rc ACBERFLG=flag*

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 and reason code listed in the message, refer to the *z/OS V1R1.0 DFSMS/DFP Diagnosis Reference* (GY27-7618-01) or the following Web page:

http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOKS/dgt2r101/20.8.1.2

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* (GY27-7618-01) or the following Web page:

http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOKS/dgt2r101/20.8.1.2

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* (GY27-7618-01) or the following Web page:

<http://publibz.boulder.ibm.com/cgi-bin/>

[bookmgr_OS390/BOOKS/dgt2r101/20.8.1.2](http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOKS/dgt2r101/20.8.1.2)

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 negative 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 xxxxxxxx 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.

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

Explanation: This message informs you that DB2 Query Monitor has initiated monitoring for 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 DB2 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***

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.

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 *Code*

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 the 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 DATASPACES.

User response: No action is required.

CQM3241I *dataspace* DATASPACE

Explanation: This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES.

User response: No action is required.

CQM3242I NODE SIZE *size*

Explanation: This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the node size for the named data space.

User response: No action is required.

CQM3243I TOTAL NODES *n*

Explanation: This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the total number of nodes allowed for the named data space.

User response: No action is required.

CQM3244I AVAILABLE NODES *n*

Explanation: This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the total number of nodes available for use by the named data space.

User response: No action is required.

CQM3245I PERCENT UTILIZED *n*

Explanation: This message appears in conjunction with CQM3240I as a result of the MVS Modify command DISPLAY DATASPACES. This message lists the percentage of nodes used for the named data space.

User response: No action is required.

CQM3250I POSTING INTERVAL PROCESSOR

Explanation: This message appears 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.

**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.

CQM3301E LOAD FAILED FOR PROFILE *profile* ON *location*

Explanation: The monitoring profile cannot be loaded into memory.

User response: Specify a valid monitoring profile.

CQM3302I **WARNING MONITORING AGENT FOR *info* WILL NOT COLLECT EXCEPTION DATA OR CURRENT ACTIVITY**

Explanation: Query Monitor issues this message when a monitoring profile is not in effect after a profile load has been attempted either at monitoring agent startup or after a change profile operation. This message indicates that current activity and exception data will not be collected because these QM functions require a monitoring profile.

User response: If you want to collect current activity and exception data, please specify a valid monitoring profile for use with the monitoring agent.

CQM3303I PROFILE CHANGE COMPLETE FOR *ssid*

Explanation: The monitoring profile change you requested has now completed for the indicated subsystem.

User response: No action is required.

CQM3304E PROFILE CHANGE FAILED FOR *ssid*

Explanation: The requested profile change failed for the indicated subsystem.

User response: Verify that the profile exists and the subsystem is active.

CQM3305I PROFILE REFRESH COMPLETE FOR *ssid*

Explanation: The monitoring profile refresh action has completed for the indicated QM subsystem.

User response: No action is required.

CQM3306E PROFILE REFRESH FAILED FOR *ssid*

Explanation: The profile refresh action failed for the specified QM subsystem.

User response: Verify that the profile still exists. If necessary, create a new profile or change to another profile.

CQM3308E DB2 SUBSYSTEM *ssss* IS BEING AUDITED BY DB2 AUDIT SQL COLLECTOR *adh* WHICH HAS MISMATCHED *reason*

Explanation: DB2 Query Monitor could not be installed to the DB2 Subsystem *ssss* because of maintenance level mismatch with either InfoSphere Guardium S-TAP for DB2 on z/OS or InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS.

User response: DB2 Query Monitor, InfoSphere Guardium S-TAP for DB2 on z/OS, and InfoSphere Optim Workload Replay S-TAP on DB2 on z/OS all share common collection points. For these collection points to be compatible all three products need to be at the same maintenance level. When a maintenance level set is done for DB2 Query Monitor then perform the same actions for the other two tools.

CQM3311E UNABLE TO LINK TO DB2 SYSTEM

Explanation: DB2 Query Monitor has started the install process on a DB2 subsystem but was able to complete the task.

User response: Contact IBM Software Support.

CQM3315E MASTER SUBSYSTEM DOES NOT MATCH

Explanation: This message is issued if either of the following conditions occur:

- The MASTER_PROCNAME is different between the InfoSphere Guardium S-TAP for DB2 on z/OS and DB2 Query Monitor subsystems that are installing into a particular DB2 subsystem
- DB2 Query Monitor or InfoSphere Guardium S-TAP for DB2 on z/OS is attempting to install into a DB2 subsystem where a non-compatible code level of DB2 Query Monitor or InfoSphere Guardium S-TAP for DB2 on z/OS is already installed.

User response: Verify that the MASTER_PROCNAME is the same for the InfoSphere Guardium S-TAP for DB2 on z/OS and DB2 Query Monitor subsystems that are installing into a particular DB2 subsystem and that the code levels are compatible.

CQM3316E CAPTURING NOT SUPPORTED WITH ACTIVE PRODUCTS

Explanation: Two products that are monitoring a DB2 subsystem are not at compatible release levels.

User response: For information about compatibility, refer to "Compatible releases and maintenance levels" on page 31.

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: Please refer to *DB2 UDB for z/OS Messages* (GC18-9602) and *DB2 UDB for z/OS Codes* (GC18-9603) for additional information about the return and reason codes displayed in the message.

CQM4003E CONNECT FAILED - DB2 NOT OPERATIONAL

Explanation: DB2 Query Monitor was not able to connect to the DB2 subsystem because DB2 is not currently operational.

User response: Verify that DB2 is functioning properly.

CQM5010I MONITORING AGENT DEINSTALLATION IN PROGRESS FOR SUBSYSTEM *ssid*

Explanation: The monitoring agent deinstallation is in progress for the DB2 subsystem indicated in the message.

User response: No action is required.

CQM5011I Deactivation complete. Monitoring has been deactivated for the selected DB2 subsystem.

Explanation: You specified the deactivation of a monitoring agent for a DB2 subsystem and that deactivation is now complete. The DB2 subsystem is no longer being monitored by the Query Monitor subsystem.

User response: No action is required.

CQM5012I REQUESTING MONITORING AGENT ACTIVATION FOR DB2 SUBSYSTEM *ssid*

Explanation: The monitoring agent for the indicated DB2 subsystem is being requested for activation.

User response: No action is required.

CQM5013I REQUESTING MONITORING AGENT DEACTIVATION FOR DB2 SUBSYSTEM *ssid*

Explanation: The monitoring agent for the indicated DB2 subsystem is being requested for deactivation.

User response: No action is required.

CQM5014E MONITORING AGENT DEINSTALLATION FAILED FOR SYSTEM *system*

Explanation: The monitoring agent deinstallation for the indicated DB2 subsystem failed.

User response: Contact IBM Technical Support.

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 sub-commands cannot be issued to a DB2 unless it is in the MONITOR parameter in the startup parameter file or it has been added to the monitor list by a previous ACTIVATE or INSTALL subcommand.

User response: Issue a ACTIVATE or INSTALL request for this DB2. Alternately, you could add the DB2 to the MONITOR parameter in the startup parameter file and restart DB2 Query Monitor.

CQM5054I DB2 *ssid* is now ready to be reinstalled

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* R0=*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*

CQM6102E • CQM7009E

(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 DFSMSdftp Advanced Services (SC26-7400-02) for a description of the return codes issued by LOCATE.

CQM7001E *table* TABLE NOT LOCATED IN DB2
CATALOG

Explanation: The table indicated in the message cannot be found in the DB2 catalog.

User response: Verify that the table you specified exists.

CQM7002I STARTING INTERVAL NOT LOCATED
IN CQMINTER DATASET OR ALL
INTERVALS ARE EMPTY - NO DATA
TO OFFLOAD

Explanation: The starting interval you specified cannot be found in the CQMINTER data set. This situation might occur if the interval is not yet ready to be offloaded.

Note: After a collection interval ends, some interval data must be externalized before the interval is available to the DB2 offload job. Message CQM7002I might be issued, for example, if the offload job is run against the prior (-1) interval for intervals that span a short period time and contain larger volumes of collected data.

User response: Verify that you specified the correct starting interval. Use the NO_DATA_RC parameter to specify any valid user return code values (0-4095) to avoid a return code 8 if this condition occurs.

CQM7003E COLUMN *column* MISSING FOR
TABLE *table*

Explanation: The indicated column is missing for the table shown in the message.

Note: Migrations of offload tables may be required between DB2 Query Monitor releases to accommodate the addition or removal of columns. Additionally, default table names change for each DB2 Query Monitor release. For example, the default table name for DB2 Query Monitor V3.2 begins with the prefix CQM32_ whereas the default table name for DB2 Query Monitor V3.1 begins with the prefix CQM31_. Message CQM7003E can result if the CQMLOADP DD is not updated with the correct table names in both steps, CQM@WDB2 and CQM@ITXT.

User response: Verify that the table contains the necessary columns.

CQM7004E UNIDENTIFIED COLUMN *column* IN
TABLE *table*

Explanation: There is an unidentified column in the table indicated in the message.

User response: Verify that the table contains the correct columns.

CQM7005E TYPE MISMATCH FOR COLUMN
column IN TABLE *table*

Explanation: The column type is not matched for the table shown in the message.

User response: Ensure that the data type is correct for the column.

CQM7006E LENGTH ERROR FOR COLUMN
column IN TABLE *table*

Explanation: The length of data for the column indicated in the message is not valid.

User response: Ensure that the data length is correct for the column.

CQM7007E SEQUENCE ERROR FOR COLUMN
column IN TABLE *table*

Explanation: The column indicated in the message was in the wrong sequence for the indicated table.

User response: Update your Query Monitor table definition to be consistent with the correct column sequence. Refer to CQMDDL in SCQMSAMP for the correct column sequence.

CQM7008E DB2 QM SUBSYSTEM *ssid* NOT VALID
OR HAS NOT BEEN STARTED SINCE
IPL

Explanation: The DB2 QM subsystem shown in the message is not a valid QM subsystem.

User response: Verify that you specified the correct Query Monitor subsystem ID and that the QM subsystem 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:*
INTV# *xxx-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. If *xxx* is ALL, then the message displays the number of records for all intervals. If *xxx* is LENGTH then the message displays the length of the record in bytes. If *xxx* is a number, it is the number of records for that interval number.

User response: No action is required.

CQM7015E NUMBER OF BSDS SPECIFICATIONS
INVALID OR MISSING

Explanation: An invalid number of BSDS parameters has been sent as input to the CQM#CTLF utility.

User response: Verify that the two 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 DB2 Query Monitor's 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.

CQM8017E CQM@ITXT IS NOT BOUND UNICODE. SEE SAMPLE JOB CQMBIND.

Explanation: CQM@ITXT is not bound in UNICODE encoding.

User response: Run CQMBIND and ensure the encoding is set to UNICODE.

CQM8018E UNABLE TO RESTART LOAD FOR *ddname: reason*

Explanation: This message indicates that the load cannot be restarted. The message displays the file where the error was encountered and the reason (which can be either PREMATURE END OF FILE or SQL ERROR FINDING RESTART POINT).

User response: Ensure that the CQM@ITXT LOAD keyword is set to RESUME. For a restart, the LOAD keyword must be set to RESUME.

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, xxxxxxxx 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** *qmld* **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.

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.

FECA900E Invalid Column Function value. Valid values: 1, 2, 3, 4

Explanation: An invalid character was entered in the Column Function field.

User response: Specify a valid character (1, 2, 3, or 4).

FECA901E Invalid Permanent View value. Valid values: Y, N

Explanation: An invalid value was entered in the Permanent View field.

User response: Correct the value or cancel. Valid values are Y and N.

FECA902E Invalid Reset View value. Valid values are Y, N

Explanation: An invalid character was entered in the Reset View field. Valid characters are Y and N.

User response: Specify a valid value or cancel. Valid values are:

- Y - resets all customizations.
- N - customizations are not reset.

FECA903E Invalid Stop Sorting value. Valid values: Y, N

Explanation: 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 in side 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 Messages and Codes documentation for your version of DB2 for information on the return and reason codes. Examine the command for possible mistyping, invalid syntax, or other errors.

FECA943E Invalid command

Explanation: An invalid command was issued. It is not supported on the current panel.

User response: Check the command for typographical error. Clear or correct the command.

FECA944I Empty History

Explanation: This is an informational message. The history database is empty. If commands were previously entered, then either HCLEAR was issued or the size of the history database was set to 0. If ISPTABL and ISPTLIB are not allocated, history is not remembered across sessions, and each new session has an empty history database.

User response: No action is required. To verify allocation of ISPTLIB and ISPTABL, ISRDDN and ISPLIBD can be useful; refer to the ISPF manuals for information on ISRDDN and ISPLIBD.

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: Look up the reason code and return

code in the DB2 Messages and Codes manual for your version of DB2.

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 *DB2 UDB for z/OS: SQL Reference* (SC18-7426-03) to resolve.

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: Refer to the DB2 Messages and Codes documentation for your version of DB2 to resolve.

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 help you determine the appropriate corrective action. If you need assistance, contact IBM Software Support.

FEC901E The Rocket Software 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 Data Set.

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 Data Set. The VSAM return code is provided for diagnostic purposes.

User response: Refer to *DB2 UDB for z/OS Messages* (GC18-9602) and *DB2 UDB for z/OS Codes* (GC18-9603) to resolve and then continue.

FEC906I **The control file record for DB2 subsystem *ssid* has been successfully updated.**

Explanation: The control file named in the DB2 Control Data Set field has been successfully updated to include the specified changes and 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 Data Set. The RC1 and RC2 (VSAM return cards) are provided for diagnostic purposes.

User response: Refer to *DB2 UDB for z/OS Messages* (GC18-9602) and *DB2 UDB for z/OS Codes* (GC18-9603) to resolve and then continue.

FEC908I **The control file record for DB2 subsystem *sys* has been successfully added.**

Explanation: The control file named in the DB2 Control Data Set field has been successfully updated to include the new record, based on the specified 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 Data Set. The RC1 and RC2 (VSAM return codes) are provided for diagnostic purposes.

User response: Refer to *DB2 UDB for z/OS Messages* (GC18-9602) and *DB2 UDB for z/OS Codes* (GC18-9603) to resolve and then continue.

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 Data Set 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: Please specify a valid sort sequence that does not skip a number.

FEC945E Invalid Dir entered. Must be A or D (ascending/descending).

Explanation: The selected sorting direction is invalid. Only A (ascending) or D (descending) can be specified. A blank indicates ascending (default).

User response: Specify a valid sorting direction.

FEC946E Dir not valid without Ord.

Explanation: A sorting direction was selected for a column that was not selected to be sorted. Sorting direction is only a valid choice for selected columns.

User response: Select a sorting direction and order.

FEC947E Max Sort Columns exceeded. Sorting first 10 columns.

Explanation: More columns were selected for sorting than are supported. Nine columns can be selected. Under certain circumstances the limit is less than nine, due to internal constraints. For example, sorting a date field can be implemented by three sorts of partial column fields. In that case, the column would count as three toward the maximum of nine, not one.

User response: Specify the appropriate allowable maximum number of sort columns.

FEC948E Fix Columns cannot exceed screen size.

Explanation: More columns were selected to be fixed than will fit on the screen.

User response: Remove the (F) selection character from one or more columns.

FEC950E Invalid selection character. "F" and "U" are valid.

Explanation: An invalid Cmd character was entered. Valid characters are F (fix) and U (unfix). Fix causes the column to move to the fixed area on the left side of the screen. Fixed columns do not scroll horizontally when LEFT or RIGHT scrolling commands are issued. Unfix moves the column out of the fixed area, and allows it to scroll horizontally when LEFT and RIGHT scroll commands are issued.

User response: Either remove the invalid character or enter a valid one.

FEC951E Invalid entry. Must be numeric.

Explanation: An invalid Cmd value was entered. Cmd values must be numeric. If the column is fixed, the number must be in the fixed range. If the column is not fixed, the number must be in the unfixed range.

User response: Either remove the invalid number or enter a valid one.

FEC952E Invalid entry for fixed column.

Explanation: An invalid Cmd value was entered for a fixed column. Valid selections for fixed column are up to the number of fixed columns.

User response: Either remove the invalid number or enter a valid one.

FEC953E Invalid entry for unfixed column.

Explanation: An invalid Cmd value was entered for an unfixed column. The number must be less than the number of columns, and greater than the number of fixed columns.

User response: Either remove the invalid number or enter a valid one.

FEC954E Invalid value entered for column size: non-numeric data.

Explanation: An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields.

User response: Either remove the invalid number or enter a valid one.

FEC955E Invalid value entered for column size: out of range.

Explanation: An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields. MIN is the smallest acceptable value. MAX is the largest acceptable value.

User response: Either remove the invalid number or enter a valid one.

FEC956E Total fixed column sizes cannot exceed screen size.

Explanation: The Cmd values entered would result in the sum of the fixed column sizes to exceed the screen size. This is not allowed. The fixed columns are those with an or in the Fix column. Fixed columns are always displayed, and so must fit on the screen.

User response: Either change the fixed column sizes so that the total is less than the screen size or cancel to return to the previous panel.

FEC957E New configuration makes this column size invalid.

Explanation: The requested column sizes make at least one unfixed column unable to be displayed. The cursor is positioned on the value where the problem was detected. The unfixed area on the screen would be too small to show the column where the cursor is placed.

User response: Do one of the following:

- Make the column where the cursor is smaller so that it can fit in the available unfixed area.
 - Set it to its maximum size (width).
 - Make the fixed area smaller.
 - Cancel to return to the previous panel.
-

FEC958E Column does not fit in unfixed area in new configuration.

Explanation: The requested column sizes would make the unfixed column where the cursor is positioned undisplayable. The unfixed area on the screen would be too small to show this column.

User response: Shrink the fixed area by either unfixing columns or making fixed columns smaller. The column where the cursor is cannot be partially displayed (min-max) so its size cannot be changed.

FEC959E New configuration makes this column size invalid.

Explanation: Fixing the requested columns would shrink the available area for unfixed columns unacceptably. One or more unfixed columns would not fit in the remaining unfixed area of the screen. The cursor is placed on a row that represents one such column. Therefore, the requested configuration is not allowed.

User response: To change column sizes, cancel out of the CFIX function and invoke the CSIZE function. Either cancel to exit CFIX with no change or blank out one or more FIX selections until an allowable fixed size is reached.

FEC960E Invalid fixed selections. Would not leave enough space for this column.

Explanation: Fixing the columns requested would make at least one unfixed column undisplayable. The cursor is positioned on the row that represents one such unfixed column, whose minimum displayable size would not fit in the available screen area.

User response: Shrink the requested fixed area by either:

- Requesting fewer fixed columns.
 - Unfixing one or more fixed columns.
 - Cancel out of CFIX and invoke CSIZE in order to shrink one or more fixed columns enough so that all unfixed columns have the space they require.
-

FEC962E Duplicate Cmd values entered.

Explanation: Duplicate Cmd numbers were entered. The cursor points to the second instance of a Cmd value.

User response: Either change this value, clear it, or exit the CORDER function.

FEC963E Cursor not on data element.

Explanation: CEXPAND was issued and the cursor was not located on a valid (expandable) area. CEXPAND requires the cursor to be positioned on a data element (non-heading area) in the dynamic area of

the display. Or CEXPAND can be issued specifying the row and column of the data element to expand.

User response: Ensure the cursor is located on a valid (expandable) area prior to issuing the CEXPAND command.

FEC964E Invalid scroll amount for CRIGHT. Must be numeric.

Explanation: Invalid (non-numeric) parameter to CRIGHT specified. CRIGHT accepts one numeric parameter: the number of columns to scroll right. If no parameter is entered a value of 1 is assumed.

User response: Specify a numeric parameter to the CRIGHT command.

FEC965E Invalid scroll amount for CLEFT. Must be numeric.

Explanation: Invalid (non-numeric) parameter to CLEFT specified. CLEFT accepts one numeric parameter: the number of columns to scroll left. If no parameter is entered, a value of 1 is assumed.

User response: Specify a numeric parameter to the CLEFT command.

FEC966E Invalid parameter to ICRIGHT; must be numeric.

Explanation: A parameter to ICRIGHT is not numeric. ICRIGHT (inner column scroll right) accepts either zero, one, or two numeric parameters. ICRIGHT can be abbreviated as ICR.

User response: Specify a valid, numeric parameter for ICRIGHT.

FEC967E Parameter to ICRIGHT too long. Invalid.

Explanation: A parameter to ICRIGHT is too long. ICRIGHT does not process more than eight digits in a parameter, which is more than double any reasonable value.

User response: Specify a 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 preform a SORT on the column you selected. Valid sort columns are displayed in the sort selection list.

User response: Sort on one of the valid columns displayed in the selection list.

FEC977E ICLEFT: Column number specified is too big.

Explanation: A column number parameter to ICLEFT must be between 1 and the number of columns currently on the display screen.

User response: To refer to a column by number, you must first position the display window so that the desired column is visible.

FEC978E Invalid column number specified for SORT (not numeric).

Explanation: Invalid column number parameter to CSORT specified (non-numeric).

User response: Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

FEC979E Invalid column number specified. Too many digits.

Explanation: Invalid parameter to CSORT specified. More than eight digits were specified. Parsing stops at eight digits.

User response: Specify a column number parameter between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

FEC980E Invalid column number specified: zero.

Explanation: Invalid parameter to CSORT was specified (zero).

User response: Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

FEC981E Invalid column number specified: out of range.

Explanation: Invalid parameter to CSORT was specified (zero).

User response: Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed

by a direction value A or D (ascending/descending)

FEC982E Invalid view. View adjusted.

Explanation: The current view was adjusted but not deleted. The saved view did not match the report requirements. This could be caused by the report changing or the view file getting corrupted.

User response: The adjusted view will be used. You can issue CSET to modify the view.

FEC983E Invalid view. View deleted.

Explanation: Invalid data was found in a view for this report. The view was deleted and contents ignored. This could be caused by the report changing or the view file getting corrupted.

User response: You can issue CSET to create a view that will match current report.

**FEC984E Unexpected return code from TBSTATS:
rc**

Explanation: An unexpected failure issuing TBSTATS was received.

User response: Refer to *ISPF Services Guide* (SC34-4819-03) for (hex) return code descriptions. Also, review the ISPTLIB and ISPTABL allocations. For information about ISPTLIB and ISPBABL see ISPF manuals.

FEC985E View Library not allocated.

Explanation: A view input library has not been allocated. In order for a user to save and use report customizations that are created via the CSET command, ISPTABL and ISPTLIB must be allocated.

User response: Refer to *ISPF Services Guide* (SC34-4819-03) for information on ISPTLIB and ISPTABL.

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. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

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. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

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. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

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. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

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. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

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. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

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. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819-03).

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.

CAE messages

These message list contains explanations and user responses to the various CAE messages you might encounter when using DB2 Query Monitor.

CQMC0001E Unable to bind to any of the ports
lowPort - highPort, exiting.

Explanation: None of the ports in the range specified were available to the CAE Agent address space for all of the LISTENER_ADDRESSES. The CAE Agent needs to be able to bind to the same port number for all of the LISTENER_ADDRESSES.

User response: Confirm that no other address spaces are listening on the specified ports. Confirm also that the CAE Agent address space is not prevented from listening to these ports by a network security configuration (such as port reservations).

If the port range contains only one or two ports, and if this message occurs when recycling the CAE Agent address space, it's possible that the listener ports are in a timeWait state that will clear in 2 minutes. This kind of problem can be avoided by increasing the number of ports available to the CAE Agent (we recommend 5).

The TCP messages in CQMC0905I will provide more information as to why each individual port bind failed.

CQMC0003E Invalid CQMCPRMS filename. filename, maybe bad member name? errno=92; abend.__syscode= abend.__syscode; abend.__rc= abend.__rc

Explanation: The CAE Agent was unable to open the specified PDS member.

User response: Correct the member name and restart the CAE Agent.

CQMC0004E CQMCPRMS syntax error on line LINE NUMBER - ERROR DETAIL

Explanation: The specified line of the CQMCPRMS

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.

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: *Keyword* appears in the CQMCPRMS file in a place where a valid keyword is expected, but *keyword* is not a valid keyword.

User response: Check for spelling errors, check in the documentation for the valid keywords appropriate for the level of maintenance of the CAE Agent. Once the errors are correct, 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 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 Server is running. Check that the SERVER_ADDRESS and SERVER_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 Server.

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.

CQMC0016E Unknown host address for CAE Server

Explanation: The SERVER_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 SERVER_ADDRESS is correct and that it can be resolved on the system the CAE Agent is running.

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.

CQMC0101E No function found for id *id*

Explanation: An internal error has occurred.

User response: Confirm that the CAE Agent is at a maintenance level consistent with that of the CAE Server. If the maintenance is correct, contact customer support.

CQMC0102E Error reading data from connection
connectionID

Explanation: A network communication error occurred, or the CAE Server has terminated, or the CAE Server has terminated a connection due to some error.

User response: Check that the network connection between the CAE Agent and CAE Server is sound and that the CAE Server is still running. If the CAE Server is running and the network is sound, contact customer support.

CQMC0103I Dispatcher Unable to read from socket.
Closing connection *connectionID*.

Explanation: A network communication error occurred, or the CAE Server has terminated, or the CAE Server has terminated a connection for some reason.

User response: No user response necessary. If this message displays when the CAE Server is up and when users are having trouble getting response from the Agent, it may be indicative of network trouble. If this is the case, examine the network connection for further diagnosis.

CQMC0104I Dispatcher closing connection
connectionID

Explanation: The CAE Agent is closing a connection to the CAE Server due to a prior error.

User response: No response necessary.

CQMC0105E Bad dispatch code *dispatchCode*

Explanation: An internal error has occurred.

User response: Confirm that the CAE Agent is at a maintenance level consistent with that of the CAE Server. If the maintenance is correct, contact customer support.

CQMC0106E BAD PROTOCOL VERSION.
EXPECTED *version1*, **RECEIVED** *version2*
ON SOCKET *socketNumber*

Explanation: The CAE Agent received a message from the CAE Server that had the wrong protocol version number.

User response: Verify that the CAE Server and CAE Agent are both at the correct maintenance. If they are both at the correct maintenance, contact customer support and supply the CAE Agent JES output and the CAE Server logs that include the time when the error occurred.

CQMC0201E Failed to send alert data to server on connection *connectionID*

Explanation: A communication error has occurred while sending alert data to the CAE Server.

User response: Check that the CAE Server is still running and that the network connection between the CAE Agent and CAE Server is OK.

CQMC0202E TCP error message

Explanation: This provides the detail regarding the communication error shown in CQMC0201E.

User response: Review the documentation for the TCP error message to get more detail on the nature of the communication error. See CQMC0201E for more information.

CQMC0203I Error writing to socket for address
address, closing socket socketDescriptor

Explanation: A communication problem happened while sending a "CAE Agent Active" message to the CAE Server or CAE backup server.

User response: No response necessary. The CAE Agent will attempt to reconnect to the CAE Server, and if that fails the CAE Agent will issue another error message.

CQMC0205I Can't send alerts for CQM Subsystem SSID. Ending alert collection.

Explanation: The CAE Server is no longer collecting alerts from the specified CQM Subsystem. This can either be because the CAE Server was terminated, or because a user requested that the CAE Server stop

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collecting alerts from this CQM Subsystem, or because the network connection from the CAE Server to the CAE Agent was dropped. In that last case the CAE Server will attempt to re-establish a connection with the CAE Agent. No alerts should be lost in that case.

User response: No response necessary.

CQMC0206I NEW ALERT THREAD DETECTED, SHUTTING DOWN OLD ALERT THREAD

Explanation: The CAE Agent and CAE Server have gotten out of sync with regard to collection of alerts (possibly due to a temporary loss of network connection), but have recovered.

User response: None. However, if it happens repeatedly, contact customer support and supply the CAE Agent JES output and the CAE Server logs that include the times when the errors occurred.

CQMC0207I STOPPING ALERT COLLECTION FOR CQM SUBSYSTEM *cqm_ssid*

Explanation: The CAE Agent has been asked to stop collecting alerts for the specified CQM subsystem, probably due to a user-initiated change in the monitoring in the CAE Server.

User response: None. However, if you believe this message was issued in error, contact customer support and supply the CAE Agent JES output and the CAE Server logs that include the time when the error occurred.

CQMC0208E FAILED TO SEND COMPLETE ALERT DATA TO SERVER ON CONNECTION

Explanation: The CAE Agent was unable to send all collected alert data to the CAE Server, due either to a network problem or due to an internal error in the CAE Server.

User response: If there were no network problems, contact customer support and supply the CAE Agent JES output and the CAE Server logs that include the time when the error occurred.

CQMC0209E ALERT COLLECTION TO *cqmssid* NOT STARTED DUE TO INITIALIZATION PROBLEM. RETURN CODE *code*

Explanation: The CAE Agent was unable to initialize an environment to be able to collect alert data from the Query Monitor subsystem, *cqmssid*. Refer to the return code in the message and the table below for more explanation information:

Table 38. Return codes

Return code	Explanation
16	QM SUBSYSTEM NOT DEFINED. The DB2 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 attempt to initialize an environment to collect 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:

Table 39. Return codes

Return code	User response
16	QM SUBSYSTEM NOT DEFINED. Check that the DB2 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

Table 39. Return codes (continued)

Return code	User response
40	QM SUBSYSTEM NOT ACTIVE: Check that the QM Subsystem, cqmsid, 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. 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.

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 was unable to listen at the specified port at the specified address. The CAE Agent will then try the next port. This message provides the underlying reason that the bind failed.

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. Also look up the documentation for the underlying TCP error message for information on how to address the bind errors.

CQMC0905I Listening on port *port*, **addresses**
addresses

Explanation: Confirms that the CAE Agent was able to listen on the specified port at all the specified addresses.

User response: No response necessary.

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 CQMCP RMS is correctly configured and restart the CAE Agent. The error message *tcperror* should provide some clues as to what was wrong with the specific listener address.

CQMC0921E FAILED TO CREATE SOCKET ON
PORT *port_number*

Explanation: The CAE Agent was unable to bind a listener socket to listen for connections from the CAE Server.

User response: Check that the port number is not already in use. Check that there are no restrictions (such as port list restrictions) that prevent the CAE Agent from listening on the port. This message should be followed with a *tcperror* message that should provide more details.

CQMC0922E FAILED TO SET OPTIONS ON
SOCKET *socket_descriptor*. **ERROR**
return_code

Explanation: The CAE Agent was unable to complete the initialization of the listener socket to receive connections from the CAE Server.

User response: The message should be followed by *tcperror* output that should provide more detail on the nature of the error. If you are unable to determine the correct response from this information, contact customer support and supply the CAE Agent JES output.

CQMC0950E FAILED TO LOAD FUNCTION*function_name*

Explanation: The ISPF datasharing-group code was unable to load the function *function_name*

User response: Contact customer support.

CQMC0951E Virtual storage was not obtained because *reason-message*

Explanation: The ISPF datasharing-group was unable to allocate sufficient memory to satisfy a user request

User response: Try to reduce the size of the response. For example, use filtering to reduce the size of the result set. In Activity Summaries, try to narrow the result set by using different drill downs. Perhaps use fewer intervals, if possible. If you really need a particular result set you may have to increase the TSO region size. If none of these measures can meet your needs, then contact customer support, and try to provide a description of exactly the kind of request you are making, with some indication of the expected size of the result set. Please also include a screenshot that shows the failed request.

CQMC1001E CQM_VAR_HOME must be defined in the STDENV DD statement.

Explanation: CQM_VAR_HOME is not defined in the STDENV DD statement.

User response: Specify the appropriate CQM_VAR_HOME path in the STDENV DD statement. This path should indicate the HFS or ZFS directory where the configuration and data files from the CQMCPXCF are to be unpxed 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 unpx 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 CQMCUNPX.

User response: Edit CQMCUNPX so that CQM_CAE_CFG_PAX_PTF defines the data set and member.

CQMC2005E CAE SERVER ERROR

Explanation: An internal error has occurred on the CAE Server.

User response: Contact IBM Customer Support. If possible, please provide:

- a screenshot of the CAE Web 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(s) that were involved
-

CQMC2500E Abend S0C4-0000004 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

CQMC2501E • CQMC2507E

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 Technical Support for assistance.

Note that possible instances of the CQMC2502E message are as follows:

- CQMC2502E CAE Agent: AUTHORIZATION FAILE.D 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 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 QM.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:

rmmessage

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. For example, CAE Server is 3.2, but ISPF client is 3.1.

User response: Select a CAE Server that is consistent with the ISPF client.

CQMC2508E Exception during authentication

Explanation: The CAE Server can not get access to internal database in order to check authentication.

User response: Ensure the jdbcPort for the CAE Server is not used by other processes. If there is conflict, then restart the CAE Server with a different jdbcPort.

CQMC2510E Incorrect Offload Format

Explanation: You attempted to use the old offload format.

User response: Use the current offload format.

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

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

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.

Tools Customizer messages

Use the information in these messages to help you diagnose and solve Tools Customizer problems.

CCQB000I The product parameter data was saved in the data store.

Explanation: Changes that were made to the product parameters were saved in the data store.

System action: None.

User response: No action is required.

System action: None.

User response: No action is required.

CCQB001I The DB2 parameter data was saved in the data store.

Explanation: Changes that were made to the DB2 parameters were saved in the data store.

System action: None.

User response: No action is required.

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.

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.

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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: Contact IBM Software Support.

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: 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: 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: 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: 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.

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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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.

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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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.

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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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_set_name* data store data set could not be created.

Explanation: Tools Customizer could not create the specified data set.

System action: Processing stops.

User response: Ensure that you have the authority to

create data sets and that the DASD is not full.

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: 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: 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 &CCQMPOPL is 256.

Explanation:

System action: Processing stops.

User response:

CCQD529I At least one row is required.

CCQD560E The *subsystem_ID* DB2 subsystem already exists and is associated with the current product on the Customizer Workplace panel.

Explanation: The specified DB2 subsystem exists and is associated with the product that you are customizing.

System action: None.

User response: Specify another DB2 subsystem.

CCQD561E The *member_name* DB2 member for the *group_attach_name* DB2 group attach name already exists and is associated with the current product on the Customizer Workplace panel.

Explanation: The specified DB2 data sharing group for the DB2 group attach name 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 To customize *product_name*, at least one DB2 entry must be associated with this product.

Explanation: The specified product requires at least one associated DB2 entry.

System action: None.

User response: To continue the customization process for the specified product, associate one or more DB2 entries with it.

CCQD569I To customize the *product_name* product configuration, at least one DB2 entry must be associated with this configuration.

Explanation: The configuration for the specified product requires at least one associated DB2 entry.

System action: None.

User response: To continue the customization process for the configuration of the specified product, 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.

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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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.

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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: Contact IBM Software Support.

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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: Contact IBM Software Support.

CCQI420S The XML structure of the *member_name* parameter metadata member is not valid. The *element_name* element is unknown for the overridden DB2 parameter.

Explanation:

System action: Processing stops.

User response: Contact IBM Software Support.

CCQI421S The XML structure of the *member_name* parameter metadata member is not valid. The *element_name* element is unknown for the overridden LPAR parameter.

Explanation:

System action: Processing stops.

User response: Contact IBM Software Support.

CCQI422S The XML structure of the *member_name* parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown for the overridden DB2 parameter.

Explanation:

System action: Processing stops.

User response: Contact IBM Software Support.

CCQI423S The XML structure of the *member_name* parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown for the overridden LPAR parameter.

Explanation:

System action: Processing stops.

User response: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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.

CCQO002S 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: Contact IBM Software Support.

CCQO003S 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: Contact IBM Software Support.

CCQO004S 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: Contact IBM Software Support.

CCQO005S 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: Contact IBM Software Support.

CCQO006S 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: Contact IBM Software Support.

CCQO007S 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: Contact IBM Software Support.

CCQO008S 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: Contact IBM Software Support.

CCQO009S 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: Contact IBM Software Support.

CCQO010S 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: Contact IBM Software Support.

CCQO011S 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: Contact IBM Software Support.

CCQO012S 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 cannot exceed *maximum_number* characters.

Explanation: The specified attribute contains too many characters.

System action: Processing stops.

User response: Contact IBM Software Support.

CCQO013S 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: Contact IBM Software Support.

CCQO014S 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: A The specified value for an element in the discover parameter metadata member is not valid.

System action: Processing stops.

User response: Contact IBM Software Support.

CCQO015S 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: Contact IBM Software Support.

CCQO016S The content of the *member_name* discover parameter metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.

Explanation: The specified data type value for an element in the discover parameter metadata member is not valid.

System action: Processing stops.

User response: Contact IBM Software Support.

CCQO017S The content of the *member_name* product parameter metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.

Explanation: The specified data type value for an attribute in the product parameter metadata member is not valid.

System action: Processing stops.

User response: Contact IBM Software Support.

CCQO050S The *data_set_name* Discover REXX EXEC data set could not be initialized or was not found.

Explanation: Tools Customizer could not find or could not initialize the specified Discover REXX EXEC data set.

System action: Processing stops.

User response: Ensure that the Discover REXX EXEC is specified correctly.

CCQO051W The *data_sharing_group_ID* data sharing group ID cannot contain more than four characters.

Explanation: The specified data sharing group ID contains too many characters.

System action: Processing continues.

User response: Ensure that the specified data sharing group ID does not exceed four characters.

CCQO052S The *REXX_EXEC_name* Discover REXX EXEC was not found in the *data_set_name* Discover data set.

Explanation: Tools Customizer could not find the Discover REXX EXEC in the specified data set.

System action: Processing stops.

User response: Ensure that the Discover data set was specified correctly.

CCQO053W The *LPAR_name* LPAR name cannot contain more than eight characters.

Explanation: The specified LPAR name contains too many characters.

System action: Processing continues.

User response: Ensure that the specified LPAR name does not exceed eight characters.

CCQO054W The *subsystem_ID* DB2 SSID cannot contain more than four characters. The record was not processed.

Explanation: The specified DB2 SSID contains too many characters.

System action: Processing continues.

User response: Ensure that the specified DB2 SSID does not exceed four characters.

CCQO055W The *parameter_name* DB2 group attach name parameter is in the *record_name* Discover record, but a DB2 group attach name was not specified. The record was not processed.

Explanation: The Discover record contains a data sharing group parameter, but a DB2 group attach name was not specified.

System action: Processing continues.

User response: Ensure that information is specified correctly on the Discover Customized Product Information panel.

CCQO056W The *parameter_name* DB2 parameter in the *record_name* Discover record did not have a DB2 group attach name or a DB2 SSID. The record was not processed.

Explanation: The Discover record did not have a DB2 group attach name or a DB2 subsystem ID in the DB2 parameter.

System action: Processing continues.

User response: Ensure that information is specified correctly on the Discover Customized Product Information panel.

CCQO057W The Discover EXEC could not find the *parameter_name* parameter in the metadata for the product to be customized. The record was not processed.

Explanation: The specified parameter could not be found in the metadata for the product to be customized.

System action: Processing continues.

User response: Ensure that information is specified correctly on the Discover Customized Product Information panel.

CCQO058W The *parameter_name* product parameter name in the *record_type* Discover record does not start with CCQ_LPR_, CCQ_DB2_, or CCQ_PRD_. The record was not processed.

Explanation: The parameter in the record does not start with CCQ_DB2_, CCQ_LPAR_, or CCQ_PRD_.

System action: Processing continues.

User response: Contact IBM Software Support.

CCQO059W The *parameter_name* product parameter cannot contain more than 72 characters. The record was not processed.

Explanation: The specified product parameter contains too many characters.

System action: Processing continues.

User response: Ensure that the specified product parameter does not exceed 72 characters.

CCQO060W The *record_name* Discover record from the REXX EXEC output must start with the following record type: *record_type*. The record was not processed.

Explanation: A Discover record from the REXX EXEC output must start with the specified DB2 record type.

System action: Processing continues.

User response: Contact IBM Software Support.

CCQO061I If you do not have a previously customized version of the product, do not run the Discover EXEC. Press END to go to the Customizer Workplace panel.

Explanation: This message is issued when you customize a product for the first time. It prompts you to use the Discover EXEC to discover data from a previous customization of the specified product.

System action: Processing continues.

User response:

Tip: Using the Discover EXEC saves time and reduces errors that can 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.

CCQO062W The Discover EXEC could not find the following *parameter_name* parameter in the DB2 metadata. The record was not processed.

Explanation: The specified parameter is missing in the DB2 metadata.

System action: Processing continues.

User response: If this parameter is required, contact IBM Software Support.

CCQO064W The *Discover-record* Discover record did not have a parameter name. The record was not processed.

Explanation: A parameter name was missing in the Discover record.

System action: Processing continues.

User response: Contact IBM Software Support.

CCQO065W The value for the *parameter_name* parameter is ignored because it has more than *maximum_number* characters, which is the maximum length that is defined in the metadata. The value is *parameter_value*.

Explanation: The specified value exceeded the maximum allowed length, which was defined in the metadata. Tools Customizer truncated the extra characters.

System action: Processing continues.

User response: Contact IBM Software Support.

CCQO066W The *record_name* Discover record from the Discover REXX EXEC output does not have a parameter value. The record was not processed.

Explanation: The Discover record was missing a parameter value from the Discover EXEC output.

System action: Processing continues.

User response: Ensure that information was specified correctly on the Discover Customized Product Information panel.

CCQO067W The *parameter_name* parameter is defined in the metadata to support one value, but more than one value was found. The last value was used.

Explanation: The definition of the parameter in the metadata supports one value, but more than one value was specified. Only the last value was used.

System action: Processing continues.

User response: Ensure that information was specified correctly on the Discover Customized Product Information panel.

CCQO068W The value of the *parameter_name* parameter is ignored because the parameter is defined as *internal=true*. The value is *value_name*.

Explanation: The specified value of the parameter is ignored because it is defined as *internal=true*.

System action: Processing continues.

User response: Ensure that information was specified correctly on the Discover Customized Product Information panel.

CCQO069W The Discover EXEC did not find the *parameter_name* parameter in the LPAR metadata. The record was not processed.

Explanation: The specified parameter is missing from the LPAR metadata.

System action: Processing continues.

User response: Ensure that information was specified correctly on the Discover Customized Product Information panel.

CCQO070W The *record_type* Discover record contains an incorrect delimiter between the Environment section and the Data section. The record was not processed.

Explanation: Tools Customizer found an incorrect delimiter between the Environment section and the Data section.

System action: None.

User response: No action is required.

CCQO071W The *member_name* member could not be found in the *data_set_name* Discover data set.

Explanation: Tools Customizer could not find the specified Discover data set.

System action: None.

User response: No action is required.

CCQO072S 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: Contact IBM Software Support.

CCQO073E 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.

CCQO074S 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: Contact IBM Software Support.

CCQO075W 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.

CCQO076W 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.

CCQO077S 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: Contact IBM Software Support.

CCQO080I *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: 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.

CCQQ000E Specify a valid metadata library. Each qualifier of the library must start with an alphabetic character and must be 1-8 alphanumeric characters. The library name must be 1-44 characters.

Explanation: The metadata library was not specified in the correct format. The high-level qualifier must contain alphanumeric characters, and the first character cannot be numeric. The name cannot contain wildcard characters, such as asterisks (*) and percent signs (%).

System action: Tools Customizer prompts for the correct library name.

User response: Specify a library name in the correct format.

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: Processing continues.

User response: Ensure that the data set name is specified correctly.

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 An error occurred while the *data_set_name* Discover data set was being created.

Explanation: While the specified data set was being created, an error occurred.

System action: Processing continues.

User response: Ensure that you have WRITE authority access to this data set.

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.

Explanation: The options that you selected were saved.

System action: None.

User response: No action is required.

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 *nm*, where *nm* 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 *nm*, where *nm* is 1 - 99.

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 was successfully updated.

Explanation: The configuration was updated.

System action: Processing continue.

User response: No action is required.

CCQX001S *Product_name* has already been customized by using values from *data_set_name* data store data set. Switch to the specified data store data set to continue customizing this product.

Explanation: The specified product was customized by using values from the specified data store data set.

System action: Processing stops.

User response: Use the specified data store data set to continue customizing the product.

CCQX002S *component_name* has already been customized by using values from *data_set_name* data store data set. Switch to the specified data store data set to continue customizing this component.

Explanation: The specified component was customized by using values from the specified data store data set.

System action: Processing stops.

User response: Use the specified data store data set to continue customizing the component.

CCQX011I *Product_name* was not found.

Explanation: The specified product was not found.

System action: Processing stops.

User response: Specify another product.

Gathering diagnostic information

Before you report a problem with DB2 Query Monitor to IBM Software Support, you need to gather the appropriate diagnostic information.

Procedure

Provide the following information for all DB2 Query Monitor problems:

- A clear description of the problem and the steps that are required to re-create the problem
- All messages that were issued as a result of the problem
- Product release number and the number of the last program temporary fix (PTF) that was installed
- The version of DB2/IMS that you are using and the type and version of the operating system that you are using
- In addition to the number of the last program temporary fix (PTF), provide any relevant authorized program analysis reports (APARs) that were applied. APARs can be determined by using the DISPLAY MEPL command as follows:
 1. On the DB2 Query Monitor main menu, enter DISPLAY MEPL in the Option line and press Enter.
 2. Provide a data set member name and job cards and press Enter. The job is submitted to the internal reader. When the job completes the job's SYSOUT DD will contain a list of each DB2 Query Monitor module and its current maintenance level.

Provide additional information based on the type of problem that you experienced:

For online abends, provide the following information:

- A screen capture of the panel that you were using when the abend occurred
- The job log from the TSO session that encountered the abend
- The job log from the server
- A description of the task that you were doing before the abend occurred

For errors in batch processing, provide the following information:

- The complete job log
- Print output
- Contents of the data sets that were used during the processing

For problems with the Tools Customizer trace data set name:

If you cannot allocate the trace data set, the trace data set runs out of space, or IBM Software Support asks for it, you will need to identify the name of the trace data set. The name of the trace data set depends on the prefix setting in the TSO profile. To identify the name of the trace data set, you must know the prefix setting.

- If PREFIX is set, the name of the trace data set is *prefix*.CCQ.TRACE, where *prefix* is the TSO prefix that you specified in the profile.
- If NOPREFIX is set, the name of the trace data set is *user_ID*.CCQ.TRACE, where *user_ID* is your TSO user ID.

NORUN parameter

The NORUN parameter, when present, instructs DB2 Query Monitor to perform a subset of its initialization. If NORUN is specified, then DB2 Query Monitor will initialize enough to enable users of the reporting BDC interfaces to view data created in prior intervals.

To use the NORUN parameter, you must modify your existing procs to include a parm on the proc start-up. To do so, locate the following lines in the existing SCQMSAMP member CQMPROC:

```
//CQMPROC PROC HILEVEL='CQM.V2R3',FECLEVEL='FEC.V1R3'
//*****
//* [several lines of comments...]
//*****
//CQMPROC EXEC PGM=CQM#MAIN,REGION=7M,DYNAMNBR=200,TIME=1440
```

Modify these as follows:

```
//CQMPROC PROC HILEVEL='CQM.V2R3',FECLEVEL='FEC.V1R3',OPTION=
//*****
//* [several lines of comments...]
//*****
//CQMPROC EXEC PGM=CQM#MAIN,REGION=7M,DYNAMNBR=200,TIME=1440,
// PARM='&OPTION'
```

Once you have modified CQMPROC as described above, you can start up DB2 Query Monitor with the NORUN option as follows:

```
S CQMPROC,OPTION='SM,NORUN'
```

Note: You can start up DB2 Query Monitor normally by simply omitting the OPTION= on the S command.

Chapter 26. 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

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

DB2 Query Monitor does not support DB2 group attach names.

DB2 data sharing member

A DB2 subsystem that is assigned by the cross-system coupling facility (XCF) to a data sharing group. An example of a DB2 data sharing member name is DB02.

Tools Customizer maintains the following lists of DB2 entries:

Associated list

The list of DB2 entries that are associated with DB2 Query Monitor. If the product to be customized requires DB2 entries, you can customize DB2 Query Monitor only on DB2 entries that are in the associated list. When you customize DB2 Query Monitor, this list is displayed in the DB2 Entries, Associations, and Parameter Status section of the Customizer Workplace panel.

You can add and copy DB2 entries to the associated list. When you add or copy DB2 entries to the associated list, the entries are associated with DB2 Query Monitor.

Master list

The list of all DB2 entries that are defined but are not associated with DB2 Query Monitor. Tools Customizer obtains information about these DB2 entries either from entries that were created manually or from the customizations of other products that were discovered. If you remove a DB2 entry from the associated list, the

DB2 entry is added to the master list. When you create a new DB2 entry, it is added to the master list, and when you associate the new entry with DB2 Query Monitor, it is removed from the master list and added to the associated list. The master list is displayed on the Associate a DB2 Entry for Product panel.

If the associated list does not have the DB2 entries on which you want to customize DB2 Query Monitor, you can associate existing entries from the master list to the associated list.

You can create new DB2 entries and copy existing entries to the master list.

High-level qualifier

The high-level qualifier is considered to be all of the qualifiers except the lowest level qualifier. A high-level qualifier includes a mid-level qualifier.

Product parameters

Parameters that are specific to DB2 Query Monitor. These parameters are defined by DB2 Query Monitor and are stored in a data member that is defined by DB2 Query Monitor.

DB2 parameters

Parameters for a DB2 entry. These parameters are defined by Tools Customizer and are stored in a DB2 parameter data member.

Status type

Product, LPAR, and DB2 entry status type

After you specify the product that you want to customize, the product, the LPAR, and the DB2 entries have a status. The status is partly based on whether required parameters are defined. For some products, LPAR parameters or DB2 parameters might not be required. In these cases, the status is Not Required.

To customize DB2 Query Monitor, all of the required parameters must be defined.

If required parameters for the the product parameters or DB2 parameters are not defined, the status of the parameters is Incomplete. Define values for parameters by manually editing them or by generating the customization jobs and specifying values for all of the required parameters that are displayed on the panels.

When values for all of the required parameters are defined, the status is Ready to Customize. Customization jobs can be generated only when all of the required parameters are defined and the status is Ready to Customize or Customized for the product parameters and DB2 parameters for the DB2 entries on which DB2 Query Monitor will be customized.

The following table shows the meaning of the status types. Each status is defined differently for each type of parameter.

Table 40. Status types for the product, the LPAR, and the DB2 entries

Status	Product	LPAR	DB2 entries
Incomplete	The required product parameters are not defined, or the required product parameters are defined but LPAR parameters, DB2 parameters, or both 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, LPAR, and DB2 parameters are defined, the status 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.
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.

Related tasks:

“Creating and associating DB2 entries” on page 85

You can create new DB2 entries and associate them with DB2 Query Monitor.

“Copying DB2 entries” on page 94

You can copy associated and not associated DB2 entries to other DB2 entries or to new DB2 entries.

“Removing DB2 entries” on page 95

You can remove DB2 entries from the associated list.

Data sets that Tools Customizer uses during customization

Tools Customizer uses several unique data sets during the customization process. Familiarize yourself with these data sets before you begin to use Tools Customizer.

Several different data sets are required to customize DB2 Query Monitor with Tools Customizer. These data sets are supplied by DB2 Query Monitor, supplied by Tools Customizer, or allocated by Tools Customizer.

DB2 Query Monitor provides the following data sets:

Metadata library

Contains the metadata for the product to be customized. Tools Customizer uses the metadata to determine which tasks, steps, and parameters to display on the Product Parameters panel, the LPAR Parameters panel, and the DB2 Parameters panel. This data set also contains the templates that Tools Customizer uses to generate the customization jobs.

The metadata library naming convention is *high_level_qualifier.SCQMDENU*, where *high_level_qualifier* is all of the segments of the data set name except the lowest-level qualifier.

You specify the metadata library on the Specify the Metadata Library panel. READ access to this data set is required.

Discover EXEC library

Contains the DB2 Query Monitor Discover EXEC. When you customize DB2 Query Monitor, you can use the Discover EXEC to automatically retrieve and store product information, such as parameter values from an already customized product. Tools Customizer saves the discovered information in the data store.

The default name of the data set is the high-level qualifier for the metadata library plus a lowest-level qualifier. For DB2 Query Monitor, the lowest-level qualifier is SCQMDENU. You can change the default value on the Discover Customized Product Information panel. EXECUTE access to this data set is required.

Tools Customizer provides the following data sets:

Tools Customizer metadata library

Contains the metadata for the DB2 and LPAR parameters that are required to customize DB2 Query Monitor. Tools Customizer uses the metadata to determine which parameters to display on the DB2 Parameters panel and the LPAR Parameters panel. In addition, Tools Customizer uses information in the metadata library to determine whether additional DB2 and LPAR parameters need to be displayed on these panels. As you customize different products, different DB2 and LPAR parameters might need to be defined.

The default name of the data set is DB2TOOL.CCQ110.SCCQDENU. You can change the default value on the Tools Customizer Settings panel. 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, 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, 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 41. 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

Table 41. Data set attributes for allocating the Discover output, data store, and customization library data sets (continued)

Data set	Organization	Record format	Record length	Block size	Data set name type
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.
- You cannot share the data store data set across multiple LPARs with shared DASD or copy the data store data set to another LPAR. Tools Customizer creates many cross-references between product and DB2 associations. Therefore, if you share or copy the data store data set, member names that are empty or that do not exist might be generated.

Chapter 27. Reference

Reference information supports the tasks that you must complete to install, customize, and use DB2 Query Monitor.

Sample library members

The sample library (SAMPLIB) that is supplied with DB2 Query Monitor contains JCL that you can use as a model to create your own jobs.

The DB2 Query Monitor SAMPLIB includes the following sample jobs:

CQM The CLIST that allocates the libraries used for DB2 Query Monitor.

CQM#CTLF

Creates the DB2 control file.

CQM#YDAT

This sample would be used to gather diagnostic information. It should be used only when recommended to do so by technical support.

CQM@CNVT

This is a LOAD utility job to load the data from the DB2 Query Monitor Version V3.1 repository tables to the DB2 Query Monitor Version V3.2 tables. The utility statements in this job use the cross-loader function of the LOAD utility to copy data directly from the old tables to the new tables. This job must be run first and may be run repeatedly if necessary. If a failure occurs on one of the LOAD utility statements, rerunning the job will allow DSNUTILB to restart the utility at the proper place in the utility stream.

CQM@LDB2

Sample job that runs CQM@WDB2 (the DB2 Query Monitor data offload program).

CQM@LSTM

The CQM@SLTM program updates the statement type table. The inputs to the CQM@LSTM program are updated via the PTF maintenance stream as IBM adds additional SQL statement types.

CQM@RPBN

This member is the bind for batch reporting. Follow the directions in the sample job to perform customization. This bind job must be bound on each DB2 subsystem where DB2 Query Monitor tables reside. The PLAN_OWNER must match the creator on the CQM32_ tables.

CQM@RPUT

This member is the sample job for batch reporting. Follow the directions in the sample job to perform customization. For information about the supported parameters, see “Batch reports - overview” on page 761.

CQM@UPDT

This job updates the new columns in the DB2 Query Monitor Version V3.2 tables with data from the DB2 Query Monitor Version V3.1 tables using standard SQL UPDATE statements. There is a separate job step for each UPDATE statement. This job must be run after CQM@CNVT and can be

run repeatedly with no issues. If a failure occurs on one of the job steps, the job can be restarted at the proper step with a RESTART= parameter on the JOB statement.

CQMADBI

Sample EXEC that can be used to add DB2 Query Monitor to the DB2 Administration Tool Launch Pad.

CQMBIND

Sample job that binds the plans that read the DB2 Catalog.

CQMCAE

Sample JCL for the CAE Agent started task.

CQMCAESV

Sample JCL used to start the CAE Server on USS.

CQMCAEWD

Sample JCL used to start the Watchdog process.

CQMCCERT

Creates a new certificate inside the certs directory of the directory defined by CQM_VAR_HOME. For more information about using and installing certificates with DB2 Query Monitor see "Certificates requirements - USS and Windows" on page 26 and "Installing a single CAE Server - Windows" on page 99.

CQMCLIST

The CLIST that allocates the libraries used for DB2 Query Monitor.

CQMCMDSD

A sample CLIST member which holds the commands processed by the Interval Data Sets panel.

CQMCNTFL

JCL that builds the VSAM control file used for holding DB2 subsystem ID information.

CQMCOMM

Describes DB2 Query Monitor fields as comments in the DB2 catalog.

CQMCPRMS

A sample CQMCPRMS member used for CAE Agent startup.

CQMCRDB

Creates the database.

CQMDDL

Creates the database objects.

CQMDDLST

Creates the database objects for statement types and descriptions.

CQMDROP

Drops database objects associated with DB2 Query Monitor.

CQMGRTB

Provides the DDL that grants authority to the objects related to DB2 Query Monitor.

CQMICERT

Imports certificates from the certs directory inside the directory defined by CQM_VAR_HOME. The name of the file in the certs directory will be used as the host name in the certificates store for the CAE Server. For more

information about using and installing certificates with DB2 Query Monitor see “Certificates requirements - USS and Windows” on page 26 and “Installing a single CAE Server - Windows” on page 99.

CQMINDEX

Optionally defines indexes for DB2 Query Monitor tables to help speed up queries.

CQMINTER

Allocates the intervals data set.

CQMMSTR

JCL that is used to stop 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

A sample CQMPARMS member used for DB2 Query Monitor startup.

CQMPROC

JCL that starts DB2 Query Monitor.

CQMPROFS

JCL that allocates the CQMPROFS data set for DB2 Query Monitor.

CQMCUPPT

Extracts updates from CQMCPXPT to the configuration and data files that were installed to the CQM_VAR_HOME directory during the original DB2 Query Monitor V3.2 installation. To apply the updates, edit and run CQMCUPPT according to the instructions in the member.

Note: The member name “CQMCUPPT” is an abbreviation of “Cqm Cae UnPax PTF”.

CQMCUNPX

Unpaxes the configuration and data files to the CQM_VAR_HOME directory.

CQMVIEWS

Enables you to code SQL against existing DB2 Query Monitor V3.1 tables with the result matching the schema for the DB2 Query Monitor V3.2 tables.

Commands

The following commands are available in DB2 Query Monitor.

/f cqmstc,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.

MODIFY/F cqmtaskname,ACTIVATE(ssss,profname)

Activates a monitoring agent for DB2 subsystem ssss with monitoring profile profname.

Note: .

- An activate command, when issued for a monitoring profile that has not yet been installed, will also perform the install of the monitoring profile

- When the ACTIVATE command is issued against a DB2 subsystem that is already actively monitored, the command is treated as a change profile.

MODIFY/F *cqmtaskname*,DEACTIVATE(*ssss*)

Deactivates a monitoring agent for DB2 subsystem *ssss*.

MODIFY/F *cqmtaskname*,CHANGE_PROF(*ssss*,*profname*)

Change the monitoring profile for DB2 subsystem *ssss* to the profile named *profname*.

MODIFY/F *cqmtaskname*,REFRESH_PROF(*ssss*)

Refreshes the current monitoring profile for DB2 subsystem *ssss*.

Related concepts:

“About monitoring agents” on page 289

A monitoring agent is the interface that DB2 Query Monitor installs within a DB2 subsystem to capture SQL performance data. When a DB2 Query Monitor subsystem collects data about a DB2 subsystem, a monitoring agent is at work collecting data about that DB2 subsystem.

Operator commands, event type descriptions, available time zones

These topic include information about operator commands and event type descriptions.

Operator commands

Operator commands must be entered using an MVS operator console, or by using a facility that issues MVS commands (such as SDSF). Only authorized users can use these commands.

The following operator commands are supported by DB2 Query Monitor:

F *taskname*,DISPLAY DATASPACEs

Where *taskname* is the Query Monitor started task or job. This command returns the amount of available control blocks or nodes for a Query Monitor subsystem.

F *taskname*,INTERVAL

Where *taskname* is the Query Monitor started task name. This command forces the specified Query Monitor task to snap an interval.

S *taskname*

Where *taskname* is the Query Monitor started task name. Starts the Query Monitor started task.

P *taskname*

Where *taskname* is the Query Monitor started task name. Stops the DB2 Query Monitor started task.

F *taskname*,DEBUG(ON)

Where is the Query Monitor started task name. Turns on Query Monitor's debug mode.

F *taskname*,DEBUG(OFF)

Where *taskname* is the Query Monitor started task name. Turns off Query Monitor's debug mode.

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 e.g. flapping.

Availability Problem

Any type of problem affecting the availability of the subject. Typically IP availability from the perspective of the management station.

Bean Name Warning

The bean file name differs from the bean name. In many cases, the bean file name and bean name must be the same. A difference between these two values may denote an error in the bean definition.

BindError

An error occurred during binding (for example, -720: attempted to create a version that already exists) (applies to SQL)

CAEAgentAbendProblem

An abnormal end occurred in the CAE Agent address space during alert collection. (applies to CAE agent)

CAE Agent Resource Problem

The bean file name differs from the bean name. In many cases, the bean file name and bean name must be the same. A difference between these two values may denote an error in the bean definition.

CAEServerResourceProblem

If the CAE Server is unable to process alerts due to insufficient memory in the CAE Server, this alert will be posted to the Alert Browser. Typically, this is due to too many alerts being captured and kept. The following user actions are available:

1. Raise alert thresholds in the profiles, and ensure all appropriate negative SQL codes are excluded in all profile lines.
2. Clear as many possible alerts from the Alert Browser.
3. If you feel that the alert thresholds are already tuned appropriately (i.e. only those alerts that require immediate attention are being posted), the following steps can help reduce the chance the CAE Server will run out of memory due to alert volume:
 - Set the MIT (Monitored Information Type) parameter “persist” to “no”.

Note:

- a. Changing this parameter only affects alerts posted after this change.
 - b. Because the alerts are not being persisted in the CAE Server, they will not be restored if the CAE Server is restarted. If you have ensured that all alerts are also collected as exceptions, you can view the alert details using the “Exceptions” perspective in the Activity Browser.
- Lower the value of the MIT parameter “autoClear” (we recommend no higher than 7 days).

Note: Changing this parameter will only affect alerts posted after this change.

- Lower the value of the MIT parameter “maxEventCount” (say to 100).

Note: This will cause the oldest events of each alert type to be discarded as new ones come in.

- Lower the ALERT_LIMIT startup parameter in the CQM collector task (say to 50).

Note: This will cause the newest events to be discarded when there are more than ALERT_LIMIT alerts collected in the polling cycle of the CAE Agent (default 5 seconds).

Cannot Monitor Scope Warning

A particular scope cannot be monitored.

CircularCorrelationWarning

Two or more correlations define a circular relationship between events.

ClaimReleaseDelayProblem

Indicates that a large portion of the lock delay time was taken up with wait time for a drain waiting for claims to be released (applies to SQL)

Client Connection Event

Client is connected to, or disconnected from the server.

Client Connections Limit Warning

One more client intended to connect to the server but was denied due to license limitation.

Configuration Change Event

Any configuration change event.

ConfigurationProblem

Query Monitor configuration problem. Setting up a Query Monitor application may involve configuring a number of objects such as actions, responses, scopes, correlations etc. Most invalid configurations are detected at configuration time and prevented from being created. However, some can only be detected at run-time and in such cases Query Monitor will report such events to the message board as with network events.

Conflicting Param Override Warning

Two or more parameter overrides conflict.

Correlation Execution Warning

An error condition has been encountered while executing a correlation rule.

Db2 Object Usage Problem

Any event relating to the db2 object usage.

Db2 Sql Event

Any event relating to the execution of SQL statements.

DB Element Information

Any event concerning DB Element.

DdlError

The error happened during a data definition statement such as a create or alter (for example, -623: a clustering index already exists on table) (applies to SQL)

DbmsError

A problem happened within the DBMS system itself (for example, -901: A system error occurred that prevented successful execution of the current SQL statement) (applies to SQL)

Dbms Event

Any event relating to the database management system as a whole, as opposed to particular SQL statements, or to a part (e.g., a bufferpool or a table) of that system.

DBMS Information

Any information relating to the database management system as a whole, as opposed to particular SQL statements, or to a part (e.g., a bufferpool or a table) of that system.

DeadlockOrTimeoutError

The statement failed due to a deadlock or lock timeout (for example, -913: Unsuccessful execution caused by deadlock or timeout) (applies to SQL)

DelayProblem

Any event relating to delays in SQL statement execution (such as IO delays and lock delays) (applies to SQL)

Deprecated Event

Any type of deprecated event. An event no longer supported. Usually this is because the event has been supplanted by another new event type.

Deprecated Statistic

Any type of deprecated statistic. 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 can not use default UDP port 162.

Software Availability Failure

Indicates that a piece of software is not available.

Software Event

Any event relating to a piece of software. This includes applications such as databases, and services such as HTTP.

Software Information

Any kind of information relating to software.

Software Performance Problem

Any performance problem relating to a piece of software.

Software Statistic

Any type of software statistic.

SQL Information

Information relating to the execution of SQL statements.

SqlBufferpoolHitRatioProblem

Indicates that too many of the pages retrieved for this SQL statement required IO (applies to SQL)

SqlBufferpoolProblem

Any event associated with overall bufferpool performance or usage for a given SQL statement (applies to SQL)

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 e.g. 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 - overview

DB2 Query Monitor's batch reports are derived from queries and forms developed in QMF.

These batch reports are delivered in a manner that allows you to use them as a base for your own customized batch reports. The following are delivered for each batch report:

- QMF Form – Delivered in SCQMFORM dataset
- QMF Query – Delivered in SCQMQUERY dataset
- COBOL Source Program generated by QMF/HPO – Delivered in SCQMSAMP
- DBRMLIB member– Delivered in SCQMDBRM

You must run SCQMSAMP library member CQM@NRPB (the bind JCL for the batch reports).

The JCL to run the batch reports is in the SCQMSAMP library member CQM@NRPT. There is an EXEC statement for each of the following reports:

- CQMDSC - Dynamic SQL CPU
- CQMDSE - Dynamic SQL Elapsed
- CQMDSG - Dynamic SQL Getpages
- CQMSSC - Static SQL CPU
- CQMSSE - Static SQL Elapsed
- CQMSSG - Static SQL Getpages
- CQMSSO - Summary of Objects

To run the batch reports, un-comment the appropriate EXEC statement corresponding to the desired report.

You can import the QMF form and QMF query members to run the reports in QMF. You can modify the report's query and form layout as desired. If you have QMF/HPO, you can generate a new COBOL program from the modified QMF form and query. Additionally, the COBOL program for each report that was delivered with Query Monitor can be modified if desired.

Note:

1. If you want to generate a static SQL batch report, you must first run SCQMSAMP member CQM@LSTM during offload processing.
2. When using the batch report jobs (method 2), there are only two parameters: START_TIMESTAMP and END_TIMESTAMP.

Batch reports - method 1

The batch reports delivered in previous releases of DB2 Query Monitor are still available. Example query reports are provided which enable you to more easily analyze offload data.

About this task

The sample queries (which match the batch reports) are in SCQMSAMP member CQMORY01. The batch report bind job is in SCQMSAMP member CQM@RPBN and the job to generate the batch report in the job log is in SCQMSAMP member CQM@RPUT.

Batch reports - method 2

For DB2 Query Monitor V3R2 and later, you can either update the base batch report program or use the base programs directly.

About this task

Note: When using the batch report jobs (method 2), there are only two parameters: START_TIMESTAMP and END_TIMESTAMP.

Procedure

1. To update the base batch report program:
 - a. Compile the program. You must provide your own compile JCL.
 - b. Bind the batch report. The bind job is generated by TCz.
 - c. Run the following batch report jobs (these jobs are generated by TCz):
 - CQMDSC - Dynamic SQL CPU
 - CQMDSE - Dynamic SQL Elapsed
 - CQMDSG - Dynamic SQL Getpages
 - CQMSSC - Static SQL CPU
 - CQMSSE - Static SQL Elapsed
 - CQMSSG - Static SQL Getpages
 - CQMSSO - Summary of Objects
2. To use the base programs directly:
 - a. Run the bind jobs (the bind jobs are generated by TCz and use IBMTAPE.SCQMDBRM in the bind job).
 - b. Run the following batch report jobs (these jobs are generated by TCz and using IBMTAPE.SCQMLoad in batch report job):
 - CQMDSC - Dynamic SQL CPU
 - CQMDSE - Dynamic SQL Elapsed
 - CQMDSG - Dynamic SQL Getpages
 - CQMSSC - Static SQL CPU
 - CQMSSE - Static SQL Elapsed
 - CQMSSG - Static SQL Getpages
 - CQMSSO - Summary of Objects

Batch reports - parameters

The sample batch report job, CQM@RPUT, uses the following parameters:

DB2_SSID

Required: Yes

Description: The name of the DB2 subsystem on which the DB2 Query Monitor tables reside.

Syntax:

DB2_SSID(*ssid*)

Where *ssid* is the DB2 subsystem on which the DB2 Query Monitor tables reside.

REPORT

Required: Yes

Description: Specifies the report or reports to be generated. The REPORT keyword may be repeated. The reports will be printed to dynamically allocated JES SYSOUT files. At least one report name must be specified.

Syntax:

REPORT(*report_name*, *report_name*, ...)

Where the valid *report_name* are as follows:

- STATIC_CPU
- STATIC_ELAPSED
- STATIC_GETPAGE
- DYNAMIC_CPU
- DYNAMIC_ELAPSED
- DYNAMIC_GETPAGE

START_TIMESTAMP

Required: Yes

Description: Data from intervals that START between the START_TIMESTAMP and END_TIMESTAMP values will be included in the reports.

Syntax:

START_TIMESTAMP(*timestamp*)

Where *timestamp* is a valid DB2 timestamp value (yyyy-mm-dd-hh.mm.ss.nnnnnn). Please refer to DB2 documentation for the allowable forms for a DB2 timestamp.

END_TIMESTAMP

Required: Yes

Description: Data from intervals that START between the START_TIMESTAMP and END_TIMESTAMP values will be included in the reports.

Syntax:

END_TIMESTAMP(*timestamp*)

Where *timestamp* is a valid DB2 timestamp value (yyyy-mm-dd-hh.mm.ss.nnnnnn). Please refer to DB2 documentation for the allowable forms for a DB2 timestamp.

Space requirement calculation

These procedures show how to compute reasonable space quantities for VSAM backstore data sets to be entered into the Query Monitor startup parameters.

There are different space calculation methods for each data set since the type and method of data storage differs for each of Query Monitor's seven VSAM backstore data sets.

Notes:

1. All calculations in this section assume 3390 device geometry.
2. Since this section is geared towards allocations for the average amount of data stored in each backstore, we recommend that the primary and secondary quantities be specified with the same values. However these are just initial recommendations, each installation is unique and tuning space allocations is an iterative process.

Calculating space required for METRDATA

The METRDATA data set contains metrics about individual SQL calls at a summary level.

About this task

The level of reduction depends on the values specified in the CQMPARMS OPTKEYS parameters. Without the specification of OPTKEYS the reduction is done on the following input keys:

- Plan
- Program
- Cursor/section
- Statement#
- Statement type

For example consider a program that contains a dynamic SQL sequence of calls:

```
100 PREPARE
105 OPEN
110 FETCH
120 CLOSE
130 COMMIT
```

If all the calls in the program are executed 200 times by 200 users, Query Monitor will only create 5 records in the METRDATA data set at interval expiration. However, if Query Monitor is started with OPTKEYS(AUTHIDS), and the same query is executed once by the same 200 users QM will create 1000 records at interval expiration. If the same query is executed twice by each user, Query Monitor will still create 1000 records.

The goal in determining a reasonable amount of space to specify for the primary allocation for the METRDATA data set is to first determine the average number of unique SQL calls that Query Monitor will record in the METRDATA data set at interval expiration.

The other optional keys that maybe specified are CORRID, WSUSER, 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 42. 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
14336	7168	7
16384	16384	3
18432	18432	3
20480	10240	5
22528	5632	9
24576	24576	2
26624	26624	2

Table 42. Physical block size and blocks per track used by VSAM (continued)

Control interval size	Physical block size	Blocks per track
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 764, 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 a RDF and each CI has 1 CIDF.
4. Call record length is 1472 bytes.
5. Host variable record length is 100 bytes.
6. Object exception record length is 652 bytes.
7. Calculate the overhead for the SQL text records by taking the average exception SQL text size and dividing by 32000 and round up. Multiply the result by 20 and add the length of the SQL text.
8. Replace step 3 in the METRDATA calculation with the amount of control intervals determined from "Calculating space required for METRDATA" on page 764. 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 SQLCODEs. There are three records types within the SQLCDATA data set SQLCODE summary, SQLCODE detail record, and SQLCODE SQLTEXT records.

About this task

One record is written at interval expiration for each summary record. The amount of records of the summary type is controlled by the MAX_SQLCODES startup parameter. For each summary record written, a detail record is written during the course of an interval. The amount of detail records written will not exceed the value specified for the MAX_SQLCODE_DETAIL startup parameter. For dynamic SQL calls e.g. PREPARE, SQL text record types will be written along with the detail records during the course of an interval.

To determine space requirements for the SQLCDATA data set follow the METRDATA calculation with the following exceptions:

1. Determine the average number of summary, and detail records per interval. MAX_SQLCODES and MAX_SQLCODE_DETAIL are maximum limits.
2. Record lengths for summary and detail records are 24 and 716 respectively.
3. For SQLTEXT records take the average SQL text length and divide by 32000 and round up. Multiply the result by 28 and add the average SQL text length.

4. Assume 1 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 CISE 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.

Stopping the Query Monitor Collector

The DB2 Query Monitor collector is designed to be started and stopped completely independent to the CAE Server and CAE Agent.

About this task

The DB2 Query Monitor collector is started using the MVS start command. The start command is documented in *IBM z/OS MVS System Commands* manual (SA22-7627). The preferred format for DB2 Query Monitor is:

S *taskname*

Where *taskname* is the DB2 Query Monitor started task name. Starts the DB2 Query Monitor started task.

The preferred method to stop the DB2 Query Monitor collector is to use the MVS stop command. This method allows DB2 Query Monitor to go through normal shutdown processing and all collected data will be retained if the VSAM back-store data sets are allocated with enough space. The stop command is documented in the *IBM z/OS MVS System Commands* manual (SA22-7627). The preferred format for DB2 Query Monitor is:

P *taskname*

Where *taskname* is the Query Monitor started task name. Stops the DB2 Query Monitor started task.

In the event that the collector can not be shut down normally, the MVS cancel command can be used to terminate the collector task. If the cancel command is used, data collected during the current interval will be lost. This command should only be used in extreme circumstances. The stop command is documented in the *IBM z/OS MVS System Commands* manual (SA22-7627). The preferred format for DB2 Query Monitor is:

C *taskname*

Where *taskname* is the DB2 Query Monitor started task name. Cancels the DB2 Query Monitor started task.

During certain operations, the DB2 Query Monitor enters a temporary state during which it cannot be canceled. When this occurs, you can retry the cancel command at a later time. In the unlikely event that the DB2 Query Monitor collector does not respond to the MVS cancel command, you can use the MVS force command to force the collector out of the system.

Note: The force command is the command of last resort and should not be used until a dump of the DB2 Query Monitor collector address space, all DB2 Query Monitor data spaces, and the DB2 DBM1 address spaces being monitored has been obtained.

The DB2 Query Monitor collector has been designed to withstand the effect of a force command without negative impact to the system. This command should only be used after all other methods of shutting down the DB2 Query Monitor collector have failed. The force command is documented in the *IBM z/OS MVS System Commands* manual (SA22-7627). The preferred format for DB2 Query Monitor is:

FORCE *taskname*, ARM

Where *taskname* is the DB2 Query Monitor started task name. Forces the termination of DB2 Query Monitor started task.

Stopping the Master Address Space

This topic provides information about how to stop the Master Address Space.

About this task

- Stop the Master Address Space only if directed to do so by IBM Software Support or by a ++HOLD(ACTION) in a PTF. To ensure product stability, the master address space should be stopped only by using the sample job provided in SCQMSAMP member CQMMSTR (for DB2 Query Monitor V3.2 and later, use the TCz customization panels to generate this job). As a safeguard, this job verifies that no CQM, CQR, or ADH installations are using the Master Address Space before stopping it.
- During installation, do not stop or start the Master Address Space unless required by product maintenance or instructed to do so by IBM Software Support.

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