5.4

IBM OMEGAMON for Db2 Performance Expert on z/OS Planning, Customization, and Migration Guide

GH12-7072

Note:

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

2021-03-23 edition

This edition applies to Version 5 Release 4 of IBM® OMEGAMON for DB2® Performance Expert on z/OS (product number 5655-W37) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Figures

Tables

About this information

IBM OMEGAMON for Db2 Performance Expert on z/OS (also referred to asOMEGAMON for Db2 Performance Expert) is a performance analysis, monitoring, and tuning tool for Db2 on z/OS® environments.

The document is part of the OMEGAMON for Db2 Performance Expert documentation library which provides instructions for installing, configuring, and using OMEGAMON for Db2 Performance Expert and is designed to help database administrators, system programmers, application programmers, and system operators perform these tasks:

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

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

Chapter 1. Overview

OMEGAMON for Db2 Performance Expert is a performance analysis, monitoring, and tuning tool for Db2 on z/OS environments that enables you to perform a variety of tasks such as reporting, trend analysis, and buffer pool analysis.

Where to find information

The OMEGAMON for Db2 Performance Expert documentation set includes the following documents.

Full documentation library (Knowledge Center)
SC27-9821-00

The OMEGAMON for Db2 Performance Expert Knowledge Center library includes all OMEGAMON for Db2 Performance Expert content.

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/kdp54_welcome.html

Program Directory
GI19-5019

http://publibfp.dhe.ibm.com/epubs/pdf/i1950190.pdf

Full documentation library (PDF)
SC27-9821-00

The IBM OMEGAMON for Db2 Performance Expert User's Guide PDF includes all of the OMEGAMON for Db2 Performance Expert content. It is the PDF version of the Knowledge Center library.

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/kdpuge4.pdf

The OMEGAMON for Db2 Performance Expert documentation is also divided into smaller individual documents for ease-of-use. These documents contain a subset of the topics in the full documentation library.

Planning, Customization, and Migration Guide
GH12-7072

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2cc540.pdf

Buffer Pool Analyzer User's Guide
SH12-7075

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/bpobp540.pdf

Reporting User's Guide
SH12-7071

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2ru540.pdf

Classic Interface User's Guide
SH12-7068

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2ci540.pdf

ISPF Client User's Guide
SH12-7070

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2mi540.pdf

Enhanced 3270 User Interface User's Guide
SH12-7074

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2ui540.pdf

Performance Expert Client User's Guide
SH12-7069

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2mp540.pdf

Report Reference
SH12-7065

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2rr540.pdf

Report Command Reference
SH12-7066

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2rc540.pdf

Parameter Reference
SH12-7073

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2pr540.pdf

Messages and Troubleshooting Guide
GH12-7067

https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/ko2me540.pdf

Other documents

These OMEGAMON for Db2 Performance Expert documents are available for users who need information about special topics.

***Quick Start Guide* - GI19-5019**
Quick start information for the SQL Dashboard and the end-to-end SQL monitoring functions.

http://publibfp.dhe.ibm.com/epubs/pdf/h1270640.pdf

DB2 Performance Expert for Multiplatforms
SG24-6867

A guide to installing, configuring, and using OMEGAMON for Db2 Performance Expert.

http://www.redbooks.ibm.com/redbooks/pdfs/sg246470.pdf

Service updates and support information

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

Support home

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

Accessibility features

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

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

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

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

Navigating the interface by using the keyboard

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

Magnifying what is displayed on the screen

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

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 information or any other documentation, you can complete and submit the *Reader Comment Form*.

Chapter 2. Planning

Use the Planning section to understand and plan for installation and migration of IBM OMEGAMON for Db2 Performance Expert on z/OS.

Gathering information

Before you begin installing and configuring this product, you'll need to gather information about your environment, prerequisites, security, and PARMGEN, among other things.

•

Planning your environment

Start by planning a few high-level decisions about your environment.

About this task

The following tasks help you plan your environment:

Procedure

1. Decide what types of runtime environments you need.
   See *IBM® OMEGAMON and Tivoli Management Services on z/OS shared documentation* for more information.
2. If you are installing OMEGAMON for Db2 PE in a data sharing environment, consider restrictions.
   See “Special considerations for a data sharing environment” on page 11 for more information.
3. Consider necessary authorizations.
   See “Requirements” on page 6 for more information.
4. If you are installing OMEGAMON for Db2 PE in a multi-host environment, plan the VTPOOL sharing configuration.
   See “VTPOOL sharing in a multihost environment” on page 12 for more information.
5. Decide which security functions to implement.
   See “Security” on page 15 for more information.
6. Decide which optional features and functions you want to enable.
   See “Planning features” on page 5 for more information.
7. Complete the “Worksheet for planning your configuration” on page 39.
   This worksheet helps you understand what key parameters and values you'll need to configure.

Planning features

Each optional feature or function that you add causes additional resource and CPU costs.

For best results, consider which features you need. Then, decide whether you want to run each feature all the time or if you can save CPU costs and turn the feature on only when needed.

Following are additional considerations to help you decide which optional features and functions to add:

- Monitor traces for real-time are typically inexpensive. This includes Statistics and Accounting class (1) traces.
- Accounting trace class (3) and especially class (2) on the plan level as well as the equivalent classes (7 and 8) on the package level will generate additional overhead within the DB2 engine.

- SQL related traces (Dynamic SQL, NegSQL, sort, scan, and locking) can be very expensive. These traces should be used cautiously and only for a short period of time. For example, they are used as an option in Near-Term History.
- Object Analysis can be very expensive. Consider using the online function to switch this function on and off dynamically if you need it.
- For further information on resource and CPU consumption, see APAR 'II14438: Known issues causing high CPU utilization in OMEGAMON DB2 and performance tuning tips COMPID 5655OPE00' on the *z/OS Communications Server*.

Requirements

As part of planning, you must meet a set of requirements.

Hardware requirements
You can deploy the product on any zSeries system that is capable of running z/OS, version 1 release 8, or later.

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

OMEGAMON for Db2 PE installation
You must install OMEGAMON for Db2 PE through SMP/E.

SMP/E is a tool that installs and maintains software in z/OS systems and subsystems.

Related reading:

- The SMP/E installation of OMEGAMON for Db2 PE is described in the Program Directory for IBM Tivoli OMEGAMON XE for Db2 Performance Expert on z/OS.
- The SMP/E installation of OMEGAMON for Db2 PM is described in the Program Directory for IBM Tivoli OMEGAMON XE for Db2 Performance Monitor on z/OS.

Authorization requirements

To set up the product and certainDb2 privileges, such as data set privileges, access privileges are required. You find these in the two tables below. Furthermore, several user IDs are required for the configuration. You must create the following new user IDs or assign existing user IDs to the tasks:

- DB2PM as user ID or group ID for the OMEGAMON Collector (For details, see "Setting up security for the OMEGAMON Collector address spaces" on page 63.)
- A user ID for the DB2 Connect Monitoring Agent (in case you want to use the function DB2 Connect Monitoring)

During the configuration process, the PARMGEN generates jobs that contain all the statements that grant the required Db2 privileges. After you successfully complete the configuration, you'll find these jobs in your *&rhilev.&rte*.RD2SAM library.

The following table lists the Db2 privileges you must grant to different users and the respective grant jobs that you must submit.

Table 1. Db2 privileges.

Note: In the table, *<ssid>* denotes the Db2 subsystem ID.

User	**Db2 privileges/grant jobs**
Performance Expert Client (including Performance Warehouse Client) or ISPF Monitoring Dialogs	OMGP*<ssid>* This job contains the following privileges: • **EXECUTE** on PLAN KO2PLAN • MONITOR1 • MONITOR2 • DISPLAY • TRACE If you want to allow certain users to execute **CANCEL THREAD** in Thread Activity, then you have to grant those privileges additionally (for example SYSOPR).
DB2 Connect Monitoring Agent	PWGA*<ssid>*
The EXPLAIN function	EXGP*<ssid>*
Performance Warehouse	PWG2*<ssid>*
Product setup	• SYSADM (to submit **GRANT** jobs) • SYSCNTRL (to submit **BIND** jobs)
OMEGAMON Collector user ID (DB2PM)	• OMGR*<ssid>* • OMGP*<ssid>* This job contains the following privileges: – **EXECUTE** on PLAN KO2PLAN – MONITOR1 – MONITOR2 – DISPLAY – TRACE • If Performance Warehouse is enabled: PWG1*<ssid>*
Classic Interface	No additional Db2 privileges needed.

Table 1. Db2 privileges.

Note: In the table, *<ssid>* denotes the Db2 subsystem ID.

(continued)

User	Db2 privileges/grant jobs
DB2 z/OS subsystem/data sharing group in the InfoSphere® Optim™ Performance Manager Web Console	To configure InfoSphere Optim Performance Manager: • Privileges described in row 'End users of Performance Expert Client (including Performance Warehouse Client) or ISPF Monitoring Dialogs'. • The privilege to connect to the DB2 z/OS subsystem/data sharing group. • The necessary privileges to perform **CREATE**/**DROP**/**ALTER** on function or procedure, that is **GRANT CREATEIN,DROPIN,ALTERIN ON SCHEMA OPM**. The system privilege **GRANT BINDADD** is also required, as well as the privileges to issue **GRANT EXECUTE** on all functions and stored procedures on schema OPM. • JDBC stored procedures that allow getMetaData() method call have to be installed and configured. To view static SQL statement text: • The **SELECT** privilege on tables SYSIBM.SYSCOLUMNS, SYSIBM.SYSPACKSTMT, SYSIBM.SYSROUTINES, and SYSIBM.SYSPARMS. In order to speed up performance of the static SQL statement text retrieval, create the following indices: – SYSIBM.SYSPACKSTMT (SECTNOI ASC, NAME ASC, CONTOKEN ASC, COLLID ASC, SEQNO ASC) for DB2 10 and Db2 11 – SYSIBM.SYSPACKSTMT (STMT_ID ASC) for Db2 10 and DB2 11

The following table lists the required data set authorizations.

Table 2. Data set authorizations	
Users	**Authorizations on data sets**
ISPF Online Monitoring or Buffer Pool Analyzer	• **READ** on *&rhilev.&rte*.RKANCHT • **READ** on *&rhilev.&rte*.RKANCLI • **READ** on *&rhilev.&rte*.RKANISP • **READ** and **EXECUTE** on *&rhilev.&rte*.RKANMOD • **READ** on *&rhilev.&rte*.RKANENU • **READ** on *&rhilev.&rte*.RKANSAMV • **READ** on *&rhilev.&rte*.RKD2SAM • **READ** on *&rhilev.&rte*.RKANSAS
Product setup	• **UPDATE** on system VTAMLST • **UPDATE** on system PROCLIB • **ALTER** on the high-level qualifier of your RTE(s) (*&rhilev.&rte*) • **EXECUTE** on the high-level qualifier of PARMGEN (*&shilev*) • **READ** on the SMP/E target high-level qualifier of your SMP/E installation (*&thilev*)
OMEGAMON Collector user ID (DB2PM)	• **ALTER** on the high-level qualifiers that you want the OMEGAMON Collector to use for work data set allocation. You can specify a high-level qualifier for VSAM data sets and one for non-VSAM data sets.

Table 2. Data set authorizations (continued)	
Users	**Authorizations on data sets**
OMEGAMON Collector started task	• **READ** on MVSADMIN.WLM.POLICY RACF® facility class profile. • If PE Client is enabled: OMVS access in RACF (for details, see "Setting up TCP/IP services for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring" on page 63). • For information about configuring RRSAF, see "Setting up RRSAF" on page 65. • If the ability to dynamically add to link pack area is restricted, the OMEGAMON Collector started task (ompestc_uid) needs update authority to the facility. In RACF this is accomplished by permitting the OMEGAMON for Db2 PE task update authority to the facility: – PERMIT CSVDYLPA.ADD.KO2ZINIB CLASS(FACILITY) ID(ompestc_uid) ACCESS(UPDATE) – PERMIT CSVDYLPA.DEL.KO2ZINIB CLASS(FACILITY) ID(ompestc_uid) ACCESS(UPDATE) – PERMIT CSVDYLPA.ADD.DGOVRM01 CLASS(FACILITY) ID(ompestc_uid) ACCESS(UPDATE) – PERMIT CSVDYLPA.DEL.DGOVRM01 CLASS(FACILITY) ID(ompestc_uid) ACCESS(UPDATE) • If the specific facility needs to be defined: – RDEFINE FACILITY CSVDYLPA.ADD.KO2ZINIB UACC(NONE) – RDEFINE FACILITY CSVDYLPA.DEL.KO2ZINIB UACC(NONE) – RDEFINE FACILITY CSVDYLPA.ADD.DGOVRM01 UACC(NONE) – RDEFINE FACILITY CSVDYLPA.DEL.DGOVRM01 UACC(NONE)

The following table lists the required APF authorizations.

Table 3. APF authorizations	
Users	**APF authorizations**
Tivoli Enterprise Monitoring Agent user ID	APF authorizations on the libraries in the STEPLIIB of the Tivoli Enterprise Monitoring Agent **Note:** For detailed information, see *Configuring Tivoli Enterprise Monitoring Server on z/OS* in the *Tivoli Monitoring in the IBM Knowledge Center*. Search for *APF-authorize the runtime load libraries*.
OMEGAMON Collector user ID (DB2PM)	APF authorizations on the libraries in the STEPLIB of the OMEGAMON Collector. Depending on the type of runtime environment you are using, add the following runtime load libraries to your list of APF-authorized libraries: **FULL RTE** • *&rhilev.&rte*.RKANMODU • *&rhilev.&rte*.RKANMOD • *&rhilev.&rte*.RKANMODL **BASE SHARING RTE** • *&rhilev.&rte*.RKANMODU • *&rhilev2.&rte*.RKANMOD • *&rhilev2.&rte*.RKANMODL where *&rhilev2* is the high-level qualifier of the BASE runtime environment. **SMP/E SHARING RTE** • *&rhilev.&rte*.RKANMODU • *&rhilev.&rte*.RKANMOD • *&thilev*.TKANMOD • *&thilev*.TKANMODL

Special considerations for a data sharing environment

If you are installing or configuring OMEGAMON for Db2 PE in a data sharing environment, you might need to alter configuration of certain components.

Performance Expert Agent for DB2 Connect Monitoring

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

- **Monitor one member of a data sharing group.** This configuration is sufficient in most data sharing environments, even when the members reside on different LPARS in a sysplex environment.
- **Monitor two or more members of a data sharing group.** To enable DB2 Connect Monitoring, you have to enable Snapshot History and activate the collection of DB2 Connect Monitoring data. You can enable that for two or more members of a data sharing group. However, consider the following effects:
  - DB2 Connect Monitoring data is collected and stored for only one member of the data sharing group. Monitoring is started first for this DB2 subsystem.

- The user interfaces must connect to the member for which DB2 Connect Monitoring data is collected and stored. Otherwise, they cannot display DB2 Connect Monitoring data.
- If the monitoring for the DB2 subsystem, for which the DB2 Connect Monitoring data was collected, is stopped, and you have enabled DB2 Connect Monitoring for two or more members of a data sharing group, then data collection for another member takes over. Ensure to reconnect the user interface to this member to display DB2 Connect Monitoring data.

Performance Warehouse

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

VTPOOL sharing in a multihost environment

Virtual terminal pool (VTPOOL) defines the virtual terminal pool from which the virtual terminal manager VTM1 uses a virtual terminal for each OMEGAMON for Db2 PE session. To provide support for OMEGAMON for Db2 PE sessions under more than one TSO or ISPF, you must install VTM1 in every VTAM domain that controls a TSO. Usually, each installation of VTM1 includes a VTPOOL definition. You can, however, also share a VTPOOL definition among several VTM1 installations.

Sample network

For the VTPOOL sharing procedure described in this topic, it is assumed that the network is configured as shown in the following figure.

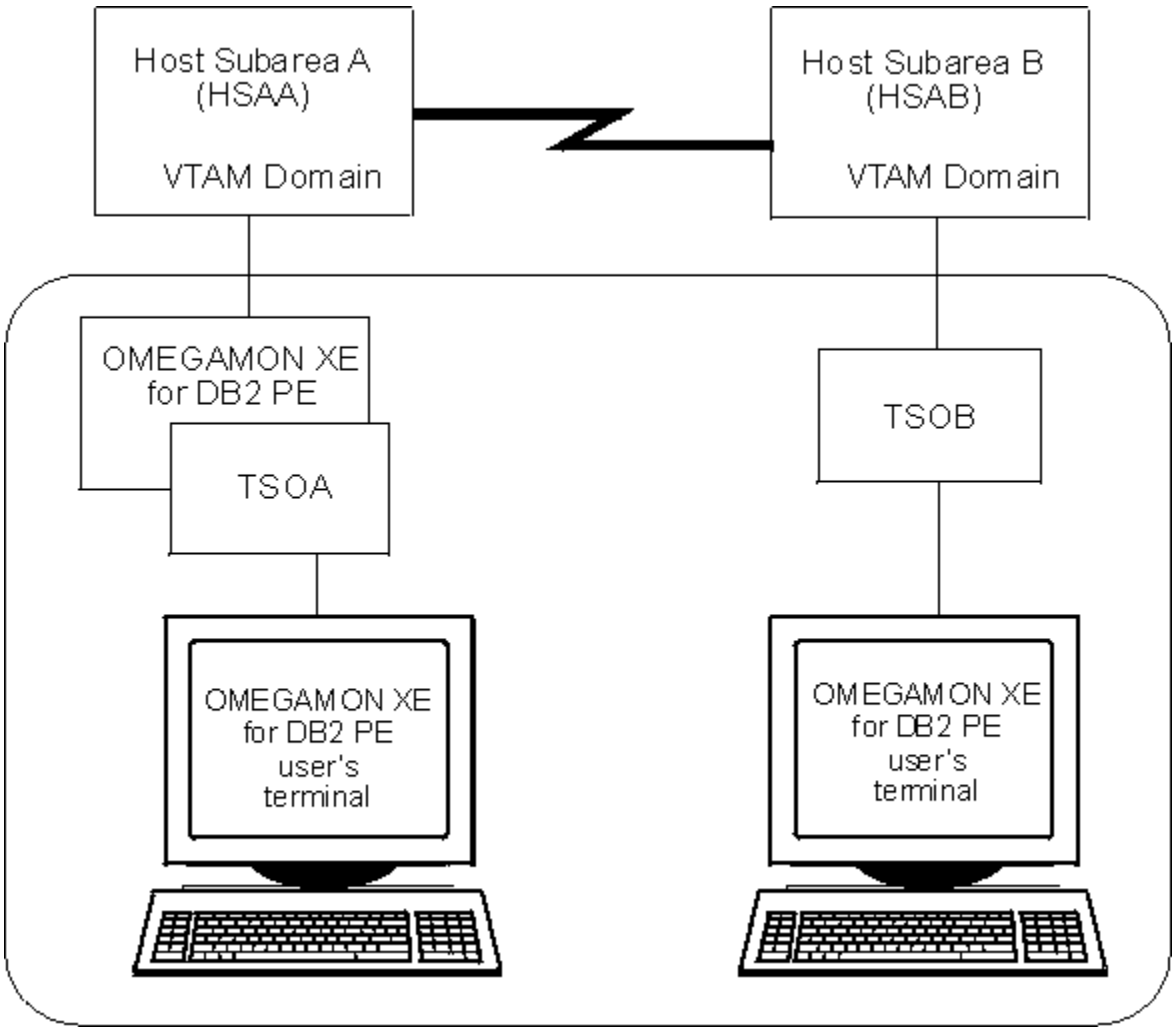

Figure 1. Sample network for VTPOOL sharing

In this example, there are two VTAM domains:

Host Subarea A (HSAA)
Host Subarea B (HSAB)

Host Subarea A runs OMEGAMON for Db2 PE and TSO (TSOA). Host Subarea B runs TSO (TSOB).

Assumptions are that:

- Users of OMEGAMON for Db2 PE who use ISPF or TSO mode must use the local TSO.
- A pool of ten virtual terminals is required for each host subarea.

This means that:

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

To share the VTPOOL definition, you must:

1. Define the VTPOOL to VMT1.
2. Define the VTPOOL to each VTAM.
3. Provide access to VTPOOL.

Define the VTPOOL to VMT1

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

```
$VTAPPL    APPL#=10,VTAPPL=OBVTM1
```

Define the VTPOOL to each VTAM

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

Both names are defined in the VTAM APPL definition statement:

- The ACBNAME keyword defines the local name.
- The name field defines the network name.

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

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

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

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

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

Provide access to VTPOOL

To provide access to VTPOOL, you must:

1. Assemble and link-edit the VTPOOL definition statements to produce the module *&shilev*.TKANSAM(KOBVTPL).

   VTM1 uses this module at runtime to select a virtual terminal prior to starting a OMEGAMON for Db2 PE session.
2. Store the VTM1 execution-time modules including the link-edited module *&shilev*.TKANSAM(KOBVTPL) in a library on DASD that is shared by TSOA and TSOB users.

   If this is not possible, you must use separate libraries with identical modules for both host subareas. You can, however, still perform VTPOOL maintenance from a single master library.

Modify VTPOOL definitions for TSO/ISPF mode

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

1. Define your virtual terminals and LOGMODE names to the VTM1 program by updating RKANSAM data set member KOBVTPL.
2. Assemble and link the KOBVTL source by using the JCL in RKANSAM data set member KOBVTPLX.

   The resulting load module KOBVTPL is stored in the RKANMOD data set.
3. Update the following member and controls accordingly if you modified the terminal names or the number of terminals:
   - VTAM node list member KOBVT1AP in the RKANSAM data set
   - VTAMLIST controls

Security

Plan your security strategy before you begin installation and configuration. Since no default security feature is set up, you must plan a security strategy, consider optional security features, and an optional interface using the Classic Interface security table.

Contents of the security file listing

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

The security file listing consists of these parts:

- Header
- Control Statement Edit Listing
- Security File Listing
- Security Update Program Trace

Header

The header of the security file listing contains this information:

- The name of the data set where the load module resides
- The module name of the security table
- The OMEGAMON for Db2 PE version number in the format X*nnn*COM, where *nnn* denotes the version number. For example, X*540*COM denotes OMEGAMON for Db2 PE V5.4.0.
- Messages indicating successful completion of the job or errors, such as a failure to open the SYSLIB data set or to read the security table.

This example shows a typical header:

```
OBSECUP 1.2-- SECURITY UPDATE PROGRAM--(c) IBM CORPORATION-- mm/dd/yy 16:41
            OB9261 OBSECUP BEGUN
            OB9144 OBSELR00 CALLED TO READ O2OCMDB
            OB9148 SYSLIB DCB OPENED SUCCESSFULLY
            OB9149 LIBRARY DSNAME IS: &rhilev.&rte.RKANMOD
            OB9158 LOAD MODULE ID:
                   OMCMDEX
                   X540COM
                   mm/dd/yy 19:02
            OB9146 LOAD MODULE TEXT SUCCESSFULLY READ
            OB9150 SYSLIB DCB CLOSED
            OB9262 LOAD MODULE READ RETURN CODE IS 0000
```

Control Statement Edit Listing

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

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

This example shows a typical control statement edit listing:

```
OBSECUP 1.2-- SECURITY UPDATE PROGRAM--(c) IBM CORPORATION-- mm/dd/yy 16:41

                             *** CONTROL STATEMENT EDIT ***

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

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

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

* DISPLAY SECURITY INFORMATION FOR MINOR JOBS
      MINOR=JOBS
               PREVIOUS CONTENTS = 0EW               NEW CONTENTS = 0EW

* PROTECT MZAP COMMAND
      COMMAND=MZAP,LEVEL=3
               PREVIOUS CONTENTS = 0                 NEW CONTENTS = 3
* DISABLE CONS COMMAND
      COMMAND=CONS,LEVEL=DISABLE,AUDIT=BOTH
               PREVIOUS CONTENTS = 0                 NEW CONTENTS = * B

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

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

1. The first position shows the number of the internal security level. If the command is not enabled, it shows an asterisk (*).
2. The second position shows the external security option.

   E
   Use external security for this command.

   blank
   A blank denotes no external security.
3. The third position shows the auditing option.

   W
   Audit this command by using WTO.

   S
   Audit this command by using SMF.

   B
   Audit this command by using WTO and SMF.

   blank
   A blank denotes no auditing.

Security File Listing

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

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

This example shows a typical security file listing:

```
OBSECUP 1.2-- SECURITY UPDATE PROGRAM--(c) IBM CORPORATION-- mm/dd/yy 16:41
               * * * SECURITY FILE LISTING * * *

               AUTHLIB=&rhilev.&rte.RKO2PROC        VOLUME=NOVOLUME

               LEVEL1=******** LEVEL2=******** LEVEL3=********
               SMFNUM=233
               MODULE=MYSECURE

COMMAND= /A          0         TYPE=S      (ALIAS)
COMMAND= /ABORT      0         TYPE=S
.
.
COMMAND= /AUP        0         TYPE= S
.
.
COMMAND= .AUP        0         TYPE= I
COMMAND= .DSA        0         TYPE= I
COMMAND= .SCC        *         TYPE= I
.
.
COMMAND= OCMD        3EB       TYPE= I
.
.
SECURITY TABLE LAST UPDATED ON mm/dd/yy 06:00:10
```

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

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

C
: Major

I
: Immediate

S
: Slash (INFO-line)

Security Update Program Trace

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

This example shows a typical security update program trace:

```
OBSECUP 1.2-- SECURITY UPDATE PROGRAM--(c) IBM CORPORATION-- mm/dd/yy 16:41

       OB9145 OBSELW00 CALLED TO WRITE KO2OCMDB
       OB9148 SYSLIB DCB CLOSED SUCCESSFULLY
       OB9147 LOAD MODULE TEXT SUCCESSFULLY UPDATED
       OB9150 SYSLIB DCB CLOSED
       OB9269 KOBSUPDT ENDED
```

Optional external security features

You can setup your user exit routine to use one of the following external security features.

The exit routine concepts are described in “Exit routine concepts” on page 27.

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

Customization of error messages

To suit your individual requirements, you can create customized error messages if one of these conditions occur:

- The authority of the user is insufficient.
- The user enters a wrong user ID.
- The user enters a wrong password.

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

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

Password update

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

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

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

Audit suppression

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

Audit supplement

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

Locking feature

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

Restrictions:

- Because the feature locks the internal security level of a user, it affects only those commands that are marked as EXTERNAL=NO.

- The locking feature disables the **/PWD** command only for supplying internal passwords. The user can still use the /PWD command to relogon to an external user ID.
- You must define the security level of a user in ACF2 or RACF as an INITIAL*n* resource, where *n* is a number from 0 to 3.
- You must assign corresponding values to commands in the security update program by using the **LEVEL** keyword of the **COMMAND** control statement.
- The routine starts checking INITIAL*n* resources at the highest level. If you define users of INITIAL2, INITIAL3, and PERMIT to INITIAL3, the users are locked to level 3.
- Users who have INITIAL authority without an attached value from 0 to 3 are allowed to change their internal security level by using the **/PWD** command.

User validation through RACF

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

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

This example shows these resources:

```
      <Allows /PWD to work>
              RDEFINE cccccccc INITIAL UACC(READ)

              <Defines security level 0 as unaccessible>
              RDEFINE cccccccc INITIAL0 UACC(NONE)

              <Defines security level 1 as unaccessible>
              RDEFINE cccccccc INITIAL1 UACC(NONE)

              <Defines security level 2 as unaccessible>
              RDEFINE cccccccc INITIAL2 UACC(NONE)

              <Defines security level 3 as unaccessible>
              RDEFINE cccccccc INITIAL3 UACC(NONE)

              <Locks USER02 to level 2 power>
              PERMIT INITIAL2 CLASS(classnme) ID(USER02) ACC(READ)
```

where *classnme* is the resource class name that you define when you modify RACF security rules as described in “Modifying RACF security rules” on page 24.

User validation through ACF2

To validate a user, the user exit routine checks the ACF2 resource class.

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

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

This example shows sample definitions:

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

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

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

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

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

where *cls* is the generalized resource class name that you define when you modify RACF security rules as described in "Modifying RACF security rules" on page 24.

Customized security for the Classic Interface

You can set up an interface between the Classic Interface and an external security package, such as RACF or ACF2. No security feature is set up as the default.

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

Terminology for security procedures

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

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

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

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

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

Internal versus external security

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

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

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

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

Authorized commands and their authorization level

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

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

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

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

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

For the procedure to update the security level of Classic Interface commands, refer to "External security concepts" on page 22.

The following commands are the authorized commands for this product:

```
CONS     DCMD     DCNS     .DSA     MCHN     MLST     MSCN
MZAP     OCMD     OSPC     PEEK     SCHN     SLST     SSCN
SZAP     TCMD     XMCH     XMLS     XMSC     XMZP
```

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

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

The authorized commands require an internal password for execution. How to use these passwords is described in "Using passwords for authorized commands" on page 21.

Using passwords for authorized commands

Each security level can have its own password.

About this task

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

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

```
OB0921 Security check failed (Internal)
```

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

Procedure

1. Enter **/PWD** on the INFO-line.

   The Classic Interface shows the password prompt.

   ```
   _                       <=== Please enter password
   ```

2. Enter your password on the INFO-line.

   The password does not display as you type it.

   The message PASSWORD ACCEPTED is displayed.

3. Press Enter again to get access to all authorized commands that are associated with that password and to lower command levels.

What to do next

To reset the security level to 0 after you complete the authorized functions, do one of the following:

- Press the PA1 or the ATTN key.
- Enter **/PWD** on the INFO-line and press Enter twice without entering a password.

  The Classic Interface shows:

  ```
  _________________ Password level reset
  ```

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

If you use the Classic Interface with an external security package, you can prevent the use of the **/PWD** command. For details about this feature, see “Locking feature” on page 18.

External security concepts

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

You can use external security for the logon and for commands. When using external security, you can log on to the Classic Interface only if you are allowed to access the INITIAL resource name.

You can use a resource name of INITIAL0, INITIAL1, INITIAL2, or INITIAL3 to allow logon to the Classic Interface and set the internal security level to 0, 1, 2, or 3, respectively.

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

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

If any commands are specified for external security checking and if an exit routine is not found, the Classic Interface recognizes a possible security exposure and disables those commands with an internal

security level of 0 for the session. Commands with a level of 1, 2, or 3 run only after you enter the internal password. For more information about authorized commands and using passwords, see the following:

- “Authorized commands and their authorization level” on page 21
- “Using passwords for authorized commands” on page 21

Using the VTAM, TSO, or ISPF mode logon panel

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

About this task

Advantages of using the KOBVTAM logon panel are:

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

Note: If you are in an active VTAM session and you want to change the external security level of authorization, you can use the relogon feature as described in “Logging on again to an active session” on page 23.

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

Procedure

Log on to VTAM.

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

Logging on again to an active session

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

About this task

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

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

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

- Do not mark the **/PWD** command as EXTERNAL=YES in the security table.
- In your user exit, you can determine the default action if the supplied user ID or logon password is not valid.

  For example, you can specify that all Classic Interface commands that are marked as EXTERNAL=YES are not enabled. You can also specify that the session reverts to the previous user ID. The available options are explained in the sample exit routines.
- If you use the relogon feature and your password has expired, you cannot enter a new one by using the **/PWD** command.

To use the relogon feature, perform the following step:

Procedure

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

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

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

Implementing external security

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

About this task

To implement external security, perform the following steps:

Procedure

1. Modify the rules in the external security package to interface with the Classic Interface as described in “Modifying RACF security rules” on page 24.
2. Customize the sample exit routine that is provided on the Classic Interface tape according to the procedure described in “Exit routine concepts” on page 27. For a description of options that you can use, refer to “Optional external security features” on page 17.
3. Assemble and link-edit the routine.
4. Modify and update the security table to specify the commands that are to be checked by RACF or ACF2 and the name of the module that contains the exit routine. Note that no default is supplied for the module name. Follow the steps in “Updating the security table” on page 37.
5. Ensure that your security package has authorized the started-task identifier for OMEGAMON for Db2 PE.

   During configuration, OMEGAMON for Db2 PE generates the security jobs KO2ACF2A, KO2RACFA, and KO2SUPD. These jobs create exit programs for external security packages. The members are in *&rhilev.&rte*.RKD2SAM.

Modifying RACF security rules

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

About this task

To modify RACF security rules, do the following:

Procedure

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

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

   You should define the ICHERCDE macro as follows:

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

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

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

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

   RDEFINE classnme INITIAL UACC(READ)

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

   This definition is the minimum required for logon. If you want to restrict the use of the **/PWD** command, refer to "Optional external security features" on page 17.

3. Define resource profiles for the commands that you want to protect by using external security. The commands are marked EXTERNAL=YES.
   a) Use the **TSO RDEFINE** to specify the Classic Interface command as the resource.

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

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

   c) Give the defined users READ access

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

   RDEFINE classnme PEEK UACC(NONE)

   PERMIT PEEK CLASS(classnme) ID(USER01) ACCESS(READ)

4. Include the RACF macro libraries SYS1.MACLIB and SYS1.AMODGEN, and the macro library *&thilev*.TKANMAC in the assembly of the security exit routine.

What to do next

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

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

Modifying ACF2 security rules

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

About this task

To modify ACF2 security rules, do the following:

Procedure

1. If you run the Classic Interface in VTAM mode, define the name of its started task to ACF2.

   The started task name that you use for the Classic Interface in VTAM mode should have the MUSASS attribute assigned. This allows ACF2 to check the individual user authorization rather than using the

address space ID of the Classic Interface. If STC(NO) is specified, you must run the Classic Interface in batch mode with a job name that has the MUSASS attribute.

2. To set up a resource class for ACF2, define a generalized resource class name, for example, O2S.

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

   For generalized resources, the name consists of three characters but gets the letter R as prefix within the security exit.

   This allows the Classic Interface to make security checks.

3. Define an ACF2 rule for resource INITIAL.

   This allows VTAM users to log on to the Classic Interface as in the following example:

   ```
   ACFNRULE KEY(INITIAL) TYPE(O2S) ADD(UID(**********uid) ALLOW)
   ```

   Requirement: O2S must be identical to the resource class name that you define in the security exit routine.

   uid is a user ID or a user ID mask. If you want to restrict the use of the **/PWD** command, refer to "Optional external security features" on page 17.

4. Define resource rules for the command that you want to protect by using the KEY operand of the ACF2 rule compiler.

   This authorizes a user to execute the **PEEK** command with ACF2 as in the following example:

   ```
   ACFNRULE KEY(PEEK) TYPE(O2S) ADD(UID(**********USER01) ALLOW)
   ```

   For information about the format of the string, ask your security administrator.

5. Include the ACF2 macro library and the IBM macro library *&thilev*.TKANMAC in the assembly of the security exit routine.

What to do next

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

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

Modifying CA-TOP SECRET security rules

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

About this task

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

Procedure

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

Example

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

```
TSS PERMIT(userid) cccccccc(PEEK)
```

where *cccccccc* is the resource class name.

Exit routine concepts

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

Concepts for exit routines are:

- You can specify any unique name for your exit routine.

  The name must be identical to the name in the control statements that update the security table. For more information, refer to the **MODULE=** control statement in "MODULE control statement" on page 34.
- You can share the exit routine between systems.
- You must define a resource class in the exit routine.

  The name of this resource class must be identical to the generalized resource class name that you define when you modify RACF or ACF2 rules.
- You can use the same exit routine to define security for several Classic Interfaces.

  You must then use the same name on the **MODULE=** control statement for each Classic Interface.

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

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

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

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

  You can also use these models if you have a security system other than RACF or ACF2. In this case, use the sample RACF or ACF2 exits as guides to see the following:

  – Which information is passed to the exit routine
  – Which information is returned to the Classic Interface
- Members KO2ACF2A and K02RACFA that contain sample JCL to help you assemble and link-edit your routine.

External security features are described in "Optional external security features" on page 17.

Calling conventions of the Classic Interface

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

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

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

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

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

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

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

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

Register 1
Address of parameter list

Register 13
Address of a standard save area

Register 14
Return address

Register 15
Entry point address (in)

Register 15
Return code (out)

Word 1
Address of control block

Calling flow between Classic Interface and user security exit

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

Calling flow at initialization

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

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

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

  To perform a reshow in VTAM mode, perform these steps:

  1. Set a message of up to 120 bytes length in the **U#CHMSG** field.
  2. Set the **U@CHRSHO** bit in the **U#CHRESP** field.
  3. Return to the caller.

  The message appears below the panel. Appropriate fields, such as original user ID and password, are filled in, unless overridden (length = 0).
- After validation is complete, a return code of 0 from the user exit indicates that the user is allowed to log on.

  Any other return code stops the session.
- After successful logon, the validation routine can perform resource validation.

  Optionally, it assigns a command security level (0, 1, 2, or 3) to the user. The default level is 0.

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

Calling flow during command verification

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

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

If a command is not allowed, the user cannot use this account on subsequent tries until security is reset with the **/PWD** command.

Each time the user attempts to use the command, the user exit is notified. Also, an audit record can be written, and a customized error message can be issued.

Return codes from the exit routine can be:

RC = 0
Indicates that the command is allowed.

For RACF and ACF.

RC = 4
Indicates that the command is unknown.

The Classic Interface allows the command to execute. For information about how to define a command to RACF, refer to "Modifying RACF security rules" on page 24.

For RACF only.

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

For RACF and ACF.

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

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

Calling flow at relogon

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

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

Calling flow at termination

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

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

Security control statements

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

Overview

This table provides a summary of available security control statements and their descriptions in alphabetical order.

For more information about the control statements and keywords, refer to the individual description of each statement.

Table 4. Security control statements

Control statement	Purpose	Description
AUTHLIB	Specifies an authorized screen space (PROC) library for initialization that bypasses the security check.	“AUTHLIB control statement” on page 31
COMMAND	Sets the internal security levels of commands, marks them for external security, and requests an audit.	“COMMAND control statement” on page 32
LIST	Specifies whether a listing of the current security settings is to be produced on this run.	“LIST control statement” on page 33
MINOR	Specifies the security options for minor commands.	“MINOR control statement” on page 33
MODULE	Specifies the name of the module that contains the user external security exit routine.	“MODULE control statement” on page 34
PASSWORD	Specifies the internal passwords.	“PASSWORD control statement” on page 34
RESET	Clears current settings.	“RESET control statement” on page 35
SMFNUM	Specifies the record ID number for SMF audit requests.	“SMFNUM control statement” on page 36
UPDATE	Specifies whether updating is to be performed on this run.	“UPDATE control statement” on page 36

Format rules for control statements

These format rules apply to all control statements.

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

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

  Note: Blanks are not allowed because the update program treats data that follows a blank as a comment. The data prints on the edit listing but is ignored for processing purposes.
- To insert comment lines anywhere in the input stream, place an asterisk (*) in the first column of the input record.

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

  To correct the setting, specify a new one instead of deleting or replacing part of the old one, especially when changing a command from EXTERNAL=YES to EXTERNAL=NO.
- The Classic Interface does not recognize changes of control statements until the update job completes successfully and until a new Classic Interface session is started.

  Usually, the control statement edit listing indicates successful completion of the update.

AUTHLIB control statement

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

Purpose

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

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

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

Security checking resumes if one of these conditions occurs:

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

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

- The Classic Interface fetches a screen that contains an authorized command.

  Therefore, the **.FGO** and **.VAR** commands should be unprotected.
- The Classic Interface fetches a screen space that is loaded into memory.

  Screen @ZSCRNDF loads screen spaces into memory.

Format

The format of the **AUTHLIB** control statement is:

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

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

Keyword

VOL

Always required.

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

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

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

COMMAND control statement

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

Purpose

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

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

Format

The format of the **COMMAND** control statement is:

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

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

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

Keywords

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

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

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

DISABLE
Specifies that the Classic Interface should never execute the command.

You can audit attempts to execute the command for the session, but you cannot specify internal or external security.

EXTERNAL
Specifies if an external security package checks this command.

YES
The external security package checks the command unless you specify LEVEL=DISABLE.

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

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

NO
The external security package does not check the command.

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

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

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

Possible values are:

NONE
Specifies that commands are not audited. This is the default setting.

WTO
Produces a one-line message on the master console.

SMF
Specifies that the Classic Interface writes an SMF record.

The SMF record must be specified in the **SMFNUM** control statement.

If the SMF audit cannot be performed, the Classic Interface uses a WTO audit by default.

BOTH
Specifies that the Classic Interface issues a WTO message to a console and writes an SMF record.

LIST control statement

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

Purpose

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

It shows:

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

You can specify only one **LIST** control statement per run.

Format

The format of the **LIST** control statement is:

```
LIST={YES|NO}
```

Keywords

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

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

For detailed information about the contents of a security file listing, refer to "Contents of the security file listing" on page 15.

MINOR control statement

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

Purpose

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

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

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

Format

The format of the **MINOR** control statement is:

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

Keywords

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

For an explanation of the keywords LEVEL, EXTERNAL, and AUDIT, refer to "COMMAND control statement" on page 32.

MODULE control statement

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

Purpose

You must specify this control statement to use external security.

The name of the module must be identical to the name of the load module that you specify in KO2ACF2A or KO2RACFA.

Format

The format of the **MODULE** control statement is:

```
MODULE=cccccccc
```

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

Usage notes

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

PASSWORD control statement

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

Purpose

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

Requirements:

- The password must be one to eight characters long.
- Use a separate **PASSWORD** control statement for each security level.
- Use unique passwords for each security level.

  If you assign the same password to more than one security level, the Classic Interface matches it at the lowest level and denies access to commands at higher levels.

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

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

Format

The format of the **PASSWORD** control statement is:

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

where *password* denotes the unique password for this level.

Keywords

LEVEL
Always required.

Specifies the security level that is associated with this password.

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

RESET control statement

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

Purpose

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

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

Format

The format of the **RESET** control statement is:

```
RESET=cccccccc
```

where *cccccccc* denotes one of the keywords.

Keywords

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

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

INFO
Clears settings for all INFO-line commands on the **COMMAND** control statement.

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

MAJOR
Clears settings for all major and immediate commands on the **COMMAND** control statement.

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

MINOR
Clears settings for all minor commands.

MODULE
Clears the name of your exit routine module.

PASSWORD
Clears the internal passwords.

SLASH
Clears the record number for SMF audits.

SMFNUM control statement

This control statement specifies the ID number of the SMF record.

Purpose

The Classic Interface uses this SMF record for its audit.

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

A default value does not exist.

Format

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

```
SMFNUM=nnn
```

where *nnn* denotes the SMF record ID number.

UPDATE control statement

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

Purpose

The default is UPDATE=YES.

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

Format

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

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

Updating the security table

You can update the security table for internal and external security.

About this task

To update the security table, perform these steps:

Procedure

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

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

   If you implement external security, perform these steps:

   a. Enter the **MODULE** control statement.

      It denotes the load module that contains the exit routine.

   b. Indicate which commands should use external security by using the EXTERNAL=YES setting on the **COMMAND** control statements.

   To remove control from external security, perform these steps:

   a. Blank out the keyword of the **MODULE** control statement.

   b. Change commands that are marked with EXTERNAL=YES to EXTERNAL=NO.

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

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

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

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

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

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

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

4. Start a new Classic Interface session.

Results

The changes to the security table come into effect.

Examples

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

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

```
//SECURITY JOB ,
//STEP1        EXEC PGM=KOBSUPDT,PARM=KO2OCMDB
//STEPLIB        DD DSN=&rhilev.&rte.RKANMOD,DISP=SHR
//SYSLIB         DD DSN=&rhilev.&rte.RKANMOD,DISP=SHR
//SYSPRINT       DD SYSOUT=*
//SYSIN          DD DSN=&rhilev.&rte.RKD2SAM(O2SUPDI),DISP=SHR
//
```

where:

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

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

SYSLIB
Specifies the name of the library where KO2OCMDB resides.

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

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

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

Member O2SUPDI in the *&rhilev.&rte*.RKD2SAM data set contains these control statements:

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

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

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

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

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

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

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

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

/SAVE
A user who has specified the level 1 password, the level 2 password, or the level 3 password can execute the **/SAVE** command. It is not audited.

The remaining command control statements in this example result in these settings:

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

SMFNUM
The SMF ID is set to 233.

LIST
YES indicates that the Classic Interface produces a listing.

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

Worksheet for planning your configuration

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

Purpose

Use this worksheet:

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

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

Tip: Complete as much of this worksheet as you can before you begin installing the product. You might need to interact with several different roles to gather the information necessary to properly configure the product. Ensure that you have the necessary authorizations on the data sets as listed in “Requirements” on page 6.

User interfaces

Mark the user interfaces that you intend to use.

Table 5. User interfaces of OMEGAMON for Db2 PE

User interfaces	**Use (Y/N)**
3270 user interfaces on the host	
Classic Interface	
ISPF Online Monitoring	
Enhanced 3270 user interface	
User interfaces on the workstation	
Performance Expert Client	
Tivoli Enterprise Portal	

Data set naming conventions

Table 6. High-level qualifiers of the different data sets

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

Runtime environment variables

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

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

Table 7. Variables required to configure a runtime environment

Runtime environment variable	Description	Your value
Name of the runtime environment (mid-level qualifier)	Specify a name for your runtime environment. The runtime libraries that are allocated for this setup will use this name as mid-level qualifier in the data set names. If you enable system variable support, use the name of the LPAR that you run your initial tests on before rolling out the product(s) to other LPARs.	
Type of runtime environment	Select the type of runtime environment that you want to use: • FULL • SHARING SMP/E • SHARING BASE • BASE	
Started task prefix for OMEGAMON address spaces	Specify a 4-character prefix according to the naming conventions on your system. It will be used to generate default values for the started tasks.	
JCL suffix for jobs generated by the Configuration Tool	Specify a 4-character suffix. It will be used as part of the names of the configuration jobs, which are generated in the course of the configuration and stored in the *&shilev*.INSTJOBS work library. Ensure that you use a unique suffix for each runtime environment so that you can identify the configuration jobs that belong to one runtime environment in *&shilev*.INSTJOBS.	

Table 7. Variables required to configure a runtime environment (continued)		
Runtime environment variable	**Description**	**Your value**
Tivoli Enterprise Monitoring Server	You need Tivoli Enterprise Monitoring Server only if you want to use the Tivoli Enterprise Portal. If you want to configure a Tivoli Enterprise Monitoring Server in this runtime environment, specify Y. Your Tivoli Enterprise Monitoring Server can be configured in a different runtime environment on this LPAR, on a different LPAR or on one of the supported workstation platforms. For more information, see the *Tivoli Monitoring in the IBM Knowledge Center*.	
System variable support	Specify whether you want to enable system variable support. If system variable support is enabled, the Configuration Tool allows z/OS system symbols as part of the VTAM applid names. Type `readme sys` on the command line for detailed information.	
Fold password to upper case	Specify whether you want to enable mixed case password support. If you specify N, the passwords entered by the user will not be folded to upper case any more.	
Network ID	Specify the network ID used for VTAM communication.	
VTAM applid prefix	A four character prefix that is used for generating the VTAM applids.	

Basic configuration variables

Table 8. Variables required for the basic configuration		
Basic configuration variable	**Description**	**Your value**
OMEGAMON Collector started task	Started task name for the OMEGAMON Collector.	
DB2 load library	The name of the data set in which the DB2 load modules reside. Specify one DB2 load library for each DB2 subsystem version that you want to monitor.	
DB2 run library	The name of the data set in which the DB2 RUNLIB load modules reside. Specify one DB2 run library for each DB2 subsystem version that you want to monitor. This library should contain the modules DSNTIAD and DSNTIAUL to be used to run in batch. The run library is used to generate GRANT and BIND jobs that prepare the DB2 subsystems for monitoring.	
DB2 exit library	The name of the data set in which the DB2 exit load modules reside that should be used by the OMEGAMON Collector. This parameter is only needed if you want to use a DB2 authorization exit.	
OMEGAMON Collector plan/package owner	The OMEGAMON Collector plan/package owner is the USERID/GROUPID that will be granted the authority to administrate the OMEGAMON Collector, for example to rebind the DB2 packages of the OMEGAMON Collector.	

DB2 subsystem variables

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

Table 9. Variables required for each DB2 subsystem				
DB2 ID	**DB2 version (for example, 101, 111, 121)**	**MONITOR (Y or N)**	**TCP/IP port number (only if Performance Expert Client is used)**	**z/OS system ID (SMFID) that the DB2 runs on**

Performance Warehouse and Performance Expert Agent for Db2 Connect Monitoring variables

Table 10. Variables required to configure Performance Warehouse and Performance Expert Agent for Db2 Connect Monitoring		
Variable	**Description**	**Your value**
Performance Warehouse started job name	The name of the Performance Warehouse started job.	
DB2 load library	The name of the data set, in which the DB2 load modules reside that should be used by the Performance Warehouse job.	
DB2 exit library	The name of the data set, in which the DB2 exit load modules reside that should be used by the Performance Warehouse job.	
4 KB buffer pool	Buffer Pool with 4 KB page size for Performance Warehouse table spaces.	
32 KB buffer pool	Buffer Pool with 32 KB page size for Performance Warehouse table spaces.	
DB2 storage group(s) for Performance Warehouse table spaces	The storage group(s) that should be used for the Performance Warehouse table spaces.	

PARMGEN

You'll need to plan how you want to set up PARMGEN, which was designed to make configuration intuitive.

With PARMGEN, the configuration of all available products follows exactly the same procedure:

1. Basic setup of an RTE.
2. Choosing the products and components to configure.
3. Preparing the environment.
4. Configuring all products and components.
5. Finishing with the deployment.

The differences in product configuration are mainly in the PARMGEN parameter profile. This is the reason why this documentation only covers OMEGAMON for Db2 PE topics. General information on how to use PARMGEN, migration from older versions, or from the Configuration Tool can be found in the following sources:

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

In the Configuration Tool, the configuration of parameters and values was done in a product-specific user interface. In PARMGEN, all product-specific parameters are stored in one PARMGEN profile. Parameters are grouped into sections, and each section contains the parameters for only one product or component. Additionally, all parameters start with K*pp*_ where *pp* is the product identifier. The components that make up OMEGAMON for Db2 PE are the following:

- D2 - OMEGAMON for Db2 PE/OMEGAMON for Db2 PM
- D5 - OMEGAMON XE for DB2 on z/OS Agent

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

- Parameter description
- Required or optional parameter for running the OMEGAMON for Db2 PE server
- Default value
- Minimum value (if the parameter type is numeric)
- Maximum value (if the parameter type is numeric)
- Permissible values (if the parameter type is list)
- Locations where the parameter is stored (the configuration member and the data set it is generated to)
  - Parameter name (the line that is written to the configuration member to store the value)
- Panels in the Configuration Tool, which is especially helpful when you are moving from the Configuration Tool to PARMGEN. You can look up the following information:
  - Panel name
  - Panel ID
  - Panel field
  - Default value
  - Minimum value (if the parameter type is numeric)
  - Maximum value (if the parameter type is numeric)
  - Permissible values (if the parameter type is list)
- Batch parameter name (the name of the parameter when using batch installation)
- PARMGEN name (the name of the parameter in PARMGEN)
- PARMGEN classification

A list of all available parameters is available in the *Parameter Reference*.

Creating new DB2 subsystem configurations and/or monitoring profiles via duplication

In order to monitor more DB2 subsystems/data sharing groups, you need to add more subsystem configurations to the PARMGEN profile. The same applies to monitoring profiles, if you want to analyze different performance metrics for selected DB2 subsystems. In order to create a new DB2 configuration or monitoring profile, you can duplicate an existing one. Per default, two DB2 configurations and one monitoring profile are available.

Before you begin

This best practice does not require any prerequisites. You can follow the steps while doing your first configuration or when updating your existing configuration.

About this task

You will duplicate an existing monitoring profile in this workflow. However, this information is also applicable to all other parameters that are table-based. These are all parameters of the structure **Kpp_AAxx**, where:

- **pp** is the product code
- **AA** is the parameter function identifier (for example, **PF** for monitoring profiles, or **DB** for DB2 configurations)
- **xx** is the row ID

In order to create a new monitoring profile in the PARMGEN user profile, you duplicate an existing profile. After this step, you adjust the profile ID that is part of the parameter. For example, in parameter **KD2_PF01_SQLPA_VERSION**, the profile ID is **PF01.**

The sample PARMGEN profile that is provided with OMEGAMON for Db2 PE already contains a default monitoring profile configuration. You can use this default profile for the following steps, or create a new profile **PF02.**

Procedure

1. Open the PARMGEN user profile and search for the first or any existing monitoring profile. Issue the following command: **f PFxx**
2. Issue the following primary command to exclude all lines: **x all**

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
------------------------------------------------------------------------------
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03          All lines excluded
Command ===> x all                                               Scroll ===> CSR
****** ***************************** Top of Data ********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 2534 Line(s) not Displayed
****** ***************************** Bottom of Data *****************************
```

3. Issue the following primary command to include all profile monitoring parameters: **f PF01 all**

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
------------------------------------------------------------------------------
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03            253 CHARS 'PF01'
Command ===> f PF01 all                                          Scroll ===> CSR
****** ***************************** Top of Data ********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 1742 Line(s) not Displayed
001743 ** BEGIN KD2_PF01 - Monitoring profile ID: P001
001744 KD2_PF01_ROW                    01
001745 KD2_PF01_PROFID                 P001
001746 KD2_PF01_DESCRIPTION            "P001 PROFILE"
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 6 Line(s) not Displayed
001753 KD2_PF01_OA_ECM                 N           * Enablement Parameter *
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 1 Line(s) not Displayed
001755 KD2_PF01_OA_WAIT                5
001756 KD2_PF01_OA_START               N
001757 KD2_PF01_OA_THREAD              N
001758 KD2_PF01_OA_INTV                15
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 7 Line(s) not Displayed
```

Note: You can include commented lines using the line command **f**. For example, to include the six lines between **KD2_PF01_DESCRIPTION** and **KD2_PF01_OA_ECM**, use **f6**. This results in the following screen:

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
------------------------------------------------------------------------------
```

```
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03            253 CHARS 'PF01'
Command ===>                                                     Scroll ===> CSR
****** ***************************** Top of Data ********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 1742 Line(s) not Displayed
001743 ** BEGIN KD2_PF01 - Monitoring profile ID: P001
001744 KD2_PF01_ROW                    01
001745 KD2_PF01_PROFID                 P001
001746 KD2_PF01_DESCRIPTION            "P001 PROFILE"
f6- -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 6 Line(s) not Displayed
001753 KD2_PF01_OA_ECM                 N           * Enablement Parameter *
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 1 Line(s) not Displayed
001755 KD2_PF01_OA_WAIT                5
001756 KD2_PF01_OA_START               N
001757 KD2_PF01_OA_THREAD              N
001758 KD2_PF01_OA_INTV                15
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 7 Line(s) not Displayed
```

Results in:

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
-------------------------------------------------------------------------------
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03         Columns 00001 00080
Command ===>                                                    Scroll ===> CSR
****** ***************************** Top of Data ********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 1742 Line(s) not Displayed
001743 ** BEGIN KD2_PF01 - Monitoring profile ID: P001
001744 KD2_PF01_ROW                    01
001745 KD2_PF01_PROFID                 P001
001746 KD2_PF01_DESCRIPTION            "P001 PROFILE"
001747
001748 ** ------
001749 ** Object and Volume Analysis (OA):
001750 ** ------
001751 ** Specify Object and Volume Analysis (OA) parameters used in the
001752 ** xKD2PAR(STRTOA) member:
001753 KD2_PF01_OA_ECM                 N           * Enablement Parameter *
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 1 Line(s) not Displayed
001755 KD2_PF01_OA_WAIT                5
001756 KD2_PF01_OA_START               N
001757 KD2_PF01_OA_THREAD              N
001758 KD2_PF01_OA_INTV                15
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 7 Line(s) not Displayed
```

4. Issue the **rr** block line command on all included lines to repeat the profile once.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
-------------------------------------------------------------------------------
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03            253 CHARS 'PF01'
Command ===>                                                     Scroll ===> CSR
****** ***************************** Top of Data ********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 1742 Line(s) not Displayed
rr1743 ** BEGIN KD2_PF01 - Monitoring profile ID: P001
001744 KD2_PF01_ROW                    01
001745 KD2_PF01_PROFID                 P001
001746 KD2_PF01_DESCRIPTION            "P001 PROFILE"
   :
   :
rr2159 ** END KD2_PF01 - Monitoring profile ID: P001
```

5. Issue the **rr** block line command to exclude the first of the two identical profiles to ensure you do not edit it.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
-------------------------------------------------------------------------------
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03            253 CHARS 'PF01'
```

```
Command ===>                                                  Scroll ===> CSR
****** ***************************** Top of Data ********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 1742 Line(s) not Displayed
xx1743 ** BEGIN KD2_PF01 - Monitoring profile ID: P001
001744 KD2_PF01_ROW                     01
001745 KD2_PF01_PROFID                  P001
001746 KD2_PF01_DESCRIPTION             "P001 PROFILE"
   :
   :
xx2159 ** END KD2_PF01 - Monitoring profile ID: P001
002160 ** BEGIN KD2_PF01 - Monitoring profile ID: P001
002161 KD2_PF01_ROW                     01
002162 KD2_PF01_PROFID                  P001
002163 KD2_PF01_DESCRIPTION             "P001 PROFILE"
```

6. Issue the following primary command to change the monitoring profile ID to a new ID, so that you have two different monitoring profiles:

   c PF01 PF02 all nx

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
-------------------------------------------------------------------------------
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.04         Columns 00001 00080
Command ===> c PF01 PF02 all nx                                 Scroll ===> CSR
****** ***************************** Top of Data ********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 2159 Line(s) not Displayed
==CHG> ** BEGIN KD2_PF02 - Monitoring profile ID: P001
==CHG> KD2_PF02_ROW                     01
==CHG> KD2_PF02_PROFID                  P001
==CHG> KD2_PF02_DESCRIPTION             "P001 PROFILE"
```

   Note: The **nx** command ensures that the change command only affects the non-excluded lines.

7. Change the **KD2_PF02_ROW** parameter to match the ID in **PFxx**.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
-------------------------------------------------------------------------------
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.04     CHARS 'KD2_PF02_PROFID'
Command ===>                                                  Scroll ===> CSR
002161 KD2_PF02_ROW                     02
```

8. Change the **KD2_PF02_PROFID** parameter to a new monitoring profile ID to ensure that it differs from the original profile ID.

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
-------------------------------------------------------------------------------
EDIT       SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.04     CHARS 'KD2_PF02_PROFID'
Command ===>                                                  Scroll ===> CSR
002162 KD2_PF02_PROFID
P002
002163 KD2_PF02_DESCRIPTION             "P002 PROFILE"
```

Configuring all DB2 subsystems/data sharing groups

The most basic deployment scenario in PARMGEN is to create one completely separate RTE on each single LPAR. PARMGEN provides support for system variables in order to have only one PARMGEN profile that can be shared among all runtime environments.

Before you begin

You need a runtime environment where OMEGAMON for Db2 PE is already configured. This runtime environment must have system variable support enabled.

The following table shows some necessary information on runtime environments for this best practice. The source runtime environment is the one that needs to exist already while the deployment target runtime environment is the one that is being created.

Table 11. Runtime environment values

	Source runtime environment	**Deployment target runtime environment**
Name of runtime environment	OMPE01	OMPE02
Started task name	OMPE01S	OMPE02S
Started task prefix	OMPE	OMPE
VTAM APPLID prefix	APL1	APL2
LPAR name	PMO1	PMO2
Global user JCL	SAR.PG.V540.JCL (shared DASD)	
Runtime environment high-level qualifier	SAR.PG.V540 (shared DASD)	

About this task

As DB2 subsystem configurations and data sharing group configurations (in the following example only DB2 subsystem configurations) depend on the LPAR, this approach is not ready for immediate use. The reason is that a DB2 subsystem resides on only one LPAR but PARMGEN configures all specified DB2 subsystem configurations that are given in the PARMGEN user profile. Thus, you need to adjust those DB2 subsystem configurations on each runtime environment. The best approach is to share as much as possible and to change as little as possible. This best practice will show you a way how to achieve this.

This scenario has the following setup: Two LPARs have two DB2 subsystems each. You need an existing runtime environment that is configured on the first LPAR. The following graphic shows the prerequisite and the outcome of this scenario.

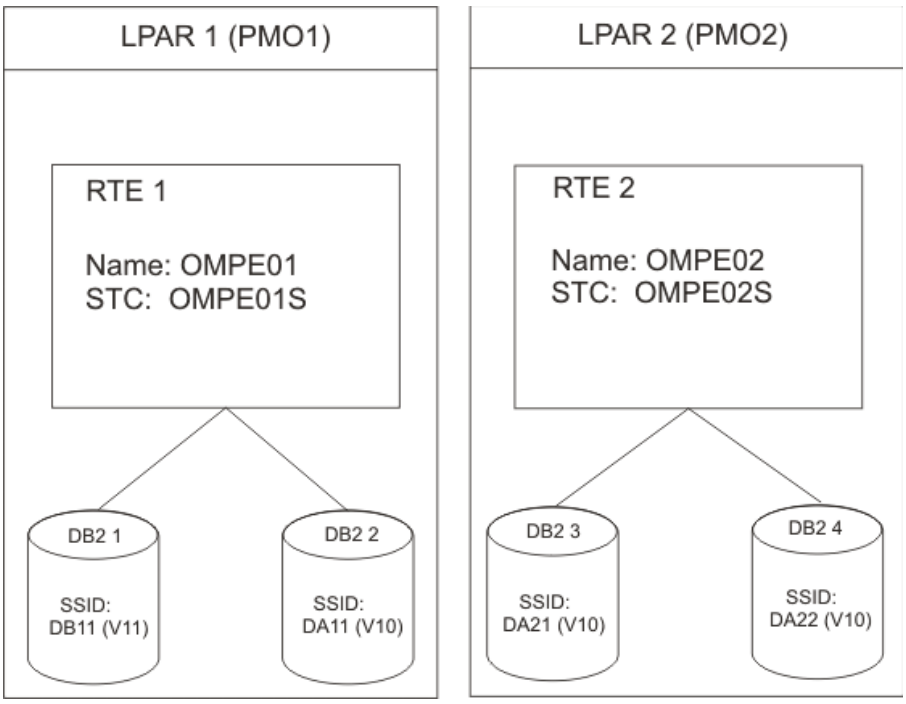

Figure 2. Scenario setup

The basic idea of the setup is to adjust RTE 1 in a way that it can be used as input for RTE 2 with as little effort as possible. Then you create RTE 2 and only adjust the local DB2 subsystem information.

Procedure

1. Adjust RTE 1 by moving all DB2 subsystem-specific information from the PARMGEN user profile to a new configuration member in your WCONFIG library.
2. Create two new configuration members in the WCONFIG library named DB2PMO1 and DB2PMO2.

   Name the configuration member starting with DB2, followed by the system name.

```
   Menu  Functions  Confirm  Utilities  Help
------------------------------------------------------------------------------
EDIT              SAR.PG.V540.OMPE01.WCONFIG            Row 0000025 of 0000079
Command ===> s DB2PMO2                                       Scroll ===> CSR
           Name     Prompt       Size   Created          Changed          ID
_________ DB2PMO1  *Edited          0  2013/06/07  2013/06/07 14:54:49  SAR
_________ JOBCARD
_________ KAG$PENV
_________ KAG$SST1
_________ KAG$SST2
```

3. When starting on the deployment source runtime environment, move all **KD2_DBxx** parameters from the PARMGEN profile to DB2PMO1.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
------------------------------------------------------------------------------
--
EDIT       SAR.PG.V540.OMPE01.WCONFIG(DB2PMO1) - 01.01         Columns 00001
00080
Command ===>                                                    Scroll ===>
CSR
****** ******************************** Top of Data
******************************
```

```
000001 ** DB2 subsystem information: one KD2_DBxx_ROW per
DB2ID:
000002 KD2_DB                              BEGIN              * Table begin
*
000003

000004 ** BEGIN KD2_DB01 - DB2 subsystem ID: SS01 (KD2_DBxx_ROW
#1)
000005 KD2_DB01_ROW
01
000006 KD2_DB01_DB2_SSID                   DA11 * Replace with DB2ID
*
000007 KD2_DB01_DB2_PROFID
P001
000008 KD2_DB01_DB2_DESCRIPTION            "DA11 DB2
Subsystem"
000009 KD2_DB01_DB2_VER
10
000010 KD2_DB01_DB2_MONITOR_START
Y
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 110 Line(s) not
Displayed
000121

000122 KD2_DB                              END                * Table end
*
****** ***************************** Bottom of Data
******************************
```

4. Add a short note to include the subsystem configuration in $SYSIN later.

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
-------------------------------------------------------------------------------
--
ISREDDE2   SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03          Columns 00001
00080
Command ===>                                                    Scroll ===>
CSR
001729 ** ======
======
001730 ** DB2 subsystem
configuration
001731 ** ======
======
001732

001733 ** include DB2PMO1 in $SYSIN for DB2 subsystem configuration for
PMO1
001734 ** include DB2PMO2 in $SYSIN for DB2 subsystem configuration for
PMO2
001735

001736 ** ======
======
001737 ** Monitoring
profiles:
001738 ** ====== ======
```

5. DB2PMO1 now contains your DB2 subsystem configuration for your first LPAR. Adjust DB2PMO2 accordingly, so that it contains all DB2 subsystem configurations on your second LPAR. Create a DB2 subsystem configuration member for each LPAR where you want it to deploy OMEGAMON for Db2 PE.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
```

```
------------------------------------------------------------------------------
--
VIEW       SAR.PG.V540.OMPE01.WCONFIG(DB2PMO1) - 01.01         Columns 00001
00080
Command ===>                                                   Scroll ===>
CSR
****** ***************************** Top of Data
********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 5 Line(s) not Displayed
000006 KD2_DB01_DB2_SSID                DA11 * Replace with DB2ID
*
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 2 Line(s) not Displayed
000009 KD2_DB01_DB2_VER
10
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -   60 Line(s) not Displayed
000070 KD2_DB02_DB2_SSID                DB11 * Replace with DB2ID
*
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 2 Line(s) not Displayed
000073 KD2_DB02_DB2_VER
11
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -   49 Line(s) not Displayed


****** ***************************** Bottom of Data
********************************
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
------------------------------------------------------------------------------
--
EDIT       SAR.PG.V540.OMPE01.WCONFIG(DB2PMO2) - 01.01         Columns 00001
00080
Command ===>                                                   Scroll ===>
CSR
****** ***************************** Top of Data
********************************
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 5 Line(s) not Displayed
000006 KD2_DB01_DB2_SSID                DA21 * Replace with DB2ID
*
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 2 Line(s) not Displayed
000009 KD2_DB01_DB2_VER
10
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -   60 Line(s) not Displayed
000070 KD2_DB02_DB2_SSID                DA22 * Replace with DB2ID
*
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  - 2 Line(s) not Displayed
000073 KD2_DB02_DB2_VER
10
- - -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -   49 Line(s) not Displayed
****** ***************************** Bottom of Data
********************************
```

6. Add the following parameters to the DB2PMO* configuration members:
   a) Parameter for the started task name (**GBL_DB2_CLASSIC_STC** from GBLUSR) to the DB2PMO* configuration members, if USER.PROCLIB is shared.
   b) Parameters **GBL_DSN_DB2_*** from GBLUSR to the DB2PMO* configuration members, if the DB2 run and load libraries are not shared.

   This prevents you from having to adjust these parameters on each LPAR.

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
------------------------------------------------------------------------------
--
VIEW       SAR.PG.V540.OMPE01.WCONFIG(DB2PMO2) - 01.00   Columns 00001 00080
Command ===>                                                   Scroll ===>
CSR
-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  137 Line(s) not
Displayed
```

```
000138 **GBL_DSN_DB2_SDSNLOAD
"DSN.V9R1M0.SDSNLOAD"
000139 **GBL_DSN_DB2_LOADLIB_V8
"DSN.V8R1M0.SDSNLOAD"
000140 **GBL_DSN_DB2_LOADLIB_V9
"DSN.V9R1M0.SDSNLOAD"
000141 GBL_DSN_DB2_LOADLIB_V10
"SYS1.DSN.V100.SDSNLOAD"
000142 **GBL_DSN_DB2_LOADLIB_V11      "DSN.VBR1M0.SDSNLOAD"
000142 **GBL_DSN_DB2_LOADLIB_V12
"DSN.VBR1M0.SDSNLOAD"
000143 **GBL_DSN_DB2_RUNLIB_V8
"DSN.V8R1M0.RUNLIB"
000144 **GBL_DSN_DB2_RUNLIB_V9
"DSN.V9R1M0.RUNLIB"
000145 GBL_DSN_DB2_RUNLIB_V10
"SYS1.DSN.V100.SDSNLOAD"
000146 **GBL_DSN_DB2_RUNLIB_V11       "DSN.VBR1M0.RUNLIB"
000146 **GBL_DSN_DB2_RUNLIB_V12
"DSN.VBR1M0.RUNLIB"
000147 **GBL_DSN_DB2_DSNEXIT
"DSN.V9R1M0.DSNEXIT"
000148

-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -   11 Line(s) not
Displayed
000160 GBL_DB2_KD2_CLASSIC_STC    OMPE02S
```

Note: Depending on your configuration, you can have more parameters that can be moved to DB2PMO2. In general, use system variables if possible. But if parameters are not applicable for system variables, you can put them into LPAR-specific configuration members.

7. Open $SYSIN and add DB2PMO1 to the list of configuration members.

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
------------------------------------------------------------------------------
--
ISREDDE2   SAR.PG.V540.OMPE01.WCONFIG($SYSIN) - 01.00          Columns 00001
00080
Command ===>                                                    Scroll ===>
CSR
000058 CONFIG
MEMBER=(WCONFIG:OMPE01)
000059 CONFIG
MEMBER=(WCONFIG:DB2PMO1)
000060 * CONFIG
MEMBER=(WCONFIG:&user_config_profile_placeholder)
000061 * ---- END   - USER SECTION: CONFIG MEMBER=(WCONFIG:&profile) -----
*
```

8. Create a new runtime environment (RTE 2) on LPAR 2 and ensure that system variable support is enabled. Reference the PARMGEN profile of RTE 1 in the PARMGEN work environment setup.

```
KCIP@PG1 ---- SET UP PARMGEN WORK ENVIRONMENT FOR AN RTE (1 OF 3) -------------
Command ===>

Specify the RTE profile library and member name that fits your scenario:
==> SAR.PG.V540.OMPE01.WCONFIG(OMPE01)_____________________ (ex:&dset(&rte))
- If creating a brand new RTE, leave this field blank.               **or**
- If creating another new RTE and you want to clone a PARMGEN-
created
  RTE's configured product set, specify the WCONFIG profile library
and
  RTE member name to clone (ex.: &hlq.&rte.WCONFIG(&clone_from)).     **or**
```

```
- If reconfiguring or upgrading this existing OMPE02 RTE, specify
its
  values (SAR.PG.V540.OMPE02.WCONFIG(OMPE02))                          **or**
- If converting an ICAT-created RTE to PARMGEN mode, specify the
ICAT
  RTE Batch member location and RTE member (ex.: &hlq.INSTJOBS(OMPE02))
```

Note: If you need more information on enterprise deployment, refer to the deployment scenario in the *Parameter Reference*.

9. Before submitting the KCIJPCCF job to clone the existing OMPE01 RTE, include the DB2PMO* DB2 subsystem configuration members. This way, they are copied to RTE 2 as well.

```
000095 * ************************************************************** *
000096 * ----------- BEGIN - USER SECTION: SELECT MEMBER ---------------- *
000097 * ************************************************************** *
000098 * USER SECTION: SELECT MEMBER                                      *
000099 * ************************************************************** *
000100   SELECT MEMBER=(???$C*)
000101   SELECT MEMBER=(???$P*,???@PDAL,???@PDPG)
000102   SELECT MEMBER=(???$S*,???$X*)
000103   SELECT MEMBER=($GBL$USR)
000104   SELECT MEMBER=(?JOBCARD)
000105   SELECT MEMBER=(DB2PMO*)
000106 * SELECT MEMBER=(&MBR1,&MBR2*)
000107   EXCLUDE MEMBER=(???$CFG,???@CFG,$CFG???,KCI$SYSV,KCI$SYSN)
000108   EXCLUDE MEMBER=(???@C*,???@S*)
000109   EXCLUDE MEMBER=(???$PAUD,???$PSDA,KPD$PD*)
000110 * ----------- END   - USER SECTION: SELECT MEMBER ---------------- *
```

Note: This job will overwrite your existing JOBCARD with the one from RTE 1 on LPAR 1. If you want to prevent this, comment out the appropriate line in the KCIJPCCF job (line number 104 in the above job example).

10. Replace %MODEL% with the source runtime environment (for example, OMPE01) before submitting the KCIJPMC2 job.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
------------------------------------------------------------------------------
-
ISREDDE2   SAR.PG.V540.OMPE02.WCONFIG(KCIJPMC2) - 01.00       Columns 00001
00080
Command ===> c %MODEL% OMPE01 all                               Scroll ===>
CSR
000044 //* Merge the changes in %OLDMEM% into %NEWMEM%
member.
000045 //*
*****************************************************************
000046 //MERGECHG  EXEC
PGM=IKJEFT01,DYNAMNBR=99,REGION=4M
000047 //SYSEXEC   DD
DISP=SHR,
000048 //
DSN=SYS1.KO2.V540.TKANCUS
000049 //SYSTSPRT  DD
SYSOUT=*
000050 //SYSPRINT  DD
SYSOUT=*
000051 //SYSTSIN   DD
*
000052   KCIRPLBX
+
000053   BATCH
+
000054   SKIPVAR(SYS1.KO2.V540.TKANCUS(KCIDPGNX))
```

```
+
000055   OLDMEM(SAR.PG.V540.%MODEL%.WCONFIG(%MODEL%))
+
000056
NEWMEM(SAR.PG.V540.OMPE02.WCONFIG(OMPE02))
000057 /*
```

11. Remove all **KD2_DBxx** parameters in the PARMGEN user profile.
12. Add DB2PMO2 to the $SYSIN configuration profile including the member.

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test
Help
------------------------------------------------------------------------------
--
ISREDDE2   SAR.PG.V540.OMPE02.WCONFIG($SYSIN) - 01.00          Columns 00001
00080
Command ===>                                                    Scroll ===>
CSR
000058 CONFIG
MEMBER=(WCONFIG:OMPE02)
000059 CONFIG
MEMBER=(WCONFIG:DB2PMO2)
000060 * CONFIG
MEMBER=(WCONFIG:&user_config_profile_placeholder)
000061 * ---- END   - USER SECTION: CONFIG MEMBER=(WCONFIG:&profile) -----
*
```

Note: Depending on your configuration, it is possible that you do not have to submit the KCIJPMC2 job. Whenever possible, use system variables with system variable support. If you need the KCIJPMC2 merge job, check all parameters and adjust them if required. What you always have to adjust are the following:

- Name of runtime environment (and all corresponding prefixes)
- VTAM APPLID refix
- Started task prefix (if your USER.PROCLIB is shared among the LPARs)

13. Finish the installation and configuration as usual.

What to do next

If you want to deploy to more LPARs, you have to create more LPAR-specific profiles. After that, the procedure remains the same. Create a new runtime environment having system variable support enabled, remove the **KD2_DBxx*** parameters and include the LPAR-specific DB2PMO* configuration member in $SYSIN.

Questions and answers

This section contains frequently asked questions and their answers.

Why do I need to enable the use of an existing configuration for IBM DB2 SQL Performance Analyzer for z/OS?

OMEGAMON for Db2 PE V5.4.0 only supports the use of an existing configuration. All parameters that could be configured in the Configuration Tool on the panels KD261PR, KD261PS, KD261PT, and KD261PU are obsolete.

After migrating from a previous OMEGAMON for Db2 PE version, there are two ways in order to use IBM DB2 SQL Performance Analyzer with your existing configuration. For both, you have to enable the use of an existing configuration (**KD2_PFxx_SQLPA_CF_ENBL** set to Y). Then, do one of the following:

- Use IBM DB2 SQL Performance Analyzer to recreate your configuration and use **KD2_PFxx_SQLPA_CF_ANLC** and **KD2_PFxx_SQLPA_CF_ANLP** to point to it.
- Point **KD2_PFxx_SQLPA_CF_ANLC** and **KD2_PFxx_SQLPA_CF_ANLP** to the OMQCssid and OMQPssid configuration members that were generated in the Configuration Tool or PARMGEN in your previous OMEGAMON for Db2 PE version.

How can I change the plan name from the default DSNTIA*vv* (where *vv* is the DB2 z/OS version) to a custom name?

Use the **KD2_PLAN_NAME_OVERRIDE** parameter to provide an override.

Note: All plans will then have the same name, independent of the DB2 version.

Chapter 3. Installing z/OS components

Install components.

Scenarios

This section provides an overview of configuration scenarios to help you set up OMEGAMON for Db2 PE/ OMEGAMON for Db2 PM.

Three scenarios are shown:

- Installation of OMEGAMON for Db2 PE with default values.
- Configuring Near-Term history.
- Configuring InfoSphere Optim Performance Manager and Performance Expert Client.

Installing OMEGAMON for Db2 PE with default values

This task shows you how to install OMEGAMON for Db2 PE/OMEGAMON for Db2 PM for the first time, configured with default values.

Before you begin

Apply SMP/E before you start with this scenario.

About this task

To keep the setup effort to a minimum, monitoring functions are not enabled. After the configuration, you will be able to open the Classic interface and check the performance of your DB2 subsystem.

Procedure

1. Start the Configuration and Installation Tools user interface by issuing the command **ex** on the TKANCUS library in your SMP/E installation.

   ex 'hlq.TKANCUS'
2. Use option **3 Configuration Workflow** to open the PARMGEN workflow user interface.

```
KCIPQPGW
        Welcome to the z/OS Installation and Configuration Tools for
                       z Systems Management Suites


1. Checklist: System preparation checklists
   Tip: Read/Print Checklists prior to installation and configuration.

2. Installation Workflow:
   SMP/E-install z/OS products with Install Job Generator (JOBGEN)
   Conditional: JOBGEN is not required when using SystemPac or ServerPac.

3. Configuration Workflow (Post-installation):
   Configure z/OS products with Parameter Generator Workflow (PARMGEN)

I. What's New in PARMGEN?  <=== Revised
```

3. As this is the first setup, you must provide **GBL_TARGET_HILEV** information in this first panel:

```
KCIP@TLV ------------- SPECIFY GBL_TARGET_HILEV PARAM  VERIFY GBL_TARGET_HILEV

PARMGEN stores configuration values in the TSO user's ISPF profile.
If this is the first-time your TSO user ID is invoking PARMGEN,
enter the GBL_TARGET_HILEV-related values appropriate for your deployment:

                                                      UNIT     / STORCLAS /
                                                      VOLSER     MGMTCLAS
GBL_TARGET_HILEV: SYS1.KO2.V540_____________________  ________ / ________ /
                  HLQ of SMP/E target (TK*) datasets  ______     ________

If this is not the first time your user ID (in this example, MIS1) is invoking PARMGEN,
this
panel is also presented if the GBL_TARGET_HILEV stored value changed
from the last time you invoked PARMGEN.  Verify GBL_TARGET_HILEV, UNIT,
VOLSER, STORCLAS, and/or MGMTCLAS values accordingly.
```

4. This is the first setup, so you must provide some basic information on the second panel:

```
KCIPQPGA -------- PARAMETER GENERATOR (PARMGEN) WORKFLOW MENU ---------------
Command ===>
                       Quick Configuration Mode

Enter parameter values appropriate for the LPAR runtime environment (RTE).

GBL_USER_JCL:   SYS1PMO.O310.V540.PARMGEN.JCL_______________
                (for example, SYS1.KO2.V540.SYSPLEX.PARMGEN.JCL)
                Specify the dataset name of the PARMGEN common/global
                library for the different LPAR runtime environments (RTEs).
                Use the same dataset for managing the different LPAR RTEs.
                Multiple users can specify the same dataset to manage RTEs.

RTE_PLIB_HILEV: SYS1PMO.O310___________
                Specify the High-Level Qualifier (&hlq)   portion of the
                PARMGEN interim staging and work libraries for this LPAR RTE:
                - &hlq.&rte_name.IK* (IKANCMDU,IKANPARU,IKANSAMU)
                - &hlq.&rte_name.WK* (WKANCMDU,WKANPARU,WKANSAMU)
                - &hlq.&rte_name.WCONFIG

RTE_NAME:       RTE0A___  (Type ? for a list of configured RTEs)
                Specify the runtime environment (&rte_name)   for this LPAR.
```

5. Add common PARMGEN-related information for the parameter **GBL_USER_JCL**. For example, which RTE did you use last, what jobs where run, when were they run, and what are their return codes.
6. Add high-level a qualifier for your runtime environments for parameter **RTE_PLIB_HILEV**.
7. Add the name of your new RTE for parameter **RTE_NAME**.
8. This example uses the following values for these parameters:
   - **GBL_USER_JCL**: SYS1PMO.O310.V540.PARMGEN.JCL
   - **RTE_PLIB_HILEV**: SYS1PMO.O310
   - **RTE_NAME**: RTE0A

   Note: The length of **RTE_PLIB_HILEV** plus **RTE_NAME** must not exceed 18 characters.
9. Press **Enter** to commit your settings.

   The next panel is displayed:

```
KCIPQPGB  PARAMETER GENERATOR (PARMGEN) WORKFLOW - PRIMARY OPTION MENU --------
Option ===>
                        Quick Configuration Mode

GBL_USER_JCL:   SYS1PMO.O310.V540.PARMGEN.JCL
RTE_PLIB_HILEV: SYS1PMO.O310
RTE_NAME:       RTE0A

Notes: Perform steps 1 through 5 in sequence, repeating steps as necessary.
       If reconfiguring this RTE, see Maintenance Scenarios F1=Help topic.
       Enter n (1-5) to perform tasks.
       Enter ns (1s-5s) for detailed job/task status.

                   Description                  Job/Label  Status      Date
    ------------------------------------------- --------- --------- ----------

1.  Set up/Refresh PARMGEN work environment.      KCIJPCFG
2.  Customize PARMGEN configuration profiles.     RTE0A
3.  Create this RTE's runtime members and jobs.             Enter 3 for details.
4.  Submit batch jobs to complete PARMGEN setup.  SUBMIT    Enter 4 for details.
5.  Perform post configuration steps.             POSTCFG
R   Create next RTE - Reset fields.               New RTE
```

10. Use option **1 KCIJPCFG** to start the setup of the PARMGEN work environment for this new RTE.

    As PARMGEN is workflow-based, this walkthrough follows steps 1 to 4, as shown in the list below the RTE names.

11. On **KCIPQPG1**, fill in your jobcard that will be used for all jobs at the bottom of the screen.

    If you need more lines for your jobcard, you can edit the $JOBCARD member in your user JCL data (provided by parameter **GBL_USER_JCL**).

    Note: If you change **$JOBCARD**, the user interface only shows the first four lines.

12. Press **Enter** to display the next panel.
13. On **KCIP@PG2**, provide a value for parameter **GBL_TARGET_HILEV**. This parameter is the high-level qualifier of your SMP/E target data sets. Fill out UNIT, VOLSER, STORCLAS, MGMGCLAS, GBL_SYSDA_UNIT, and GBL_REGION as appropriate for your system.
14. Press **Enter** to get to the next panel.
15. On **KCIP@PG3** you find a number of RTE-specific parameters. For this walkthrough, review the following:
    a) **RTE_HILEV** is the high-level qualifier as previously defined by parameter **RTE_PLIB_HILEV**, which is why it is set as default.
    b) **RTE_VSAM_HILEV** is the high-level qualifier for VSAM runtime libraries. The same applies here as for **RTE_HILEV**.
    c) **RTE_TEMS_CONFIGURED_FLAG** is the enablement flag for the Tivoli Enterprise Monitoring Server. Change the default to N, as this walkthrough does not cover the enablement of the Tivoli Monitoring infrastructure.
    d) **RTE_X_SECURITY_EXIT_LIB** is the security exit library. If you changed **RTE_HILEV** or **RTE_VSAM_HILEV**, ensure that the high-level qualifier is the same as for **RTE_PLIB_HILEV**.
    e) Leave the rest of the parameters as is and press **Enter**.

```
KCIP@PG3  SET UP/REFRESH PARMGEN WORK ENVIRONMENT FOR AN RTE (3 OF 3) ---------
Command ===>                                                  Scroll ===> CSR

Enter parameter values appropriate for the LPAR RTE=RTE0A.
Press F1=Help for more information.

RTE_DESCRIPTION:     RTE0A description_________________________________

RTE_TYPE:            FULL____         (Full, Sharing)
RTE_HILEV:           SYS1PMO.O310_____________________________ (ex.: SYS1PMO.O31
                     (&hlq  portion of Non-VSAM RK* HLQ=&hlq.&rte_name)
RTE_VSAM_HILEV:      SYS1PMO.O310_____________________________ (ex.: SYS1PMO.O31
                     (&hlq  portion of VSAM RK* HLQ=&hlq.&rte_name)

If any RTE dataset HLQ-related parameter values are NONSMS-managed:
  RTE_SMS_UNIT:          ________   (Non-VSAM disk UNIT type)
  RTE_SMS_VOLUME:        ________   (Non-VSAM disk VOLSER)
  RTE_SMS_MGMTCLAS:      ________   (Non-VSAM disk MGMTCLAS)
  RTE_SMS_STORCLAS:      ________   (Non-VSAM disk STORCLAS)
  RTE_SMS_VSAM_VOLUME:   ________   (VSAM disk VOLSER)
  RTE_SMS_VSAM_MGMTCLAS: ________   (VSAM disk MGMTCLAS)
  RTE_SMS_VSAM_STORCLAS: ________   (VSAM disk STORCLAS)

RTE_SMS_PDSE_FLAG:       Y    (Y, N)   (Allocate Non-VSAM PDSE libraries)

If RTE_TYPE is SHARING:
  RTE_X_HILEV_SHARING:   ___________________________________ (ex.: SYS1PMO.O310
                         (&hlq  portion of shared RTE's HLQ=&hlq.&rte_share)
  RTE_SHARE: ___________________________________ ("SMP" value or *&rte_share)
             (*&rte_share  portion of shared RTE's HLQ=&hlq.&rte_share)
  RTE_LOAD_SHARED_LIBS:  Y    (Y, N)   (Is RTE updater of RO shared libs)

If symbolics (system variables or user-defined variables) will be used:
  RTE_SYSV_SYSVAR_FLAG:  N    (Y, N)   (System/User variables flag)

Security settings:
  RTE_SECURITY_USER_LOGON:   NONE____  (RACF, ACF2, TSS, NAM, None)
  RTE_SECURITY_FOLD_PASSWORD_FLAG: Y   (Y, N)  (Fold password to upper case)
  RTE_SECURITY_CLASS:        ____________________________________________
  RTE_X_SECURITY_EXIT_LIB:   SYS1PMO.O310.V520.SE11.RKANSAMU_____________
  GBL_DSN_ACF2_MACLIB:       ____________________________________________
  GBL_DSN_ACF2_MACLIB1:      ____________________________________________

Local Tivoli Enterprise Monitoring Server (TEMS) settings in this LPAR RTE:
  RTE_TEMS_CONFIGURED_FLAG:  Y         (Y, N)  (Configure TEMS in this RTE)
  RTE_TEMS_NAME_NODEID: RTE0A:CMS_____________________________ (e.g.,RTE0A:cms))))
  KDS_TEMS_TYPE:             HUB_____  (Hub, Remote)
  KDS_TEMS_HA_TYPE:          __        (HA=High Availability Hub TEMS type)

ITM components' communication-related and started tasks settings:
  RTE_TCP_PORT_NUM:       1918_____________________ (1-65535 port number)
  RTE_VTAM_APPLID_PREFIX: CTD_____________________ (1-4 char.VTAM APPLID prefix)
  RTE_STC_PREFIX:         IBM_____________________ (1-4 char.started task prefix)
```

16. On **KCIP@PGI**, you see a list of products that can be configured, as a result of the components found. In general, you can exclude specific products if you do not want PARMGEN to run through their configuration processing. For OMEGAMON for Db2 PE, you must not exclude the Tivoli Enterprise Monitoring Server (KDS). Even if you disabled the Tivoli Enterprise Monitoring Server using **RTE_TEMS_CONFIGURED_FLAG** on **KCIP@PG3**, this product is still required for the configuration. For this example, do not exclude anything and confirm this with Y in the appropriate field.
17. Press **Enter** to display a dialog that asks you whether you want to back up your existing configuration.
18. Press **Enter**, as the backup is only required if you rerun the **KCIJPCFG** job.
19. Submit the **KCIJPCFG** job that is open, then press PF3 once to go back to the main menu. You see in the status field of the KCICPFG job that the job is submitted.
20. Press **Enter** until the **KCIJPCFG** field contains a return code. The expected return code is zero. If you have a higher return code, inspect the job log and take appropriate actions
21. Use option **2 RTE0A** (name of the RTE) to open the list of available PARMGEN profiles.
22. The list of available PARMGEN profiles is displayed on **KCIP@PG6**.

```
KKCIP@PG6 ------ CUSTOMIZE PARMGEN CONFIGURATION PROFILE MEMBERS ---------------
Command ===>                                                 Scroll ===> CSR


 (Required) Customize the RTE profile and the $GBL$USR user profiles:
 (Tip) Review KCIJPDLA autodiscovery job in Utility menu or type DLAJOB cmd.
    1. RTE0A    RTE LPAR-specific CONFIG profile in WCONFIG (User copy)
    2. $GBL$USR Global parameters CONFIG profile in WCONFIG (User copy)

 (Not Required) Customize the RTE Variables profile if RTE_SYSV_SYSVAR_FLAG=Y:
    3. RTE0A    Variables (system, user) CONFIG profile in GBL_USER_JCL PARMGEN
                global library (SYS1PMO.O310.V540.PARMGEN.JCL).
                Add or override system or user-defined symbols and their
                resolution values for symbols used in the user profiles.

 (Tip) Review/Customize WCONFIG Kpp$C*/Kpp$P*/Kpp$S* user imbeds:
 (Cloning Tip) Review KCIJPCCF job in Utility menu prior to customization.
    4. WCONFIG  SYS1PMO.O310.RTE0A.WCONFIG

 (Tip) Review if you want to compare with IBM-supplied default profile values:
    5. $CFG$IBM RTE LPAR-specific CONFIG profile in WCONFIG (IBM copy)
    6. $GBL$IBM Global parameters CONFIG profile in WCONFIG (IBM copy)

 (Optional) Override SYSIN member to supply additional (User) profiles:
    7. $SYSIN   $PARSE/$PARSESV SYSIN controls (CONFIG/SELECT MEMBER)
```

PARMGEN profiles contain the parameter value pairs that make up the configuration. RTE0A contains all product/component-specific parameters. GBLUSR contains all global configuration parameters.

23. Use option **1 RTE0A** to open the PARMGEN user profile for the products/components and adjust the following parameters with the given values:

    a) **RTE_X_STC_INAPF_INCLUDE_FLAG** = Y

    When this parameter is set to Y, the started task contains an imbed that does the APF authorization for you. If you need to set the APF authorizations in your environment by hand, leave this parameter to N and follow the steps in the *Complete the Configuration for the OMEGAMON for Db2 Performance Expert/Monitor Technote* at the end of this walkthrough.

    b) **KD2_CLASSIC_DB2PM_PLANPKG_OWNER** = DB2PM

    This is the name of the plan and package owner that is used to access the OMEGAMON for Db2 PE packages in DB2.

    c) **KD2_OMPE_GRANT_PEUSER** = <user for Started tasks>

    This is the user for the RACF userid/groupid in OMGPssid grant job in xKD2SAM DB2 job. Under this user Classic Interface Started task and other Started tasks should run.

    d) **KD2_DB01_DB2_SSID** = <SSID of the subsystem you want to monitor>

    Use this parameter to specify the SSID of the subsystem that you want to monitor at the end of this walkthrough.

    e) **KD2_DB01_DB2_VER** = <DB2 version of the subsystem that you want to monitor>

    Specify the DB2 version of your subsystem that you want to monitor. This can be either 10, 11 or 12.

24. Use **PF3** to get back to **KCIP@PG6**.

    This walkthrough covers only a very basic setup. After you complete all the steps, you can adjust all parameters, add subsystems, and configure your monitoring profiles accordingly. For now, keep all other parameters as is.

25. Use option **2 GBLUSR** to open the global PARMGEN user profile and adjust the following parameters with the given values:

    a) **GBL_DSN_DB2_RUNLIB_Vxx** = <Path to your DB2 runlib>

    This is the path to the data sets that holds your DB2 RUNLIB. You have to specify the corresponding library of the DB2 version that is provided by **KD2_DB01_DB2_VER**. This parameter and the following parameters are commented out by default. To comment them in, remove the asterisk (*) at the beginning of the line.

    b) **GBL_DSN_DB2_LOADLIB_Vxx** = <Path to your DB2 loadlib>

This is the path to the data sets that hold your DB2 LOADLIB. You have to specify the corresponding library of the DB2 version that is provided by **KD2_DB01_DB2_VER**.

c) **GBL_DSN_DB2_DSNEXIT** = <Path to your DB2 exit library>

This is the path to the data sets that hold your DB2 exit library.

26. Use **PF3** twice to get back to **KCIPQPGB**, the workflow user interface welcome page.
27. Use option **3 $PARSE** to open KCIP@PR1.
28. Use option **1 $PARSE** to open the composite job that generates the work libraries.

    The resulting set of libraries is a complete environment that can be used to test the configuration before deploying it to the production environment. In other words, $PARSE generates all the configuration members in the corresponding work data sets WK*.
29. Submit the job.

    The expected return code is zero.
30. Use **PF3** to get back to **KCIPQPGB** the workflow user interface
31. Use option **4 SUBMIT** to open **KCIP@SUB**.

    This panel contains several more jobs, most of which are conditional and are used to finish the configuration. This includes the allocation of the runtime libraries and the copy of the program code from the target libraries to the runtime libraries. Not all jobs that are listed here are submitted by the composite job automatically. This depends on your environment and your monitoring needs.

```
KCIP@SUB -------- SUBMIT BATCH JOBS TO COMPLETE PARMGEN SETUP -----------------
Option ===>

Select option 1 to SUBMIT the composite jobs in WKANSAMU for RTE0A RTE.
Tip: Review the SUBMIT commands in the KCIJPSUB composite job.

Alternatively, select other options (2-12) to submit each job individually.
Enter ns (1s-12s) for detailed job/task status.

                  Description               REQ  Job Name   Status     Date
    ------------------------------------- ----- -------- --------- ----------

1.  Composite SUBMIT job (See JCL comments)       KCIJPSUB RC= 00000 2017/02/09
    ** or **
2.  Allocate runtime RO and RW datasets     (Yes) KCIJPALO RC= 00000 2017/02/09
3.  Copy SMP/E mbrs from TK*->RK* RO libs   (Yes) KCIJPLOD RC= 00000 2017/02/09
4.  Run product security steps              (Yes) KCIJPSEC RC= 00000 2017/02/09
5.  Update variable-named runtime mbrs      (No ) KCIJPUPV
6.  (Re)Create USS runtime mbrs in RKANDATV (No ) KCIJPUSP RC= 00000 2017/02/09
7.  Create USS dirs./ (Re)Copy USS files    (No ) KCIJPUSS
8.  Copy runtime mbrs to SYS1-type libs (Caution) KCIJPSYS
9.  Run post-SMP/E RKANMODU ASM/LINK steps  (No ) KCIJPLNK RC= 00000 2017/02/09
10. Verify the configuration jobs           (Tip) KCIJPIVP
11. Back-up RK* product execution user libs (Tip) KCIJPCPR RC= 00000 2017/02/09
12. Copy runtime mbrs from WK*->RK* RW libs (Yes) KCIJPW2R RC= 00000 2017/02/09
```

32. Use option **1 KCIJPSUB** to open the composite SUBMIT job and submit it.

    The expected return code is zero.
33. Use **PF3** to get back to the **KCIP@SUB** panel. Press **Enter** until all jobs are finished. The expected return codes are zero. If you have a higher return code, check the job log and take appropriate actions.
34. Use **PF3** to get back to the **KCIPQPGB** panel.
35. As a final step, see “Completing the configuration for z/OS components” on page 127.

    This guide contains several mandatory steps to set up the server correctly. Most of these steps only have to be done once.

    After you finished these steps, you can start the server and open the Classic Interface to start monitoring your subsystem.

What to do next

After having installed OMEGAMON for Db2 PE from scratch, you can continue by enabling more functions. Functions that can be enabled are, for example, Near-Term History and Snapshot History.

You can continue with other scenarios in order to configure more than one DB2 subsystem, even if they are spread over different LPARs in your environment.

Configuring Near-Term History with system variable support

This scenario describes how to configure Near-Term History in an RTE that is enabled for system variable support.

Before you begin

As a prerequisite, you need an RTE having OMEGAMON for Db2 PE already configured and system variable support enabled.

Procedure

1. Start the **Configuration and Installation Tools** user interface by issuing the command **ex** on the TKANCUS library in your SMP/E installation.

   ```
   ex 'hlq.TKANCUS'
   ```
2. Use option **3 Configuration Workflow** to open the PARMGEN workflow user interface.
3. Enable your existing RTE that has been already enabled for system variable support.
4. Use option **2** to open the **PARMGEN profile selection menu**.
5. Use option **1** to open the **RTE LPAR configuration profile**.
6. Enable Near-Term History for those profiles that you use for monitoring your DB2 subsystems by setting parameter **KD2_PFnn_HIS_START** to Y. *nn* is the profile ID.

   Previously, with the Configuration Tool, you had to enable system variable support for Near-Term History separately on the panel **KD261PI Global Control Parameters**. This prevented the use of %DB% and %SY% in the Near-Term History data sets. This limitation no longer exists. In addition, you do not have to enable system variable support for Near-Term History separately.
7. Use **PF3** to get back to the main workflow panel **KCIPQPGB**.
8. Use option **3** to open the **$PARSE** job panel **KCIP@PR1**.
9. Use option **1** to open the composite **$PARSE** job and submit it. The expected return code is zero.
10. Use **PF3** twice to get back to the main workflow panel **KCIPQPGB**.
11. Use option **4** to open the **SUBMIT** job panel **KCIP@SUB**.
12. Use option **5** to open the **KCIJVUPV** job that regenerates the Near-Term History configuration and submit it.

    The expected return code is zero.
13. Use option **12** to open the **KCIJPW2R** deployment job and submit it.

    The expected return code is zero.

What to do next

Now that you configured Near-Term History, restart the OMEGAMON for Db2 PE server. Use the Classic Interface to look at the history data.

Configuring InfoSphere Optim Performance Manager and Performance Expert Client

This scenario describes how to configure the InfoSphere Optim Performance Manager in order to get end-to-end SQL monitoring (Extended Insight) and stored procedure monitoring. This feature is only for OMEGAMON for Db2 PE only (not for OMEGAMON for Db2 PM).

Before you begin

As a prerequisite, you need a runtime environment having OMEGAMON for Db2 PE already configured.

Procedure

1. Start the **Configuration and Installation Tools** user interface by issuing the command **ex** on the TKANCUS library in your SMP/E installation.

   ```
   ex 'trghlq.TKANCUS'
   ```

2. Use option **3 Configuration Workflow** to open the PARMGEN workflow user interface.
3. Enable the runtime environment where you want to configure InfoSphere Optim Performance Manager.
4. Use option **2** to open the **PARMGEN profile selection menu**.
5. Use option **1** to open the **RTE LPAR configuration profile** and adjust the following parameters:

Table 12. Parameter values of the RTE LPAR configuration profile

Parameter	Value	Description
KD2_OMPE_E2E_MON_SPRT	Y	Enables Extended Insight Dashboard (end-to-end SQL monitoring)
KD2_DBnn_DB2_PORT_NUM	<port>	Mandatory. This specifies the port that is used to connect InfoSphere Optim Performance Manager to the OMEGAMON for Db2 PE server. You can keep the default port 2000. You need this port information for later.
KD2_PFnn_TRACES_318	Y	Enables the automatic start of IFCID 318.
KD2_PFnn_TRACES_400	Y	Enables the automatic start of IFCID 400. Set this parameter to Y only if you want to monitor DB2 10 and above.
KD2_PF01_READA_SPMON	Y	Enables stored procedure monitoring.

6. Use **PF3** to get back to the main workflow panel **KCIPQPGB**.
7. Use option **3 $PARSE** to open the job panel **KCIP@PR1**.
8. Use option **1** to open the composite **$PARSE** job and submit it. The expected return code is zero.
9. Use **PF3** to get back to the main workflow panel **KCIPQPGB**.
10. Use option **4** to open the SUBMIT job panel **KCIP@SUB**.
11. Use option **12** to open the **KCIJPW2R** to copy the configuration from the work libraries to the runtime libraries. Submit the upcoming job.

    The expected return code is zero.

What to do next

For integration of the InfoSphere Optim Performance Manager into Tivoli Enterprise Portal find more information in section "Enabling InfoSphere Optim Performance Manager integration" on page 120 in "Completing the configuration for z/OS components" on page 127.

Install InfoSphere Optim Performance Manager and configure it for the monitored database. For more information, see the *IBM InfoSphere Optim Performance Manager in the Knowledge Center*.

Preparing the system

Before you can configure OMEGAMON for Db2 PE, you must complete several tasks.

Complete the following tasks:

1. “Installing the program files” on page 63
2. “Setting up security for the OMEGAMON Collector address spaces” on page 63
3. “Setting up TCP/IP services for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring” on page 63
4. “Enabling started jobs for Performance Warehouse” on page 64
5. “Specifying DB2 load libraries for the ISPF Monitoring Dialogs” on page 65
6. “Setting up RRSAF” on page 65

Installing the program files

You install OMEGAMON XE for DB2 PE on z/OS using SMP/E.

About this task

For installation steps, see the *Program Directory for IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS*.

Setting up security for the OMEGAMON Collector address spaces

The OMEGAMON Collector started task runs under a user ID. Therefore, you must create either a user ID or a group ID with the name DB2PM and connect the started task to this ID. Note that if you do not want to use Performance Warehouse, DB2 Connect Monitoring, or SQL Performance Analyzer, you can use a different started task user ID that is not DB2PM. In this case, perform the steps below with your started task user ID instead of DB2PM.

Before you begin

Ensure that you have sufficient privileges to create a new user ID or group ID in the security system that you are using, for example RACF.

About this task

Complete the following steps to create the user ID or group ID DB2PM and connect the OMEGAMON Collector started task to it:

Procedure

1. Create the user ID DB2PM in your security system.

   If you prefer to use an alternative user ID other than DB2PM, create a group ID DB2PM and add the user ID that you want to use to the user group DB2PM.
2. Connect the OMEGAMON Collector started task to the user ID DB2PM.

Setting up TCP/IP services for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring

The OMEGAMON Collector uses OpenEdition to perform TCP/IP services. If you plan to use Performance Expert Client and/or end-to-end SQL or stored procedure monitoring, you must configure the OMEGAMON Collector to use TCP/IP services. This means that the user ID and the connected group ID of the OMEGAMON Collector must be known to OpenEdition and have sufficient OpenEdition privileges.

Before you begin

Perform this task only if you plan to use Performance Expert Client and/or end-to-end SQL or stored procedure monitoring.

If you perform this task, ensure that you have system administrator privileges for your security system, for example RACF SPECIAL for RACF security.

About this task

OpenEdition can be used by user IDs that have a valid OMVS segment in the RACF user profile. Add the OMVS segment to the user ID of the OMEGAMON Collector by performing the following steps:

Procedure

1. Assign a UID in the OMVS segment to the RACF user profile of the OMEGAMON Collector user ID.

   Issue the following command:

   ```
   ALTUSER <OMEGAMON Collector user ID> OMVS(UID(0))
   ```

   where *<OMEGAMON Collector user ID>* is the user ID that the OMEGAMON Collector started task is connected to.

   Note: The usage of special TCP/IP services requires that the user ID of the OMEGAMON Collector has root privileges in OpenEdition. To minimize the impact of granting the OpenEdition root privilege, use a user ID for the OMEGAMON Collector started task that is not a valid TSO user ID.
2. Optional: If you connected the OMEGAMON Collector started task to a user ID and a group ID, you need to assign a GID in the OMVS segment to the group ID.

   Issue the following command:

   ```
   ALTGROUP <OMEGAMON Collector group ID> OMVS(GID(<gid>))
   ```

   where *<OMEGAMON Collector group ID>* is the group ID that the OMEGAMON Collector started task is connected to. Replace *<gid>* with a valid and free group ID in OpenEdition. You can use the **LISTGRP OMVS** command of RACF to get an overview about the currently used group IDs in OpenEdition.

Enabling started jobs for Performance Warehouse

The Performance Warehouse job is run as a started job. A started job is a started task that contains a job statement. If you plan to use Performance Warehouse, you must configure your z/OS system to support started jobs.

Before you begin

Perform this task only if you plan to use Performance Warehouse.

If your z/OS system is already configured to support started jobs, skip this task.

If you perform this task, ensure that you have UPDATE privileges on the system PARMLIB, for example on SYS1.PARMLIB.

About this task

Your z/OS system must be configured to search started jobs in the PROCLIB of the started tasks, so that the OMEGAMON Collector can create the Performance Warehouse at startup.

The master JCL MSTJCLxx in your system PARMLIB defines started job PROCLIBs either by an IEFJOBS or an IEFPDSI DD statement. As the Performance Warehouse job will be copied to the started tasks PROCLIB, this PROCLIB data set must be part of the IEFJOBS or IEFPDSI concatenation.

Procedure

1. Open the master JCL in your system PARMLIB and find the IEFJOBS or the IEFPDSI DD statement. If no IEFJOBS or IEFPDSI DD statement exists, add a new IEFJOBS DD statement to the master JCL.
2. Add a further partitioned data set to the IEFPDSI or IEFJOBS concatenation for your started tasks PROCLIB.

Specifying DB2 load libraries for the ISPF Monitoring Dialogs

If you want to use Online Monitoring from the ISPF Monitoring Dialogs, you must add the DB2 load libraries to your standard search libraries for load modules. This must be done for every user that wants to use Online Monitoring from the ISPF Monitoring Dialogs.

Before you begin

You only need to perform this task if you plan to use Online Monitoring from the ISPF Monitoring Dialogs. If you do not plan to use Online Monitoring from the ISPF Monitoring Dialogs, you can skip this task.

If you perform this task, ensure that you have z/OS system administrator privileges.

About this task

You must add the DB2 load library of the DB2 subsystem that you want to monitor to the standard search path.

Note: If you use more than one DB2 version, use the DB2 load library from the DB2 subsystem with the second highest DB2 version. Like this, you can monitor DB2 subsystems of three different versions. For example, with the load library of DB2 10, you can monitor subsystems of DB2 9 and DB2 10, and DB2 11. If you do not do this, you must unload and load the DB2 load modules when switching to a DB2 subsystem with a different DB2 version in the ISPF Monitoring Dialogs.

Use one of the following methods to add the DB2 load library to the standard search path:

Procedure

- Use the TSO TSOLIB command.
  This is the preferred method.
- Add the DB2 load library to the TSO logon step library STEPLIB DD.
- Add the DB2 load library to the link pack area LPALSTxx.
- Add the DB2 load library to the system link list concatenation LNKLSTxx.

Setting up RRSAF

OMEGAMON for Db2 PE uses Resource Recovery Services Attachment Facility (RRSAF) for connecting to DB2 subsystems.

About this task

Ensure that RRSAF can be used on your system. Complete the following steps:

1. Ensure that the RRS subsystem is running on your system.
2. If you have not already established a profile for controlling access from the RRS attachment facility, define `<ssid>.RRSAF` (where *ssid* is the DB2 subsystem ID) in the resource class DSNR (the RACF resource class for DB2). This has to be done for each DB2 subsystem that you want to monitor. You can also define a generic resource RRSAF. These profiles might already exist if, for example, stored procedures have been used before. Assign READ authority for this RACF profile to the OMEGAMON for Db2 PE Collector started task ID (userid).

Configuring basic components on z/OS

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

About this task

Perform the following steps to configure basic components on z/OS:

Procedure

1. Configure global control parameters. See “Configuring global control parameters and the OMEGAMON Collector” on page 66 for detailed information.
2. Optional: Enable DB2 Event Exception Processing.
   See “Enabling DB2 Event Exception Processing” on page 66 for detailed information.
3. Optional: Enable CPU parallelism data collection.
   See “Enabling CPU parallelism data collection” on page 67 for detailed information.
4. Configure the user interfaces on z/OS.
   See the following topics for detailed information:
   - “Configuring Classic Interface” on page 67
   - For configuring OMEGAMON enhanced 3270 user interface, see the *IBM® OMEGAMON and Tivoli Management Services on z/OS shared documentation*.
   - Optional: “Configuring ISPF Monitoring Dialogs” on page 75
5. Optional: Enable Performance Expert Client and/or end-to-end SQL or stored procedure monitoring support.
   See “Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support” on page 117 for detailed information.
6. Optional: Enable IBM Tivoli Monitoring and integration of Extended Insight (end-to-end SQL monitoring) support.
   See “Enabling IBM Tivoli Monitoring” on page 118 and “Enabling InfoSphere Optim Performance Manager integration” on page 120 for detailed information.

Configuring global control parameters and the OMEGAMON Collector

You must specify the global control parameters for the runtime environment that you created and configure the OMEGAMON Collector.

You must specify parameters to control specific rollout scenarios, to control the creation of DB2 related runtime members, and to handle DB2 Performance Expert Agent for DB2 Connect Monitoring program updates. To configure global control parameters and the OMEGAMON Collector, open the PARMGEN user profile and adjust the parameters that you find in the section "Basic product parameters" in the *Parameter Reference*.

Enabling DB2 Event Exception Processing

You can enable DB2 Event Exception Processing in the PARMGEN user profile.

DB2 Event Exception Processing alerts you when specific system events occur. These events include deadlocks, timeouts, locks, escalations, and starts and stops of a coupling facility structure rebuild. To enable DB2 Event Exception Processing, set parameter **KD2_OMPE_DB2_EVENT** to Y in the PARMGEN user profile. If you want to make further changes to DB2 Event Exception Processing, refer to the related parameters in section "Basic product parameters" in the *Parameter Reference*.

Here is a list of the related parameters:

- KD2_OMPE_AUTH_FAIL
- KD2_OMPE_EDMP_FULL
- KD2_OMPE_THREAD_COMMIT
- KD2_OMPE_DEADLOCK
- KD2_OMPE_TIMEOUT
- KD2_OMPE_CF_REBUILT
- KD2_OMPE_GLOBAL_TRACE
- KD2_OMPE_DSN_EXTENT
- KD2_OMPE_EXTENT_THOLD
- KD2_OMPE_UR
- KD2_OMPE_LOGSPACE

Enabling CPU parallelism data collection

You can enable CPU parallelism data collection in the PARMGEN user profile.

To collect query parallelism data for real-time and historical monitoring, enable CPU parallelism data collection. To enable CPU parallelism data collection, set parameter **KD2_OMPE_CPU_PARALLEL** to Y in the PARMGEN user profile. If you want to make further changes to CPU parallelism data collection, refer to the related parameters in section "Basic product parameters" in the *Parameter Reference*.

The following parameter is related:

- KD2_OMPE_DSP_SIZE

Configuring Classic Interface

Classic Interface is always configured by default.

If you want to make further changes to Classic Interface, refer to the related parameters in section "Basic product parameters" in the *Parameter Reference*.

Here is a list of the related parameters:

- KD2_CLASSIC_VTAM_NODE
- KD2_CLASSIC_VTAM_APPL_LOG
- KD2_CLASSIC_UMAX
- KD2_CLASSIC_USER_PROFILE
- KD2_CLASSIC_LROWS
- KD2_CLASSIC_DB2ID_DEFAULT

Near-term history data collection options

This topic provides an overview of the Near-term history data collection options member of RKD2PAR.

Options

This topic describes the data collection options that determine the behavior of a Near-Term History Data Collector and the amount of data being collected.

For each Near-Term History Data Collector the Configuration Tool generates a data set member C0PT*cccc* (where *cccc* specifies the Db2 subsystem identifier) that holds the data collection options. Collection options members for specific Db2 subsystems can be created and invoked at startup of a Near-Term History Data Collector. Collection options in a C0PT*cccc* data set member are specified by keywords and associated keyword values. Basically, keywords and values specify and limit the data to be collected by the Near-Term History Data Collector.

Generally, the Configuration Tool should be used to generate collection options members. Nevertheless, a collection options member for a specific Db2 subsystem can also be created by copying an existing collection options member or the default member *rhilev*.RKD2PAR(COPT*cccc*) and modifying the collection options in the copied member.

Keyword syntax and considerations

Keywords in a collection options member are used in the following ways:

- Keyword(*value*)
- Keyword(*value*,*value*,...)
- Keyword(*value*␣*value*␣...)

If a keyword accepts only one value, enter the value in parentheses after the keyword. If a keyword accepts multiple values, enter the values in parentheses after the keyword and separate the values by commas or spaces.

The NOT operator (¬) negates value specifications. For example, CONNID(¬IM3D,¬I210) specifies that the Near-Term History Data Collector should collect data about all connection identifiers except for IM3D and I210.

The asterisk (*) wildcard character can be used at the end of value specifications. For example, PLAN(ABCD*) specifies that the Near-Term History Data Collector should collect data about all plans with names that begin with ABCD.

The question mark (?) wildcard character can be used as a single character replacement within value specifications. For example, DB2ID(D??T) specifies that the Near-Term History Data Collector should collect data about all Db2 subsystems with names that begin with D, followed by two variable characters, and end with T.

If you must continue statements in an COPT*cccc* member on another line for keywords such as AUTHID, CONNID, CORRID, ORIGAUTH, or PLAN:

- Do not use a continuation character. This means, do not repeat a "Keyword(" entry on the next line.
- Do no start the continuation line in column 1. Only keywords should begin in column 1, as in the following example:

```
PLAN(¬DSNG* ¬DSNTI* ¬FINAN1 ¬FINAN2 ¬DSNG*
␣¬DSNZZ ¬FINAN3 ¬FINAN4 ¬DSNR* ¬DSNRR*
␣¬FINAN5 ¬FINAN6)
```

Near-term history data collection options keywords by purposes

This topic groups the keywords that can be used in a collection options member of RKD2PAR by their purposes.

Define DB2 subsystem and collection interval

- DB2SYS
- INTERVAL
- NTAINTERVAL

Define data types to collect

- ACCTG
- DYNAMICSQL
- LOCKCONT
- LOCKSUSP

- NEGSQL
- SCAN
- SORT
- STATISTICS

Specify storage destination

- ARCHIVESEQ
- H2DATASET
- SEQDATASET
- WRITEOPTION

Define filter and options

- AUTHID
- CONNID
- CONNTYPE
- CORRID
- ORIGID
- PLAN

Performance options

- BUFSIZE
- IFIREADTIME
- POSTPCT

Near-term history data collection option keyword descriptions

This topic lists and describes in detail the keywords that can be used in a collection options member of RKD2PAR.

The keywords are listed in alphabetical order. Default values are underscored.

ACCTG - Near-term history data collection options keyword
Specifies the type of Accounting data to collect.

ACCTG(*type*)

type

1
collects data from Accounting class 1 (IFCID 0003, and 0106, no In-DB2 or I/O and lock wait times).

2
collects data from Accounting class 1 and 2 (IFCID 0003 In-DB2 elapsed and CPU time).

3
collects data from Accounting class 1, 2, and 3 (IFCID 0003 all wait times I/O and lock wait times).

7
collects data from Accounting class 7 (IFCID 0003, 0239 Package In-DB2 time).

8
collects data from Accounting class 8 (IFCID 0003, 0239 Package I/O and lock wait times).

10
collects data from Accounting class 10 (IFCID 0239 Package detail).

11
collects data from Accounting class 11 (IFCID 0003 and 0200). For DB2 11 and above only.

Accounting class 10 data contains package detail data from IFCID 239. To avoid unnecessary system overhead, collect this data only if required.

To reduce the number of IFCIDs collected and not collect the IFCID 239, class 11 should be requested without classes 7, 8 and 10.

No default is applied. If this keyword is not specified, no Accounting data is collected.

ARCHIVESEQ - Near-term history data collection options keyword
Specifies the pointer to the ARCS*cccc* member in data set *rhilev*.RKD2PAR. The member contains the JCL required to archive static sequential data sets and is mandatory in this case.

ARCHIVESEQ(*member*)

member
A 1- to 8-character member name.

AUTHID - Near-term history data collection options keyword
Specifies the authorization identifier about which data should be collected.

AUTHID(*identifier*)

identifier
A 1- to 8-character authorization identifier.

No default is applied. If this keyword is not specified, all data from all authorization identifiers is collected.

BUFSIZE - Near-term history data collection options keyword
Specifies the size of the buffer that is used to hold IFI records until they can be written out by the Near-Term History Data Collector.

BUFSIZE(*n*)

n
The buffer size, in KB, from 50 to 16000 KB. 300 KB is the default.

CONNID - Near-term history data collection options keyword
Specifies the connection identifier about which data should be collected.

CONNID(*identifier*)

identifier
A 1- to 8-character connection identifier.

No default is applied. If this keyword is not specified, all data from all connection identifiers is collected.

CORRID - Near-term history data collection options keyword
Specifies the correlation identifier about which data should be collected.

CORRID(*identifier*)

identifier
A 1- to 12-character correlation identifier.

No default is applied. If this keyword is not specified, all data from all correlation identifiers is collected.

DB2SYS - Near-term history data collection options keyword
Specifies the DB2 subsystem to be monitored.

`DB2SYS(`*name*`)`

name
A 1- to 4-character DB2 subsystem name.

This keyword is required.

DYNAMICSQL - Near-term history data collection options keyword
Specifies whether the Near-Term History Data Collector should collect SQL text and access path information for dynamic SQL.

`DYNAMICSQL(`*toggle*`)`

toggle

YES
IFCID63 is collected to provide SQL text.

NO
No SQL text-related IFCIDS are started.

FULL
IFCID350 is collected to provide SQL text.

H2DATASET - Near-term history data collection options keyword
Specifies up to 60 names of the VSAM data sets in which the near-term history data is to be stored by the Near-Term Historical Data Collector.

`H2DATASET(`*data set name*`,`*data set name*`,`*data set name*`)`

data set name
A 1- to 44-character VSAM data set name.

This keyword is required if WRITEOPTION(VSAM) or WRITEOPTION(VSAM,SEQ) is specified.

IFIREADTIME - Near-term history data collection options keyword
Specifies the frequency with which the Near-Term History Data Collector reads new IFI trace records into its buffer.

`IFIREADTIME(`*mmssth*`)`

mmssth

mm
Minutes

ss
Seconds

t
Tenths

h
Hundredths

If this keyword is not specified, the default of 010000 (one minute) is applied.

The maximum value that should be specified is one minute.

INTERVAL - Near-term history data collection options keyword
Specifies the time interval used by the Near-Term History Data Collector to record Statistics or Accounting data, if the GROUPBY keyword is used.

INTERVAL(*time specification*)

time specification

n
An interval ranging from 1 to 60 minutes.

RMF
This keyword synchronizes the collection interval with the RMF interval. If RMF is not active, a 15-minute interval is assumed.

LOCKCONT - Near-term history data collection options keyword
Specifies whether the Near-Term History Data Collector should collect lock timeout and deadlock information.

LOCKCONT(*toggle*)

toggle

YES
Collect lock timeout and deadlock information.

NO
Do not collect lock timeout and deadlock information.

LOCKSUSP - Near-term history data collection options keyword
Specifies whether the Near-Term History Data Collector should collect lock suspension information.

LOCKSUSP(*toggle*)

toggle

YES
Collect lock suspension information.

NO
Do not collect lock suspension information.

NEGSQL - Near-term history data collection options keyword
Specifies whether the Near-Term History Data Collector should collect negative SQL code IFCID 58 and produce the Negative Application Codes SQL report.

NEGSQL(*toggle*)

toggle

YES
Collect negative SQL code IFCID 58 and produce the Negative Application Codes SQL report.

Note: Set NEGSQL to YES only if WRITEOPTION(VSAM, **SEQ**) is selected. In this case the negative SQL data is written to the sequential data set and can then be analyzed in the SQL Activity Report.

NO
Do not collect negative SQL code IFCID 58 and produce the Negative Application Codes SQL report.

NTAINTERVAL - Near-term history data collection options keyword
Specifies the number of minutes or seconds to be used as the smallest time span for display of historical thread accounting data by subinterval. The subinterval should be specified as a period of time for convenient display of the threads executed. The more threads executed per minute, the smaller subinterval you may want to specify.

NTAINTERVAL(*time specification*)

time specification

n
The subinterval in minutes.

***n*S**
The subinterval in seconds. *n* must be some even fraction of a minute, for example 5S, 6S, 10S, 20S, or 30S. However, 7S is not allowed.

The INTERVAL keyword can only be set as low as one minute. Installations with a huge number of threads per minute might use the Thread History By Subinterval panel to view thread history by smaller periods of time. The NTAINTERVAL keyword gives control over the time interval that is used for the Thread History By Subinterval panel.

ORIGAUTH - Near-term history data collection options keyword
Specifies the original authorization identifier for which OMEGAMON XE for DB2 PE should collect Accounting activity data.

ORIGAUTH(*identifier*)

identifier
A 1- to 8-character original authorization identifier.

No default is applied. If this keyword is not specified, all data from all original authorization identifiers is collected.

PLAN - Near-term history data collection options keyword
Specifies the plane name for which OMEGAMON XE for DB2 PE should collect data.

PLAN(*name*)

name
A 1- to 8-character plan name.

No default is applied. If this keyword is not specified, all data from all plan names is collected.

SCAN - Near-term history data collection options keyword
Directs OMEGAMON XE for DB2 PE to collect scan data.

SCAN(*toggle*)

toggle

YES
Collect scan data.

NO
Do not collect scan data.

SEQDATASET - Near-term history data collection options keyword
Specifies up to 10 names of static sequential data sets in which the near-term history data is to be stored by the Near-Term Historical Data Collector.

SEQDATASET(*data set name*,*data set name*,...)

data set name
A 1- to 44-character data set name.

This keyword is required if WRITEOPTION(VSAM,SEQ) is specified.

The SPACE keyword is required in conjunction with SEQDATASET to allocate the data set appropriately.

If dynamic sequential data sets or Generation Data Group (GDG) data sets were chosen as the medium of sequential data storage, the corresponding (base) file name is added as keyword value.

Example for static sequential data sets

```
SEQDATASET(
          SYS1PMO.O4.ESP.ESP4.DB11.RKD2SQ01
          SYS1PMO.O4.ESP.ESP4.DB11.RKD2SQ02
          SYS1PMO.O4.ESP.ESP4.DB11.RKD2SQ03
          )
SPACE(CYL,65,2)
```

Example for dynamic sequential data set

```
SEQDATASET(SYS1PMO.O4.SEQARC.@DB2.@DATE.@TIME)
SPACE(CYL,5,2)
```

Example for GDG data set

```
SEQDATASET(SYS1PMO.O4.SEQGDG(+1))
SPACE(CYL,5,2)
```

SORT - Near-term history data collection options keyword
Directs OMEGAMON XE for DB2 PE to collect sort data.

SORT(*toggle*)

toggle

YES
Collect sort data.

NO
Do not collect sort data.

SPACE - Near-term history data collection options keyword
Used in conjunction with the SEQDATASET options keyword to specify the space allocation for a sequential data set.

SPACE(*xxx*,*nnn*,*nnn2*)

xxx

CYL
For cylinders.

TRK
For tracks.

nnn
The number for primary allocation.

nnn2
The number for secondary allocation.

STATISTICS - Near-term history data collection options keyword
Directs OMEGAMON XE for DB2 PE to collect Statistics trace data.

`STATISTICS(`*toggle*`)`

toggle

YES
Collect Statistics trace data.

NO
Do not collect Statistics trace data.

WRITEOPTION - Near-term history data collection options keyword
Specifies the storage medium for near-term history data.

`WRITEOPTION(`*medium*`)`

medium

VSAM
Store the data to VSAM data sets for OMEGAMON Db2 Classic near-term-history (NTH) support.

VSAMSEQ
Store the data to VSAM data sets and sequential files for OMEGAMON Db2 Classic NTH support.

THVSAM
Store the data to VSAM data sets for Enhanced 3270UI Thread history support.

VSAMSEQTHVSAM
Store the data to VSAM data sets, sequential files for OMEGAMON Db2 Classic NTH support and VSAM data sets for Enhanced 3270UI Thread history support.

SEQTHVSAM
Store the data to sequential files for OMEGAMON Db2 Classic NTH support and VSAM data sets for Enhanced 3270UI Thread history support.

VSAMTHVSAM
Store the data to VSAM data sets for OMEGAMON Db2 Classic NTH support and VSAM data sets for Enhanced 3270UI Thread history support.

Configuring ISPF Monitoring Dialogs

ISPF Monitoring Dialogs is always configured by default.

If you want to make further changes to ISPF Monitoring Dialogs, refer to the related parameters in section "Basic product parameters" in the *Parameter Reference*.

The following parameter is related:

- KD2_OMPE_ISPF_LANGUAGE

Customizing the ISPF Online Monitor

You can customize the Online Monitor, for example, you might want to set exception thresholds or change the default layout of the panels.

For information about tailoring exception thresholds and exception profiling, see the *Reporting User's Guide*.

Customizing panels

You can customize the layout of headings, field labels, fields displayed, and the order in which the fields appear in the Thread Detail panel, the DB2 Statistics Detail panel, and the DB2 System Parameters panel.

The panels are defined by using ISPF. Each field name corresponds to an ISPF variable.

Customize your panels to filter the data shown so that you can focus on particular areas of performance.

If you are adding or removing any fields from these panels, you need to add or remove the corresponding field help panels. You might also have to modify the exception processing variables in the same panels.

Example of a customized Thread Detail panel

The following figure shows an example of a *customized* Thread Detail panel. It demonstrates the flexibility of customizing panels.

```
DGOMTPSM 15:31               Thread Information           PMO1DLOC DSN1 V10
                                  GROUP001 MEMBER01
_ Thread Identification
  Primauth: USER029  CorrID : CICSPR01A784     LUW Instance : X'A57A0593213D'
  Planname: CUSTINQR ReqLoc : DUBLIN           CICS Instance: X'A42893CAE930'

_ Times         Elapsed           CPU  _ SQL Activity
  Class 1     30.000963      0.293748    Incremental Bind  :         0
  Class 2     13.993950      0.221462    Commit  . . . . . :         2
  Class 3      2.691650           N/A    Rollback  . . . . :         0

_ Buffer Manager Activity             _ Serialization Data
  Getpage requests  . . . :       670    Timeouts  . . . . :         0
  Synchronous Read  . . . :        30    Deadlocks . . . . :         0
  Sequential Prefetch . . :        16  _ SQL Statement & DBRM
  List Prefetch . . . . . :         1  _ Locked Resources
  Dynamic Prefetch  . . . :         0  _ Distributed Data
  Asynchronous Read . . . :         0

Command ===> ____________________________________________________________
 F1=Help      F2=Split     F3=Exit      F5=Auto      F6=History   F7=Up
 F8=Down      F9=Swap     F12=Cancel   F16=Look     F17=Collect
```

Figure 3. Customized Thread Detail panel

The panel above is tailored to show LUW and CICS® instances and more detailed buffer information. It is also tailored to show all needed fields in one panel, thereby removing the need to use the scrolling keys. Furthermore, the following general modifications were made to the panel above:

- Fields are added, removed, rearranged, and field labels are changed.
- The heading of the panel is changed from Thread Detail to Thread Information.

You can also add or remove field help panels and modify the exception processing ISPF variables to match the changes made to the fields.

Note: The DGOMTPSM (Thread Detail), DGOMSPSM (DB2 Statistics Detail), and DGOMZPSM (DB2 System Parameters) panels displayed at your site might have been tailored by your installation and consequently might not necessarily match the panel examples shown in this information.

How to customize panels

Before you modify any of the Online Monitor detail panels, become familiar with the way ISPF panels are defined. Consult your system programmer before making any change to your ISPF or TSO environment.

The Online Monitor panels are defined by using ISPF. The procedure for customizing an Online Monitor panel involves copying the ISPF panel member to your own library, and editing your copy of the panel to match your requirements.

Each field name corresponds to an ISPF variable. If you add or remove fields, you also need to add or remove the corresponding help panels for the appropriate fields. For a list of all available Online Monitor fields and their corresponding help panel names, see “Online Monitor field table” on page 81.

Thread Detail panel
Use the Thread Detail panel to view detailed information about the thread being monitored. From the Thread Detail panel, you can reach the Category windows, which show selected information about the monitored thread in greater detail.

To display the Thread Detail panel, select any active thread listed in the Thread Summary panel, Threads Holding Resource window, or the Periodic Exceptions List panel.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.

Note: The Thread Detail panel displayed at your site might have been tailored by your installation and consequently might not necessarily match the panel example shown in this information.

```
DGOMTPSM 13:24                   Thread Detail              PMO5D851 D851 V10
Command ===> ____________________________________________________________________

For details, place any character next to heading, then press Enter.
                                                                    More:     +
_ Thread Identification
  Primauth . . . . . : PODVRAT*         Correlation Name  . . . : POD
  Planname . . . . . : PMOMDEV          Connection type . . . . : DB2CALL
  Connection ID  . . : DB2CALL          Type  . . . . . . . . . : ALLIED
  Requesting Location: PMO5D851VERYLON* Status  . . . . . . . . : APPL
_ Current DBRM         . . . . . . . . . . . : N/P
_ Times                                          Elapsed           CPU
  Class 1  . . . . . . . . . . . . . . . . . :      4.602666       0.000012
  Class 2  . . . . . . . . . . . . . . . . . :           N/P            N/P
  Class 3  . . . . . . . . . . . . . . . . . :           N/P            N/A
  Class 7  . . . . . . . . . . . . . . . . . :           N/P            N/P
  Class 8  . . . . . . . . . . . . . . . . . :           N/P            N/A
_ Locking Activity
  Timeouts . . . . . . . . . . . . . . . . . :             0
  Deadlocks  . . . . . . . . . . . . . . . . :             0
  Suspensions  . . . . . . . . . . . . . . . :             0
  Lock escalations . . . . . . . . . . . . . :             0
  Maximum page locks held  . . . . . . . . . :             0
_ Locked Resources
_ RID List Processing
  Unsuccessful - any reason  . . . . . . . . :             0
_ SQL Activity, Commits and Rollbacks
  DML . . . :          0 Commit  . . . . . . :             0
  DCL . . . :          0 Rollback  . . . . . :             0
  DDL . . . :          0 Changes/Commit  . . :           0.0
_ Buffer Manager Activity
  Getpage requests . . . . . . . . . . . . . :           N/P
  Buffer updates . . . . . . . . . . . . . . :           N/P
  Prefetch requests  . . . . . . . . . . . . :           N/P
  Synchronous I/O  . . . . . . . . . . . . . :           N/P
_ SQL Statement and DBRM     . . . . . . . . :
  Distributed Data
  Requester elapsed time . . . . . . . . . . :           N/P
_ IFI (Class 5) and Data Capture
_ Query Parallelism Data
  Data Sharing Locking Activity
 F1=Help      F3=Exit      F5=Auto      F6=History   F7=Up        F8=Down
 F12=Cancel   F16=Look     F17=Collect  F22=Purge
```

Figure 4. Thread Detail panel

If you have enabled display exception processing, all fields in exception status are shown in reverse video, and the color indicates the level of the exception. *Warning* level exceptions are highlighted in yellow, while *problem* level exceptions are highlighted in red. Categories that can be selected from this panel are shown in reverse video when their next level windows contain fields in exception status.

If DBRM is used, the `Current Package` field displayed in the Thread Detail panel is shown as `Current DBRM` instead.

The following list describes some of the important fields that are shown in this panel:

Type
The type of the thread being monitored.

ALLIED
The thread is not involved in any distributed activity.

A-DIST
The thread is initiated by a DB2 attach and requests data from one or more server locations.

DBAT
The thread is initiated by, and performing work on behalf of, a remote (requester) location.

D-DIST
Distributed database access thread, both a DDF server and requester.

It is important to know whether the thread is involved in distributed activity, because this can affect the fields that should be monitored. For example, if the thread is involved in distributed activity, the class 1 elapsed time is higher than if there was no distributed activity, because this time includes network time.

Class 1 Times
This field shows the elapsed time and the CPU time for the processing performed and includes the time spent not only in DB2 but also in the application.

CPU time is the sum of:

- The agent's CPU (TCB) time
- The CPU time spent in stored procedures
- The accumulated processing time of the parallel tasks (if query parallelism or utility parallelism is used)

Class 2 Times
This field shows the elapsed time and the CPU time for the processing performed in DB2 only. Elapsed time includes wait times.

CPU time is the sum of:

- The agent's CPU (TCB) time
- The CPU time spent in stored procedures
- The accumulated processing time of the parallel tasks (if query parallelism or utility parallelism is used)

For threads that exploit query parallelism or utility parallelism, class 2 CPU time can be larger than class 2 elapsed time because the CPU time includes the execution time of all parallel threads. To separate the agent's CPU time from the sum of all parallel tasks' CPU times, select `Times`, which displays the Thread Times window. See also the discussion at the beginning of "Accounting times" on page 79.

Class 3 Times
This field shows the total time spent waiting because of class 3 suspensions. For threads that exploit query parallelism or utility parallelism, wait times are summed for the originating task and all parallel tasks. See also the discussion at the beginning of "Accounting times" on page 79.

Suspensions
This field includes all types of lock suspensions.

Getpage requests
This field shows the number of Getpage requests. Reducing Getpage requests reduces CPU usage and improves performance. Fewer Getpage requests also result in fewer synchronous reads, because fewer pages that are not in the buffer pool must be fetched.

Prefetch reads
This includes number of Prefetch reads done because of Sequential Prefetch, List Prefetch, and Dynamic Prefetch.

Synchronous I/O
This includes both synchronous reads and synchronous writes.

Accounting times
Accounting times are usually the prime indicator of a performance problem and should be the starting point for analysis.

DB2 times are classified as follows:

- Class 1 time shows the time the application spent since connecting to DB2, including time spent outside DB2.
- Class 2 elapsed time shows the time spent in DB2. It is divided into CPU time and waiting time.
- Class 3 elapsed time is divided into various waits, such as the duration of suspensions because of waits for locks and latches or waits for I/O.

Tailoring the Thread Detail panel
You can modify the Thread Detail panel to include the first 200 characters of the currently executing SQL statement. This field is divided into 4 fields of 50 characters each.

The names of these fields are:

QW01242T
The first 50 characters of the SQL statement text

QW012422
The second 50-character block of the SQL statement text

QW012423
The third 50-character block of the SQL statement text

QW012424
The fourth 50-character block of the SQL statement text.

The EXPLAIN command can also be made available in the Thread Detail panel so that you can examine the access path methods of the SQL statement text that is shown. To make the command available:

- Add the following line to the INIT section of the panel:

```
&SQLONDET='X'
```

- Change the following statement:

```
)PANEL KEYLIST(MTTABLE,DGOF)
```

to:

```
)PANEL KEYLIST(MTSQLKEY,DGOF)
```

The latter change assigns the EXPLAIN command to F18 (Explain).

Editing exception fields
Each Online Monitor exception field has a corresponding ISPF variable that indicates the exception status of that field.

The ISPF variable has the same name as the OMEGAMON XE for DB2 PE field it represents, with the first letter of the field name replaced by an X for thread activity fields, and an E or T for statistics fields. For example, the thread activity field ADRECETT (Class 1 elapsed time) has a corresponding exception ISPF variable XDRECETT, and the statistics field Q3STABRT (Rollback) has a corresponding exception ISPF variable E3STABRT.

An exception ISPF variable can contain one of the following one-character values:

P
Indicates a problem level exception

W
Indicates a warning level exception

blank
Indicates that the corresponding field is not in exception status.

If you want your exception fields to be highlighted when they are in exception status, you need to test for an exception condition and highlight the field appropriately. For example, to test and highlight the Q3STABRT field in the Thread Detail panel, you would add the following lines to the panel logic:

```
if (&x3stabrt = 'P')
  .attr(q3stabrt) = 'color(red) hilite(reverse)'
if (&amp;x3stabrt = 'W')
  .attr(q3stabrt) = 'color(yellow) hilite(reverse)'
```

If you remove an exception field, also remove the corresponding code that tests and highlights the field.

Editing selection fields
The selection fields in the detail panels provide access to other Online Monitor panels. These fields are selected by typing any nonblank character in a field and pressing Enter.

You can remove or disable any of the selection fields in the Thread Detail panel, DB2 Statistics Detail panel, or DB2 System Parameters panel.

The following table shows the names of all selection fields and their corresponding subheadings in the Thread Detail panel:

Table 13. Selection field names and corresponding subheadings in the Thread Detail panel

Selection field name	**Subheading**
C01	Thread Identification
C02	Current® Package/DBRM
C03	Times
C04	Locking Activity
C05	Locked Resources
C06	RID List Processing
C07	SQL Activity, Commits and Rollbacks
C08	Buffer Manager Activity
C09	SQL Statement and Package/DBRM
C10	Distributed Data
C11	IFI (Class 5) and Data Capture
C12	Query Parallelism Data
C13	Data Sharing Locking Activity
C14	Group Buffer Pools Activity
C15	Stored Procedures

The following table shows the names of all selection fields and their corresponding subheadings in the DB2 Statistics Detail panel:

Table 14. Selection field names and corresponding subheadings in the DB2 Statistics Detail panel

Selection field name	**Subheading**
C01T01	EDM Pool
C01T02	Buffer Manager
C01T03	Locking Activity
C01T04	Open/Close Management

Table 14. Selection field names and corresponding subheadings in the DB2 Statistics Detail panel (continued)	
Selection field name	**Subheading**
C01T05	Bind Processing
C01T06	Plan/Package Allocation, Authorization Management
C01T07	Log Manager
C01T08	Subsystem Services
C01T09	SQL Activity
C01T11	RID List Processing
C01T12	Distributed Data
C01T13	CPU Times and Other Data
C01T14	Data Sharing Locking Activity
C01T15	Group Buffer Pool Activity
C01T16	Global Group Buffer Pool Statistics
C01T17	Stored Procedures

The following table shows the names of all selection fields and their corresponding subheadings in the DB2 System Parameters panel:

Table 15. Selection field names and corresponding subheadings in the DB2 System Parameters panel	
Selection field name	**Subheading**
C01T1	Virtual Buffer Sizes
C01T2	Storage Sizes and Connections
C01T3	Operator and DDF Functions
C01T4	Tracing, Data Installation and Pseudo-Close
C01T5	Locking (IRLM)
C01T6	Active Log
C01T7	Archive Log
C01T8	Protection and Data Definition
C01T9	Stored Procedures
C01T10	Group Buffer Pools
C01TA	Data Sharing Parameters
C01TB	Application Programming Defaults
C01T11	Other Parameters

Online Monitor field table

The tables in this section provide a list of the Online Monitor thread activity fields, statistics fields, and system parameters fields.

You can use these tables to cross-reference exception field names for display exception processing and for periodic exception processing, or to look up a field help panel name when customizing Online Monitor panels.

Table 16. Accounting - Buffer Pool Activity

Field name	Field description	Help panel name	Exception
ABCLSPR	Prefetch Reads	DGO0231	Yes
ABCRWIO	Synchronous I/O	DGO0232	
ADRGPRIO	Getpage/Synchronous Reads	DGO0233	Yes
QBACDPF	Dynamic Prefetch Requests	DGO0222	
QBACGET	Getpage Requests	DGO0217	Yes
QBACIMW	Synchronous Writes	DGO0226	Yes
QBACLPF	List Prefetch Requests	DGO0221	
QBACPID	Buffer Pool ID	DGO0215	
QBACRIO	Synchronous Read I/O	DGO0219	Yes
QBACSEQ	Sequential Prefetch Requests	DGO0220	
QBACSIO	Asynchronous Pages Read	DGO0229	
QBACSWS	Buffer Updates	DGO0225	Yes

Table 17. Accounting - Data Capture Activity and Class 5 Times

Field name	Field description	Help panel name	Exception
ADIFICAL	IFI Calls	DGO0775	Yes
QIFAAIET	Class 5 Elapsed Time	DGO0202	Yes
QIFAAITT	Class 5 TCB Time	DGO0203	Yes
QIFAAMBT	Describe Time	DGO0204	
QIFAAMLT	Log Extraction Time	DGO0205	
QIFAANDD	Data Descriptions Returned	DGO0211	
QIFAANDR	Data Rows Returned	DGO0210	
QIFAANLR	Log Reads Performed	DGO0207	
QIFAANMB	Describes Performed	DGO0212	
QIFAANRC	Log Records Captured	DGO0208	
QIFAANRR	Log Records Returned	DGO0209	
QIFAANTB	Tables Returned	DGO0213	

Table 18. Accounting - Data Sharing Locking Activity

Field name	Field description	Help panel name	Exception
ABUFFRAT	Buffer Pool Hit Ratio (%)	DGO1769	
AGLOBRAT	Global Contention Rate (%)	DGO1767	
QTGACPLK	Change Requests	DGO1399	

Table 18. Accounting - Data Sharing Locking Activity (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QTGACSLM	Change Requests - XES	DGO1402	
QTGADRTA	Incompatible Retained Lock	DGO1408	Yes
QTGAFLSE	Suspensions - False Contention	DGO1407	
QTGAIGLO	Suspensions - IRLM Global Contention	DGO1403	
QTGALPLK	Lock Requests	DGO1397	
QTGALSLM	Lock Requests - XES	DGO1400	
QTGANTFY	Notify Messages Sent	DGO1409	
QTGASGLO	Suspensions - XES Global Contention	DGO1406	
QTGAUPLK	Unlock Requests	DGO1398	
QTGAUSLM	Unlock Requests - XES	DGO1401	

Table 19. Accounting - Distributed Data Facility Activity			
Field name	**Field description**	**Help panel name**	**Exception**
ADDSCNVC	Current DDF Conversions	DGO0270	
ADDSELSR	Remote Elapsed	DGO0263	Yes
ADDSSRSR	Remote CPU	DGO0264	Yes
ADPROTOC	Method	DGO0235	
QLACLOCN	Remote Location	DGO0234	
QW0148CT	Type	DGO0833	
QW0148EL	Requester Elapsed	DGO1195	Yes
QW0148MR	Messages Received	DGO0272	
QW0148MS	Messages Sent	DGO0271	
QW0148PT	Product ID	DGO0804	
QW0148PV	Product Version	DGO1556	
QW01488A	Conversation Active Flag	DGO0266	
QW01488C	Conversation ID	DGO0269	
QW01488L	Remote Location	DGO0836	
QW01488N	Network Connection Type	DGO1722	
QW01488S	Connection ID	DGO0268	
QW01488T	Time of Last Message	DGO0267	
QW01488U	State	DGO0265	

Table 20. Accounting - Group Buffer Pools Activity			
Field name	**Field description**	**Help panel name**	**Exception**
ABGAMR	Read (Not Found)-No Data Returned	DGO1832	Yes
ABGAXR	Read (Cross Inval.)-No Data Returned	DGO1833	Yes
QBGADG	Unregister Page	DGO1721	
QBGAGN	Group Buffer Pool ID	DGO1579	
QBGAMD	Read (Not Found) - Data Returned	DGO1413	Yes
QBGAMN	Read Prefetch	DGO1415	Yes
QBGASW	Changed Pages Written	DGO1418	Yes
QBGAWC	Clean Pages Written	DGO1417	Yes
QBGAXD	Read (Cross Invalidation) - Data Returned	DGO1410	Yes

Table 21. Accounting - Locking Activity			
Field name	**Field description**	**Help panel name**	**Exception**
ALCLKET	Lock Escalations	DGO0190	Yes
ALRSUSLL	Number of Lock and Latch Suspensions	DGO0179	Yes
ALRSUSP	Total Suspensions	DGO0178	Yes
QTXACHG	Change Requests	DGO0186	
QTXACLNO	Claim Requests	DGO0192	
QTXACLUN	Unsuccessful Claim Requests	DGO0193	Yes
QTXADEA	Deadlocks	DGO0176	Yes
QTXADRNO	Drain Requests	DGO0194	
QTXADRUN	Unsuccessful Drain Requests	DGO0195	Yes
QTXAIRLM	Other IRLM Requests	DGO0187	
QTXALES	Lock Escalations - shared	DGO0188	Yes
QTXALEX	Lock Escalations - Exclusive	DGO0189	Yes
QTXALOCK	Lock Requests	DGO0183	
QTXANPL	Maximum Page or Row Locks Held	DGO0191	Yes
QTXAQRY	Query Requests	DGO0185	
QTXASLAT	Suspensions - Latch	DGO0181	
QTXASLOC	Suspensions - Lock	DGO0180	Yes
QTXASOTH	Suspensions - Other	DGO0182	
QTXATIM	Timeouts	DGO0175	Yes
QTXAUNLK	Unlock Requests	DGO0184	
T3ANCHOR	Anchor	DGO1840	

Table 21. Accounting - Locking Activity (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
T3BPID	Buffer pool Id	DGO1845	
T3COLL	Collection ID	DGO0842	
T3CONST	Consistency Token	DGO0843	
T3DBNAME	Database	DGO0844	
T3DURAT	Duration	DGO0845	
T3FUNCT	Function	DGO0846	
T3HASH	Hash Class	DGO1843	
T3LOCKS	Count	DGO0847	
T3OBNAME	Object	DGO0848	
T3PACK	Package ID	DGO0849	
T3PAGE	Page	DGO1837	
T3PART	Partition	DGO1844	
T3PLAN	Plan ID	DGO0850	
T3PLLCK	Attribute	DGO1792	
T3RMID	Resource Manager Id	DGO1842	
T3ROW	Row	DGO1839	
T3STATE	Status	DGO0851	
T3SUBP	Subpage	DGO1838	
T3SUSP	Suspended	DGO0852	
T3TYPE	Type	DGO0853	
T3UID	Utility UID	DGO1841	
T5SUBS	Subsystem	DGO1815	

Table 22. Accounting - Package Data			
Field name	**Field description**	**Help panel name**	**Exception**
ADALPSSC	Archive Log (quiesce)	DGO0720	
ADARPSSC	Other Read I/O - Events	DGO0711	Yes
ADAWPSSC	Other Write I/O	DGO0714	Yes
ADCMPSSC	Claim Release	DGO0726	
ADCPCL7T	CPU Time (Class 7) - Par.Tasks - Tot.Exec.	DGO1631	
ADCPCL8T	Suspension Time (Class 8) - Parallel Tasks	DGO1665	
ADCPUTP	CPU Time (Class 7) - Total Execution	DGO1432	Yes
ADDRPSSC	Drain Lock	DGO0723	

Table 22. Accounting - Package Data (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
ADELCL7C	Elapsed Time (Class 7) - Current Execution	DGO0697	
ADGCPSSC	Global Contention - Suspensions	DGO1381	
ADIOPSSC	Synchronous I/O - Events	DGO0708	Yes
ADLLPSSC	Locks and Latches - Events	DGO0705	Yes
ADLRPSSC	Archive Log Read	DGO0732	
ADNACL7T	Not Accounted	DGO0738	
ADNOPSSC	Notify Messages - Suspensions	DGO1378	
ADPGPSSC	Page Latch	DGO0729	
ADSPPSSC	Stored Procedures - Suspensions	DGO1389	
ADSTPSSC	Services Task Switch	DGO0717	Yes
ADTCBCL8	Suspension Time (Class 8) - TCB	DGO1664	
ADTCCL7L	TCB Time Spent In DB2	DGO0700	
ADTSUSCP	Suspensions (Class 8) - Events	DGO0735	Yes
ADTSUSTP	Suspension Time (Class 8)	DGO0736	Yes
ADWTCL7T	Waiting Time - Total Execution	DGO1666	Yes
QPACALOG	Archive Log (quiesce)	DGO0721	
QPACARNA	DB2 Entry/Exit Events	DGO0810	
QPACAWAR	Archive Log Read	DGO0733	
QPACAWCL	Claim Release	DGO0727	
QPACAWDR	Drain Lock	DGO0724	
QPACAWTE	Services Task Switch	DGO0718	Yes
QPACAWTG	Notify Messages - Time	DGO1377	
QPACAWTI	Synchronous I/O - Elapsed Time	DGO0709	Yes
QPACAWTJ	Global Contention - Time	DGO1380	
QPACAWTL	Locks and Latches - Elapsed Time	DGO0706	Yes
QPACAWTP	Page Latch	DGO0730	
QPACAWTR	Other Read I/O - Elapsed Time	DGO0712	Yes
QPACAWTW	Other Write I/O	DGO0715	Yes
QPACCAST	Stored Procedures - Time	DGO1388	
QPACCOLN	Collection ID	DGO0696	
QPACCONT	Consistency Token	DGO0694	
QPACLOCN	Location	DGO0692	
QPACPKID	Program Name	DGO0693	
QPACSCT	Elapsed Time (Class 7) - Total Execution	DGO0699	Yes

Table 22. Accounting - Package Data (continued)

Field name	Field description	Help panel name	Exception
QPACSQLC	SQL Statements Issued	DGO0695	Yes
QPACTJST	CPU Time TCB - Class 7- Total Execution	DGO0701	

Table 23. Accounting - Query Parallelism

Field name	Field description	Help panel name	Exception
ADPARDIS	Parallelism Disabled by RLF	DGO1637	
ADPARLEV	Parallelism	DGO1596	
ADTOTPFL	Fall Back To Sequential Mode	DGO0684	Yes
AXXCRAT	Member Skipped (%)	DGO1783	
QXCOORNO	One DB2 COORDINATOR Parm = NO	DGO1680	
QXDEGBUF	Fall Back To Sequential Mode - No Buffer	DGO0683	Yes
QXDEGCUR	Fall Back To Sequential Mode - Cursor	DGO0774	Yes
QXDEGESA	Fall Back To Sequential Mode - No ESA	DGO0682	Yes
QXISORR	One DB2 Isolation Level	DGO1681	
QXMAXDEG	Maximum Degree of Parallelism	DGO0171	Yes
QXNORGRP	Planned Parallel Degree	DGO0174	
QXREDGRP	Reduced Parallel Degree	DGO0173	Yes
QXTOTGRP	Parallel Groups Executed	DGO0773	

Table 24. Accounting - RID List Processing

Field name	Field description	Help panel name	Exception
ARTTERM	Unsuccessful - Any Reason	DGO0170	Yes
QXMIAP	Successful	DGO0167	
QXMRMIAP	Not Used - Limit Exceeded	DGO0169	Yes
QXNSMIAP	Not Used - No Storage	DGO0168	Yes

Table 25. Accounting - SQL Activity (DML, DCL, DDl)

Field name	Field description	Help panel name	Exception
ADTDDL	Total DDL	DGO0166	Yes
ASCDCL	Total DCL	DGO0137	Yes
ASCDML	Total DML	DGO0122	Yes
ASRIUDCA	Changes/Commit	DGO0127	Yes
ASTOTALT	Number of Alter Statements Executed	DGO0165	

Table 25. Accounting - SQL Activity (DML, DCL, DDl) (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
ASTOTCRT	Total	DGO0163	
ASTOTDRP	Total	DGO0164	
QW0124SP	Stored Procedure	DGO1846	
QW01482T	SQL Statement	DGO1863	
QXALDAB	Alter Database	DGO0155	
QXALOCC	Allocate Cursor	DGO1720	
QXALOCL	Associate Locators	DGO1719	
QXALTIX	Alter Index	DGO0149	
QXALTST	Alter Stogroup	DGO0152	
QXALTTA	Alter Table	DGO0143	
QXALTTS	Alter Tablespace	DGO0146	
QXCALLAB	Procedure Abends	DGO1392	Yes
QXCALLRJ	Call Statements Rejected	DGO1394	Yes
QXCALLTO	Call Statement Timeouts	DGO1393	Yes
QXCLOSE	Close	DGO0121	
QXCMTON	Comment On	DGO0139	
QXCON1	Connect Type 1	DGO0133	
QXCON2	Connect Type 2	DGO0134	
QXCRALS	Create Alias	DGO0160	
QXCRDAB	Create Database	DGO0153	
QXCRGTT	Create Temp. Table	DGO1654	
QXCRINX	Create Index	DGO0147	
QXCRSTG	Create Stogroup	DGO0150	
QXCRSYN	Create Synonym	DGO0156	
QXCRTAB	Create Table	DGO0141	
QXCTABS	Create Tablespace	DGO0144	
QXDEFVU	Create View	DGO0158	
QXDELET	Delete	DGO0115	
QXDESC	Describe	DGO0116	
QXDRPAL	Drop Alias	DGO0161	
QXDRPDB	Drop Database	DGO0154	
QXDRPIX	Drop Index	DGO0148	
QXDRPPKG	Drop Package	DGO0162	
QXDRPST	Drop Stogroup	DGO0151	

Table 25. Accounting - SQL Activity (DML, DCL, DDl) (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QXDRPSY	Drop Synonym	DGO0157	
QXDRPTA	Drop Table	DGO0142	
QXDRPTS	Drop Tablespace	DGO0145	
QXDRPVU	Drop View	DGO0159	
QXDSCRTB	Describe Table	DGO1626	
QXFETCH	Fetch	DGO0120	
QXGRANT	Grant	DGO0129	
QXINSRT	Insert	DGO0113	
QXLABON	Label On	DGO0140	
QXLOCK	Lock Table	DGO0128	
QXOPEN	Open	DGO0119	
QXPREP	Prepare	DGO0118	
QXREL	Release	DGO0135	
QXREVOK	Revoke	DGO0130	
QXRNTAB	Rename Table	DGO1851	
QXSELECT	Select	DGO0112	
QXSETCDG	Set Current Degree	DGO0772	
QXSETCON	Set Connection	DGO0136	
QXSETCRL	Set Current Rules	DGO1390	
QXSETHV	Set Host Variable	DGO0132	
QXSETSQL	Set Current SQLID	DGO1627	
QXUPDTE	Update	DGO0114	
RDISTNUM	Statement Number	DGO0837	
RDISTYPE	Statement Type	DGO0838	
TCONTOK	Consistency Token	DGO0839	
TPACKAGE	Package Name	DGO0840	
TPKGDBRM	DBRM Being Executed	DGO0841	
TVERSION	Version	DGO0855	
T4STMT	SQL Statement	DGO0854	

Table 26. Accounting - SQL Nested Activity			
Field name	**Field description**	**Help panel name**	**Exception**
QXCALL	SQL Call	DGO1391	

Table 27. Accounting - Termination Conditions, Commit/Rollback, Incremental Binds			
Field name	**Field description**	**Help panel name**	**Exception**
ADCICSIN	CICS Token Instance	DGO0016	
ADCICSLU	CICS Token LU Name	DGO0015	
ADCICSNI	CICS Token Network ID	DGO0014	
ADCORNMB	Correlation Number	DGO0008	
ADCORNME	Correlation Name	DGO0007	
ADTHRSTA	Thread Status	DGO0033	
ADTHRTYP	Thread Type	DGO0050	
QMDAACCT	MVS™ Accounting Token	DGO0019	
QMDAAPPL	Client Application Name	DGO1552	
QMDAASTR	Accounting String	DGO0029	
QMDAATID	Client Authid	DGO1553	
QMDAAUTH	Primauth	DGO0024	
QMDACNAM	Connection ID	DGO0827	
QMDACORR	Correlation ID	DGO0028	
QMDACTYP	Connection Type	DGO0025	
QMDALOCN	Location	DGO0021	
QMDALUNM	LU Name	DGO0023	
QMDANETN	Network ID	DGO0022	
QMDAPLAN	Plan Name	DGO0828	
QMDAPLAT	Client Platform	DGO1551	
QMDAPTYP	Product ID	DGO0020	
QMDAPVER	Product Version	DGO1555	
QMDASUFX	DDCS Accounting Suffix	DGO1550	
QWACABRT	Rollback	DGO0058	Yes
QWACCOMM	Commit	DGO0057	Yes
QWACNID	Recovery Token	DGO0829	
QWHCAID	Primauth	DGO0006	
QWHCATYL	Connection Type	DGO0830	
QWHCATYP	Conntype	DGO0013	
QWHCATYS	Connection Type	DGO0831	
QWHCCN	Connection ID	DGO0010	
QWHCCV	Correlation ID	DGO0009	
QWHCOPID	Origauth	DGO0012	
QWHCPLAN	Planname	DGO0011	

Table 27. Accounting - Termination Conditions, Commit/Rollback, Incremental Binds (continued)

Field name	Field description	Help panel name	Exception
QWHCTOKN	RRSAF Accounting Token	DGO1737	
QWHDPTYP	Product ID	DGO0018	
QWHDPVER	Product Version	DGO1554	
QWHDRQNM	Requesting Location	DGO0017	
QWHSLOCN	Reporting Location	DGO0001	
QWHSLUCC	LUW Sequence Number	DGO0800	
QWHSLUNM	LUW LU Name	DGO0798	
QWHSLUUV	LUW Instance Number	DGO0799	
QWHSNID	LUW Network ID	DGO0797	
QW0148RQ	Request Count	DGO0034	
QXINCRB	Incremental Bind	DGO0059	Yes
QXSTDEXP	Cache Limit Exceeded	DGO1806	
QXSTDINV	Prepare Statement Purged	DGO1807	
QXSTFND	Prepare Statement Match	DGO1802	
QXSTIPRP	Implicit Prepare	DGO1804	
QXSTNFND	Prepare Statement No Match	DGO1803	
QXSTNPRP	Prepare from Cache	DGO1805	
QXSTREOP	Reoptimization	DGO1801	

Table 28. Accounting - Timing Data (Elapsed, TCB. Suspensions, and so on)

Field name	Field description	Help panel name	Exception
ADALSUSC	Archive Log (Quiesce) - Event	DGO0092	
ADARSUSC	Other Read I/O - Event	DGO0083	Yes
ADAWSUSC	Other Write I/O - Event	DGO0086	Yes
ADCMSUSC	Claim Release - Event	DGO0098	
ADCPCL3T	Suspension Time Par. Tasks - Class 3	DGO1668	
ADCPUPLL	CPU Time Parallel Tasks - Class 1	DGO1629	
ADCPUT	CPU Time - Class 1 in Application	DGO1425	Yes
ADDBCPC2	CPU Time Parallel Tasks - Class 2	DGO1636	
ADDBCPUT	CPU Time - Class 2 in DB2	DGO1426	Yes
ADDBSRBT	Class 2 SRB Time	DGO0070	
ADDBTCBT	CPU Time TCB - Class 2 in DB2	DGO0068	
ADDB2ETT	Elapsed Time - Class 2 in DB2	DGO0066	Yes

Table 28. Accounting - Timing Data (Elapsed, TCB. Suspensions, and so on) (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
ADDRSUSC	Drain Lock - Event	DGO0095	
ADDSTOTT	Requester Elapsed Time	DGO0825	Yes
ADGCSUSC	Global Contention - Event	DGO1376	
ADIOSUSC	Synchronous I/O - Event	DGO0079	Yes
ADLLSUSC	Locks and Latches - Event	DGO0076	Yes
ADLRSUSC	Archive Log Read - Event	DGO0688	
ADNOSUSC	Notify Messages - Event	DGO1374	
ADNOTACC	Not Accounted - Class 2 in DB2	DGO0107	
ADPGSUSC	Page Latch - Event	DGO0803	
ADRECETT	Elapsed Time - Class 1 in Application	DGO0063	Yes
ADSPSUSC	Stored Procedures - Event	DGO1387	
ADSRBT	Class 1 SRB Time	DGO0065	
ADSTSUSC	Services Task Switch - Event	DGO0089	Yes
ADTCBCL3	Suspension Time TCB - Class 3 in DB2	DGO1667	
ADTCBT	CPU Time TCB - Class 1	DGO1580	
ADTSRBOD	SRB Time Outside DB2	DGO0071	
ADTSUSC	Suspensions (Class 3) - Event	DGO0104	Yes
ADTSUST	Suspension Time (Class 3)	DGO0105	Yes
ADTTCBOD	CPU Time TCB - Outside DB2	DGO0069	
ADTTOTOD	Elapsed Time - Outside DB2	DGO0067	
ADTWTAP	Waiting Time - Class 1 in Application	DGO0072	Yes
ADTWTDB	Waiting Time - Class 2 in DB2	DGO0073	Yes
ADTWTODB	Waiting Time - Outside DB2	DGO0074	
QWACALOG	Archive Log (Quiesce) - Time	DGO0093	
QWACARNA	DB2 Entry/Exit - Non Stored Procedures	DGO0075	
QWACAWAR	Archive Log Read - Time	DGO0689	
QWACAWCL	Claim Release - Time	DGO0099	
QWACAWDR	Drain Lock - Time	DGO0096	
QWACAWTE	Services Task Switch - Time	DGO0090	Yes
QWACAWTG	Notify Messages - Time	DGO1373	
QWACAWTI	Synchronous I/O - Time	DGO0081	Yes
QWACAWTJ	Global Contention - Time	DGO1375	
QWACAWTL	Locks and Latches - Time	DGO0077	Yes
QWACAWTP	Page Latch - Time	DGO0102	

Table 28. Accounting - Timing Data (Elapsed, TCB. Suspensions, and so on) (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QWACAWTR	Other Read I/O - Time	DGO0084	Yes
QWACAWTW	Other Write I/O - Time	DGO0087	Yes
QWACCAST	Stored Procedures - Time	DGO1386	
QWACSPCP	CPU Time TCB Stored Proc - Class 1 in Applic.	DGO1383	
QWACSPNE	DB2 Entry/Exit - Stored Procedures	DGO1385	
QWACSPTT	CPU Time TCB Stored Proc - Class 2 in DB2	DGO1384	

Table 29. Statistics - Authorization Management			
Field name	**Field description**	**Help panel name**	**Exception**
QTAUCCH	Authorization Succ. W/o Catalog Access	DGO0460	
QTAUCHK	Authorization Attempts	DGO0458	
QTAUPUB	Authorization Successful Public Plan	DGO0461	
QTAUSUC	Authorization Successful	DGO0459	
QTPACAUT	Package Authorization Management - Successful	DGO1774	
QTPACNOT	P. A. M. Unsuccessful - Catalog Required	DGO1776	
QTPACOW1	P. A. M. - Overwritten Authid in Cache	DGO1777	
QTPACOW2	P. A. M. - Overwritten in Cache	DGO1778	
QTPACPUB	P. A. M. - Successful Public	DGO1775	

Table 30. Statistics - Buffer Pool Activity			
Field name	**Field description**	**Help panel name**	**Exception**
QBSTCBA	Current Active Buffers	DGO0331	Yes
QBSTDIO	Dynamic Prefetch Reads	DGO0359	Yes
QBSTDMC	DM Critical Threshold Reached	DGO0376	Yes
QBSTDPF	Dynamic Prefetch Requested	DGO0358	Yes
QBSTDPP	Dynamic Prefetch Pages Read	DGO0360	Yes
QBSTDSO	Successful Data Set Opens	DGO0335	Yes
QBSTDWT	Deferred Write Threshold Reached	DGO0373	Yes
QBSTDWV	Thresholds Reached - Vertical Deferred Write	DGO0374	Yes
QBSTGET	Getpage Request Total	DGO0343	
QBSTIMW	Synchronous Writes	DGO0370	Yes
QBSTJIS	Pref. I/O Streams - Reduced - Buffer Shortage	DGO0384	Yes
QBSTLIO	List Prefetch Reads	DGO0355	Yes

Table 30. Statistics - Buffer Pool Activity (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QBSTLPF	List Prefetch Requested	DGO0354	Yes
QBSTLPP	List Prefetch Pages Read	DGO0356	Yes
QBSTMAX	Not Created - No Buffer	DGO0394	Yes
QBSTMIG	DFHSM Migrated Data Sets	DGO0336	Yes
QBSTNGT	Unsuccessful Page Requests	DGO1862	
QBSTPID	Buffer Pool ID	DGO0330	
QBSTPIO	Sequential Prefetch Reads	DGO0351	Yes
QBSTPL1	Prefetch Quantity Reduced To 1/2	DGO0387	Yes
QBSTPL2	Prefetch Quantity Reduced To 1/4	DGO0388	Yes
QBSTPQF	Reduced Parallel Query Requests	DGO0386	Yes
QBSTPQO	Parallel Query Requests	DGO0385	
QBSTPWS	Pages Written	DGO0368	Yes
QBSTREE	Prefetch Disabled No Read Engine	DGO0363	Yes
QBSTRIO	Synchronous Reads Total	DGO0346	Yes
QBSTRPI	Page-ins Required for Read I/O	DGO0815	Yes
QBSTRTO	DFHSM Recall Timeouts	DGO0337	Yes
QBSTSEQ	Sequential Prefetch Requested	DGO0350	Yes
QBSTSGT	Getpage Request Sequential Access Only	DGO0344	
QBSTSIO	Synchronous Reads Sequential Access Only	DGO0347	Yes
QBSTSPD	Prefetch Disabled No Buffer	DGO0362	Yes
QBSTSPP	Sequential Prefetch Pages Read	DGO0352	Yes
QBSTSWS	Buffer Updates	DGO0367	Yes
QBSTVPA	Alter Buffer Pool Expansions and Contractions	DGO0341	Yes
QBSTVPL	Buffers Allocated for Virtual Buffer Pool	DGO0339	
QBSTWBVQ	Pages Not Written	DGO0398	Yes
QBSTWDRP	Pages Marked To Destruct	DGO0397	Yes
QBSTWFD	Workfile Request Rejected - Low Buffers	DGO0392	Yes
QBSTWFF	Degraded - Low Buffers	DGO0391	Yes
QBSTWFM	Maximum Concurrent Work Files	DGO0389	Yes
QBSTWFR	Merge Passes Requested	DGO0390	
QBSTWFT	Requested for All Merge Pass	DGO0393	
QBSTWIO	Asynchronous Writes	DGO0371	Yes
QBSTWKPD	Prefetch Not Scheduled - Zero Quantity	DGO0396	Yes
QBSTWPI	Page-ins Required for Write I/O	DGO0816	Yes

Table 30. Statistics - Buffer Pool Activity (continued)

Field name	Field description	Help panel name	Exception
QBSTXFL	Buffer Pool Full	DGO0333	Yes
QBSTXFV	Virtual Storage Unavailable	DGO0334	Yes
QBSTXIS	Prefetch I/O Streams, Concurrent Str. - HWM	DGO0383	Yes
SBRBUPW	Buffer Updates / Pages Written	DGO0369	
SBRBUTP	Virtual Buffer Pool Pages in Use (%)	DGO0805	Yes
SBRGPRIO	Getpage per Synchronous Read Random	DGO0349	
SBRPPRIO	Seq. Prefetch Pages Read / Seq. Prefetch Read	DGO0353	
SBRPWWIO	Pages Written per Write I/O	DGO0372	
SDDPPPIO	Dynamic Prefetch Pages Read / Dyn. Pref. Read	DGO0361	
SDGETRAN	Getpage Request - Random	DGO0345	
SDLPPPIO	List Prefetch Pages Read / List Prefetch Read	DGO0357	
SDSTRAN	Synchronous Reads - Random	DGO0348	Yes

Table 31. Statistics - Data Capture Activity

Field name	Field description	Help panel name	Exception
QWSDCDDD	Data Descriptions Returned	DGO0634	
QWSDCDDR	Data Rows Returned	DGO0632	
QWSDCDLC	Log Records Captured	DGO0629	
QWSDCDLR	Log Reads Performed	DGO0630	
QWSDCDMB	Describes Performed	DGO0633	
QWSDCDRR	Log Records Returned	DGO0631	
QWSDCDTB	Tables Returned	DGO0635	

Table 32. Statistics - Data Sharing Locking Activity

Field name	Field description	Help panel name	Exception
QTGSCHNP	P-lock Negotiation - Change	DGO1335	
QTGSCPLK	P-locks - Change Requests	DGO1319	
QTGSCSLM	Synchronous XES - Change Requests	DGO1321	
QTGSDRTA	Incompatible Retained Lock	DGO1327	Yes
QTGSFLSE	Suspensions - False Contention	DGO1326	
QTGSIGLO	Suspensions - IRLM Global Contention	DGO1324	
QTGSKIDS	Asynchronous XES - Resources	DGO1323	
QTGSLPLK	P-locks - Lock Requests	DGO1317	

Table 32. Statistics - Data Sharing Locking Activity (continued)

Field name	Field description	Help panel name	Exception
QTGSLSLM	Synchronous XES - Lock Requests	DGO1320	
QTGSNTFR	Notify Messages Received	DGO1329	
QTGSNTFY	Notify Messages Sent	DGO1328	
QTGSOTPE	P-lock Negotiation - Other	DGO1334	
QTGSPEMX	P-Lock/Notify Exists - Maximum Engines	DGO1330	
QTGSPEQW	P-locks/Notify Exists - Engines Unavailable	DGO1331	Yes
QTGSPGPE	P-lock Negotiation - Page	DGO1333	
QTGSPPPE	P-lock Negotiation - Pageset/Partition	DGO1332	
QTGSSGLO	Suspensions - Global Contention	DGO1325	
QTGSUPLK	P-locks - Unlock Requests	DGO1318	
QTGSUSLM	Synchronous XES - Unlock Requests	DGO1322	
SBUFFRAT	Buffer Pool Hit Ratio (%)	DGO1772	
SGLOBRAT	Global Contention Rate (%)	DGO1770	

Table 33. Statistics - DB2 Application Programming Interface

Field name	Field description	Help panel name	Exception
QWSDSCA	Abends	DGO0583	Yes
QWSDSCCO	Command Requests	DGO0585	
QWSDSCRA	READA Requests	DGO0586	
QWSDSCRS	READS Requests	DGO0587	
QWSDSCU	Unrecognized	DGO0584	
QWSDSCWR	WRITE Requests	DGO0588	
SDIFITOT	Total number of calls made to IFI	DGO0589	Yes

Table 34. Statistics - DB2 Commands

Field name	Field description	Help panel name	Exception
Q9STCTRA	Stop DB2	DGO0552	
Q9STCTRB	Term Utility	DGO0557	
Q9STCTRC	Display Trace	DGO0539	
Q9STCTRD	RESET GENERICLU	DGO1545	
Q9STCTRE	Start RLIMIT	DGO0548	
Q9STCTRF	Stop RLIMIT	DGO0553	
Q9STCTRG	DISPLAY RLIMIT	DGO0540	

Table 34. Statistics - DB2 Commands (continued)

Field name	Field description	Help panel name	Exception
Q9STCTRH	Modify Trace	DGO0555	
Q9STCTRI	Start DDF	DGO0549	
Q9STCTRJ	Stop DDF	DGO0554	
Q9STCTRK	Cancel DDF Thread	DGO0556	Yes
Q9STCTRL	Display Location	DGO0541	
Q9STCTRM	Archive Log	DGO0561	
Q9STCTRN	Alter Bufferpool	DGO0544	Yes
Q9STCTRO	Display Bufferpool	DGO0543	
Q9STCTRP	Set Archive	DGO0562	
Q9STCTRQ	Display Archive	DGO0542	
Q9STCTRR	Reset Indoubt	DGO0560	
Q9STCTRS	ALTER GROUPBUFFERPOOL	DGO1361	Yes
Q9STCTRT	DISPLAY GROUPBUFFERPOOL	DGO1360	
Q9STCTRU	DISPLAY PROCEDURE	DGO1456	
Q9STCTRV	START PROCEDURE	DGO1457	
Q9STCTRW	STOP PROCEDURE	DGO1458	
Q9STCTRX	DISPLAY GROUP	DGO1544	
Q9STCTR0	Display Database	DGO0536	
Q9STCTR1	Display Thread	DGO0537	
Q9STCTR2	Display Utility	DGO0538	
Q9STCTR3	Recover BSDS	DGO0558	
Q9STCTR4	Recover Indoubt	DGO0559	
Q9STCTR5	Start Database	DGO0545	
Q9STCTR6	Start Trace	DGO0546	Yes
Q9STCTR7	Start DB2	DGO0547	
Q9STCTR8	Stop Database	DGO0550	
Q9STCTR9	Stop Trace	DGO0551	
Q9STEROR	Unrecognized Commands	DGO0563	
SDSTTOTL	Total number of DB2 commands issued	DGO0564	Yes

Table 35. Statistics - DB2 Destination Data

Field name	Field description	Help panel name	Exception
SDIGTFNW	GTF Not Written	DGO0596	

Table 35. Statistics - DB2 Destination Data (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
SDIGTFRA	GTF Not Accepted	DGO0597	
SDIGTFWF	GTF Write Failure	DGO0598	
SDIGTFWR	GTF Written	DGO0595	
SDIOP1NW	OP1 Not Written	DGO0600	
SDIOP1RA	OP1 Not Accepted	DGO0601	
SDIOP1WR	OP1 Written	DGO0599	
SDIOP2NW	OP2 Not Written	DGO0603	
SDIOP2RA	OP2 Not Accepted	DGO0604	
SDIOP2WR	OP2 Written	DGO0602	
SDIOP3NW	OP3 Not Written	DGO0606	
SDIOP3RA	OP3 Not Accepted	DGO0607	
SDIOP3WR	OP3 Written	DGO0605	
SDIOP4NW	OP4 Not Written	DGO0609	
SDIOP4RA	OP4 Not Accepted	DGO0610	
SDIOP4WR	OP4 Written	DGO0608	
SDIOP5NW	OP5 Not Written	DGO0612	
SDIOP5RA	OP5 Not Accepted	DGO0613	
SDIOP5WR	OP5 Written	DGO0611	
SDIOP6NW	OP6 Not Written	DGO0615	
SDIOP6RA	OP6 Not Accepted	DGO0616	
SDIOP6WR	OP6 Written	DGO0614	
SDIOP7NW	OP7 Not Written	DGO0618	
SDIOP7RA	OP7 Not Accepted	DGO0619	
SDIOP7WR	OP7 Written	DGO0617	
SDIOP8NW	OP8 Not Written	DGO0621	
SDIOP8RA	OP8 Not Accepted	DGO0622	
SDIOP8WR	OP8 Written	DGO0620	
SDIRTTWR	RES Written	DGO0623	
SDISMFBF	SMF Buffer Overrun	DGO0593	Yes
SDISMFNW	SMF Not Written	DGO0591	
SDISMFRA	SMF Not Accepted	DGO0592	
SDISMFWF	SMF Write Failure	DGO0594	
SDISMFWR	SMF Written	DGO0590	
SDTOTNA	Total number of IFC records not accepted	DGO0626	Yes

Table 35. Statistics - DB2 Destination Data (continued)

Field name	Field description	Help panel name	Exception
SDTOTNW	Total number of IFC records not written	DGO0625	Yes
SDTOTW	Total number of IFC records succ. written	DGO0624	Yes
SDTOTWF	Total number of IFC write failures	DGO0628	Yes

Table 36. Statistics - DB2 Instrumentation

Field name	Field description	Help panel name	Exception
SDBSCRNW	System Parameters - Buffer Pools	DGO0578	
SDBSCRSW	System Parameters - Buffer Pools	DGO0577	
SDIACTN	Accounting (not written)	DGO0570	
SDIACTW	Accounting (written)	DGO0569	
SDIAUDN	Audit (not written)	DGO0580	
SDIAUDW	Audit (written)	DGO0579	
SDIDRRN	Database Related (not written)	DGO0568	
SDIDRRW	Database Related (written)	DGO0567	
SDISRRN	System Related (not written)	DGO0566	
SDISRRW	System Related (written)	DGO0565	
SDISTPN	Stop Trace (not written)	DGO0574	
SDISTPW	Stop Trace (written)	DGO0573	
SDISTRN	Start Trace (not written)	DGO0572	
SDISTRW	Start Trace (written)	DGO0571	
SDIZPMN	Dsnzparm (not written)	DGO0576	
SDIZPMW	Dsnzparm (written)	DGO0575	
SDTSCRNW	Total count of all DB2 records not written	DGO0582	Yes
SDTSCRSW	Total count of all DB2 records written	DGO0581	Yes

Table 37. Statistics - Distributed Data Facility - per Location

Field name	Field description	Help panel name	Exception
QLSTABRR	Rollbacks Received	DGO0650	
QLSTABRS	Rollbacks Sent	DGO0649	
QLSTBRBF	Blocks Received	DGO0660	Yes
QLSTBTBF	Blocks Sent	DGO0659	Yes
QLSTBYTR	Bytes Received	DGO0656	
QLSTBYTS	Bytes Sent	DGO0655	

Table 37. Statistics - Distributed Data Facility - per Location (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QLSTCNVQ	Conversations Queued	DGO0643	Yes
QLSTCNVR	Conversations Received	DGO0642	
QLSTCNVS	Conversations Sent	DGO0641	
QLSTCOMR	Commits Received	DGO0648	
QLSTCOMS	Commits Sent	DGO0647	
QLSTINDT	Thread Went Indoubt	DGO0675	Yes
QLSTLOCN	Remote Location	DGO0638	
QLSTMSGR	Messages Received	DGO0654	
QLSTMSGS	Messages Sent	DGO0653	
QLSTROWR	Rows Received	DGO0652	
QLSTROWS	Rows Sent	DGO0651	
QLSTSQLR	SQL Statements Received	DGO0646	Yes
QLSTSQLS	SQL Statements Sent	DGO0645	Yes

Table 38. Statistics - Distributed Data Facility - Global			
Field name	**Field description**	**Help panel name**	**Exception**
QDSTCNAT	Active DBATs - Currently	DGO1616	
QDSTCSTR	Cold Start Connections	DGO0762	Yes
QDSTHWAT	Active DBATs - high water mark	DGO1617	Yes
QDSTHWDT	Total DBATs - high water mark	DGO1618	Yes
QDSTQCIT	Inactive DBATs - Currently	DGO0760	
QDSTQCRT	Conversions Deallocated-Maximum Connected	DGO0759	
QDSTQDBT	DBAT Queued-Maximum Active	DGO0758	Yes
QDSTQMIT	Inactive DBATs - HWM	DGO0761	Yes
QDSTRSAT	Resynchronization Attempted	DGO0764	Yes
QDSTRSSU	Resynchronization Succeeded	DGO0765	Yes
QDSTWSTR	Warm Start Connections	DGO0763	Yes

Table 39. Statistics - EDM Pool Activity			
Field name	**Field description**	**Help panel name**	**Exception**
QISECT	Pages Used for CT	DGO0402	
QISECTG	Requests for CT Sections	DGO0408	
QISECTL	CT Section Not Found In EDM Pool	DGO0409	Yes

Table 39. Statistics - EDM Pool Activity (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QISEDBD	Pages Used for DBD	DGO0403	
QISEDBDG	Requests for DBD Sections	DGO0414	
QISEDBDL	DBD Section Not Found In EDM Pool	DGO0415	Yes
QISEDYNI	Inserts for Dynamic Cache	DGO1825	
QISEDYNP	Pages Used for Cache	DGO1827	
QISEDYNR	Requests for Dynamic Cache Section	DGO1826	
QISEFAIL	EDM Pool Full	DGO0407	Yes
QISEFREE	Free Pages In Free Chain	DGO0401	
QISEKT	Pages Used for PT	DGO0405	
QISEKTG	Requests for PT Sections	DGO0411	
QISEKTL	PT Sections Not Found In EDM Pool	DGO0412	Yes
QISESKCT	Pages Used for Skct	DGO0404	
QISESKPT	Pages Used for Skpt	DGO0406	
QXSTDEXP	Kept Dynamic Statement Discarded	DGO1823	
QXSTDINV	Dynamic Cache Statement Purged	DGO1824	
QXSTFND	Prepares Satisfied	DGO1819	
QXSTIPRP	Prepares Implicit	DGO1821	
QXSTNFND	Prepares Received	DGO1820	
QXSTNPRP	Prepares Avoided	DGO1822	
SERBUTP	EDM Pool Pages In Use (%)	DGO0400	
SERCTLR	CT Requests / CT Not In EDM Pool	DGO0410	Yes
SERDBLR	DBD Requests / DBD Not In EDM Pool	DGO0416	Yes
SERPTLR	PT Requests / PT Not In EDM	DGO0413	Yes

Table 40. Statistics - Global Group Buffer Pool Statistics			
Field name	**Field description**	**Help panel name**	**Exception**
QBGBGCK	Checkpoint Interval (Minutes)	DGO1587	
QBGBGCT	Class Castout Threshold (%)	DGO1585	
QBGBGDR	Actual Directory Entries	DGO1588	
QBGBGDT	Actual Data Entries	DGO1589	
QBGBGGT	Buffer Pool Castout Threshold (%)	DGO1586	
QBGBGR1	Current Directory to Data Ratio	DGO1584	
QBGBGR2	Pending Directory to Data Ratio	DGO1590	

Table 40. Statistics - Global Group Buffer Pool Statistics (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QBGBGSZ	Allocated Buffer Pool Size (4k)	DGO1583	
QW0254CC	Castout	DGO1575	Yes
QW0254DE	Directory Entry	DGO1576	Yes
QW0254DR	Directory Entry Reclaim	DGO1571	Yes
QW0254GN	Group Buffer Pool Name	DGO1562	
QW0254RD	Read Miss Directory Hit	DGO1565	Yes
QW0254RF	Read Miss Cache Full	DGO1567	Yes
QW0254RH	Read Hit	DGO1563	Yes
QW0254RN	Read Miss Name Assignment	DGO1566	Yes
QW0254RS	Read Miss Assignment Suppressed	DGO1564	Yes
QW0254TC	Total Changed	DGO1578	Yes
QW0254TE	Data Entry	DGO1577	Yes
QW0254TR	Data Entry Reclaim	DGO1570	Yes
QW0254WC	Clean Page Write Hit	DGO1569	Yes
QW0254WF	Write Miss Cache Full	DGO1572	Yes
QW0254WH	Changed Page Write Hit	DGO1568	Yes
QW0254XR	XI Directory Entry Reclaim	DGO1573	Yes

Table 41. Statistics - Group Buffer Pools Activity			
Field name	**Field description**	**Help panel name**	**Exception**
QBGLAC	Clean Pages Written Asynchronously	DGO1356	Yes
QBGLAD	Asynchronous Reads - Data Returned	DGO1342	Yes
QBGLAN	Asynchronous reads - No read/write interest	DGO1344	
QBGLAW	Changed Pages Written Asynchronously	DGO1346	Yes
QBGLAX	Register page list request	DGO1656	Yes
QBGLAY	Changed pages - Read after register page list	DGO1657	Yes
QBGLAZ	Clean pages - Read after register page list	DGO1658	Yes
QBGLCC	Read Castout Class	DGO1731	
QBGLCK	GBP Checkpoints Triggered	DGO1733	
QBGLCN	Castout Engine Unavailable	DGO1350	Yes
QBGLCS	Read Castout Statistics	DGO1732	
QBGLCT	Castout Class Threshold	DGO1348	Yes
QBGLDG	Unregister Page	DGO1729	

Table 41. Statistics - Group Buffer Pools Activity (continued)

Field name	Field description	Help panel name	Exception
QBGLDN	Delete Name	DGO1726	
QBGLGN	Group Bufferpool ID	DGO1366	
QBGLGT	Group Bufferpool Castout Threshold	DGO1349	Yes
QBGLMD	Synchronous Reads Not Found - Data Returned	DGO1339	Yes
QBGLMN	Synchr. Reads Not Found - No R/W Interest	DGO1341	
QBGLMR	Sync. Read (Not Found) - No Data Returned	DGO1340	
QBGLOS	Read Storage Statistics	DGO1760	
QBGLRB	Participation in GBP Rebuild	DGO1734	
QBGLRC	Pages Castout	DGO1347	Yes
QBGLRD	Read Directory Info	DGO1727	
QBGLRF	Read Failed - No Storage	DGO1352	Yes
QBGLRG	Register Page	DGO1728	
QBGLSU	Write Engine Unavailable	DGO1351	Yes
QBGLSW	Changed Pages Written Synchronously	DGO1345	Yes
QBGLUN	Unlock Castout	DGO1730	
QBGLWC	Clean Pages Written Synchronously	DGO1355	Yes
QBGLWF	Write Failed - No Storage	DGO1353	Yes
QBGLXD	Synchr. Reads Cross Valid. - Data Returned	DGO1336	Yes
QBGLXN	Synchr. Reads Cross Valid. - No R/W Interest	DGO1338	
QBGLXR	Synchronous Read (XI) - No Data Returned	DGO1337	

Table 42. Statistics - Locking Activity

Field name	Field description	Help panel name	Exception
QTXACHG	Change Requests	DGO0480	
QTXACLNO	Claim Requests	DGO0486	
QTXACLUN	Unsuccessful Claim Requests	DGO0487	Yes
QTXADEA	Deadlocks	DGO0476	Yes
QTXADRNO	Drain Requests	DGO0484	
QTXADRUN	Unsuccessful Drain Requests	DGO0485	Yes
QTXAIRLM	Other Requests	DGO0481	
QTXALES	Lock Escalation (shared)	DGO0482	Yes
QTXALEX	Lock Escalation (exclusive)	DGO0483	Yes
QTXALOCK	Lock Requests	DGO0477	

Table 42. Statistics - Locking Activity (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QTXAQRY	Query Requests	DGO0479	
QTXASLAT	Suspensions (latch only)	DGO0473	
QTXASLOC	Suspensions (lock only)	DGO0472	Yes
QTXASOTH	Suspensions (other)	DGO0474	
QTXATIM	Timeouts	DGO0475	Yes
QTXAUNLK	Unlock Requests	DGO0478	
SLCLKET	Lock Escalations	DGO0768	Yes
SLRLCRLS	Lock and Change Requests per Lock Suspension	DGO0808	
SLRSUSP	Suspensions (all)	DGO0471	Yes

Table 43. Statistics - Log Activity			
Field name	**Field description**	**Help panel name**	**Exception**
QJSTALR	Archive Log Read Allocations	DGO0519	
QJSTALW	Archive Log - Write Allocations	DGO0520	
QJSTBFFL	Control Intervals Created	DGO0518	
QJSTBFWR	Write Output Log Buffers	DGO0515	
QJSTBSDS	Total BSDS Access Request	DGO0516	
QJSTCIOF	Archive Log - Control Intervals Offloaded	DGO0807	
QJSTLAMA	Look Ahead Mounts Attempted	DGO0512	
QJSTLAMS	Look Ahead Mount Successful	DGO0513	
QJSTRACT	Reads Satisfied - Active Log	DGO0505	Yes
QJSTRARH	Reads Satisfied - Archive Log	DGO0507	Yes
QJSTRBUF	Reads Satisfied - Output Buffer	DGO0503	Yes
QJSTTVC	Reads Delayed - Tape Volume Contention	DGO0510	Yes
QJSTWRNW	Write-no-wait	DGO0514	
QJSTWTB	Unavailable Output Log Buffers	DGO0517	Yes
QJSTWUR	Reads Delayed - Unavailable Resource	DGO0511	Yes
SARLRACT	Reads Satisfied - Active Log(%)	DGO0506	
SARLRARC	Reads Satisfied - Archive Log(%)	DGO0508	
SARLRBUF	Reads Satisfied - Output Buffer(%)	DGO0504	
SARWBAC	Out Log Buf Writes / Act. Log Cntl I'val	DGO0806	Yes

Table 44. Statistics - Miscellaneous

Field name	Field description	Help panel name	Exception
QISTCOLS	Columns Bypassed	DGO0770	
QWSDLR	Log RBA	DGO0636	
QWSDRINV	Reason Invoke	DGO0637	

Table 45. Statistics - Open/Close Activity

Field name	Field description	Help panel name	Exception
QTDSDRN	Data Sets Closed Threshold Reached	DGO0426	Yes
QTDSOPN	Open Data Sets - Current	DGO0418	Yes
QTMAXDS	Open Data Sets - HWM	DGO0417	Yes
QTMAXPB	Open Data Sets - Not In Use, Not Closed (HWM)	DGO0422	Yes
QTPCCT	Data Sets Converted R/W To R/O	DGO0755	Yes
QTREOPN	Successful Logical Reopens	DGO0429	
QTSLWDD	Open DSs - Not In Use, Not Closed (current)	DGO0420	Yes
SDINUSEC	Open Data Sets In Use	DGO0757	Yes

Table 46. Statistics - Plan/Package Processing

Field name	Field description	Help panel name	Exception
QTABIND	Autobind Plan Successful	DGO0442	Yes
QTABINDA	Autobind Plan Attempts	DGO0441	Yes
QTALLOC	Plan Allocation Successful	DGO0431	
QTALLOCA	Plan Allocation Attempts	DGO0430	
QTAUTOBA	Auto Bind Package Attempts	DGO0444	Yes
QTBINDA	Bind Plan Add Subcommands	DGO0435	
QTBINDPA	Bind Package Add Subcommand	DGO0439	
QTBINDPR	Bind Package Replace Subcommand	DGO0440	
QTBINDR	Bind Plan Replace Subcommands	DGO0436	
QTFREE	Free Plan Subcommands	DGO0452	
QTFREEA	Free Plan Attempts	DGO0453	
QTFREEAP	Free Package Attempts	DGO0456	
QTFREEP	Free Package Subcommands	DGO0455	
QTINVRID	Autobind Plan Invalid Resource ID	DGO0443	Yes
QTPKABND	Auto Bind Packages Successful	DGO0445	Yes
QTPKALL	Package Allocation Successful	DGO0433	

Table 46. Statistics - Plan/Package Processing (continued)

Field name	Field description	Help panel name	Exception
QTPKALLA	Package Allocation Attempts	DGO0432	
QTPKGBD	Packages Bound	DGO0438	
QTPKGFRD	Free Package Successful	DGO0457	
QTPKGRBD	Rebind Package Successful	DGO0451	
QTPLNBD	Plans Bound	DGO0434	
QTPLNFRD	Free Plan Successful	DGO0454	
QTPLNRBD	Rebind Plan Successful	DGO0448	
QTRBINDA	Rebind Plan Attempts	DGO0447	
QTRBINDP	Rebind Package Subcommands	DGO0449	
QTRBNDPA	Rebind Package Attempts	DGO0450	
QTREBIND	Rebind Plan Subcommands	DGO0446	
QTTESTB	Test Binds No Plan-ID	DGO0437	

Table 47. Statistics - Query Parallelism

Field name	Field description	Help panel name	Exception
QXCOORNO	One DB2 - COORDINATOR Parm = NO	DGO1672	
QXDEGBUF	Fall To Sequential Mode (no buffer)	DGO0327	Yes
QXDEGCUR	Fall To Sequential Mode Cursor	DGO0748	Yes
QXDEGESA	Fall To Sequential Mode No ESA	DGO0747	Yes
QXISORR	One DB2 - Isolation Level	DGO1673	
QXMAXDEG	Maximum Degree of Parallelism	DGO0326	
QXNORGRP	Planned Parallel Degree	DGO0329	
QXREDGRP	Reduced Parallel Degree	DGO0328	Yes
QXTOTGRP	Parallel Groups Executed	DGO0749	
SDTOTPFL	Parallel Fall To Sequential	DGO0746	Yes
SXXCRAT	Member Skipped (%)	DGO1798	

Table 48. Statistics - RID List Processing

Field name	Field description	Help panel name	Exception
QISTRCUR	RID Blocks Allocated - Current	DGO0466	
QISTRHIG	RID Blocks Allocated - Maximum	DGO0465	Yes
QISTRLLM	Terminated - RDS Limit Exceeded	DGO0468	Yes
QISTRMAX	Terminated - Process Limit Exceeded	DGO0470	Yes

Table 48. Statistics - RID List Processing (continued)

Field name	Field description	Help panel name	Exception
QISTRPLM	Terminated - DM Limit Exceeded	DGO0469	Yes
QISTRSTG	Terminated - No Storage	DGO0467	Yes
SRTTERM	Number of Times RID List Processing Not Used	DGO0767	Yes

Table 49. Statistics - SQL Activity (DCL)

Field name	Field description	Help panel name	Exception
QXALOCC	Allocate Cursor	DGO1740	
QXALOCL	Associate Locators	DGO1739	
QXCON1	Connect Type 1	DGO0296	
QXCON2	Connect Type 2	DGO0297	
QXGRANT	Grant	DGO0292	
QXLOCK	Lock Table	DGO0291	
QXREL	Release	DGO0298	
QXREVOK	Revoke	DGO0293	
QXSETCDG	Set Current Degree	DGO0742	
QXSETCON	Set Connection	DGO0299	
QXSETCRL	Set Current Rules	DGO1357	
QXSETHV	Set Host Variable	DGO0295	
QXSETSQL	Set Current SQLID	DGO0294	
SSCDCL	Total DCL	DGO0300	Yes

Table 50. Statistics - SQL Activity (DDL)

Field name	Field description	Help panel name	Exception
QXALDAB	Alter Database	DGO0312	
QXALTIX	Alter Index	DGO0310	
QXALTST	Alter Stogroup	DGO0313	
QXALTTA	Alter Table	DGO0309	
QXALTTS	Alter Tablespace	DGO0311	
QXCMTON	Comment On	DGO0323	
QXCRALS	Create Alias	DGO0308	
QXCRDAB	Create Database	DGO0306	
QXCRGTT	Temp. Table	DGO1671	
QXCRINX	Create Index	DGO0302	

Table 50. Statistics - SQL Activity (DDL) (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
QXCRSTG	Create Stogroup	DGO0307	
QXCRSYN	Create Synonym	DGO0304	
QXCRTAB	Create Table	DGO0301	
QXCTABS	Create Tablespace	DGO0305	
QXDEFVU	Create View	DGO0303	
QXDRPAL	Drop Alias	DGO0321	
QXDRPDB	Drop Database	DGO0319	
QXDRPIX	Drop Index	DGO0315	
QXDRPPKG	Drop Package	DGO0322	
QXDRPST	Drop Stogroup	DGO0320	
QXDRPSY	Drop Synonym	DGO0317	
QXDRPTA	Drop Table	DGO0314	
QXDRPTS	Drop Tablespace	DGO0318	
QXDRPVU	Drop View	DGO0316	
QXLABON	Label On	DGO0324	
QXRNTAB	Rename Table	DGO1828	
SDTOTALT	Alters	DGO0743	
SDTOTCRT	Creates	DGO0745	
SDTOTDRP	Drops	DGO0744	
SSCDDL	Total DDL	DGO0325	Yes

Table 51. Statistics - SQL Activity (DML)			
Field name	**Field description**	**Help panel name**	**Exception**
QXCLOSE	Close Cursor	DGO0288	
QXDELET	Delete	DGO0283	
QXDESC	Describe	DGO0285	
QXDSCRTB	Describe Table	DGO0286	
QXFETCH	Fetch	DGO0289	
QXINSRT	Insert	DGO0281	
QXOPEN	Open Cursor	DGO0287	
QXPREP	Prepare	DGO0284	
QXSELECT	Select	DGO0280	
QXUPDTE	Update	DGO0282	

Table 51. Statistics - SQL Activity (DML) (continued)

Field name	Field description	Help panel name	Exception
SSCDML	Total DML	DGO0290	Yes

Table 52. Statistics - SQL Nested Activity

Field name	Field description	Help panel name	Exception
QXCALL	Call Statements Executed	DGO1358	
QXCALLAB	Procedure Abends	DGO1363	Yes
QXCALLRJ	Call Statement Rejected	DGO1365	Yes
QXCALLTO	CALL Statement Timeouts	DGO1364	Yes

Table 53. Statistics - Subsystem Services

Field name	Field description	Help panel name	Exception
QWSDCKPT	System Event Checkpoint	DGO0535	Yes
Q3STABRT	Rollback	DGO0525	Yes
Q3STCOMM	Commits Phase 2	DGO0527	
Q3STCTHD	Create Thread	DGO0522	Yes
Q3STCTHW	Queued At Create Thread	DGO0532	Yes
Q3STIDEN	Identify	DGO0521	
Q3STINDT	Units of Recovery Gone Indoubt	DGO0529	Yes
Q3STMEOM	Subsystem Allied Memory End of Memory	DGO0534	Yes
Q3STMEOT	Subsystem Allied Memory End of Task	DGO0533	Yes
Q3STPREP	Commits Phase 1	DGO0526	
Q3STRDON	Commits Read Only	DGO0528	
Q3STRIUR	Units of Recovery Indoubt Resolved	DGO0530	
Q3STSIGN	Signon	DGO0523	Yes
Q3STSYNC	Synchs (single phase commit)	DGO0531	
Q3STTERM	Terminate	DGO0524	

Table 54. Statistics - Times

Field name	Field description	Help panel name	Exception
SDDFSRBT	DDF Address Space SRB Time	DGO0498	
SDDFTCBT	DDF Address Space TCB Time	DGO0497	
SDDFTOTT	DDF Address Space Total Time	DGO0499	Yes
SDISRBT	IRLM SRB Time	DGO0495	

Table 54. Statistics - Times (continued)			
Field name	**Field description**	**Help panel name**	**Exception**
SDITCBT	IRLM TCB Time	DGO0494	
SDITOTT	IRLM Total Time	DGO0496	Yes
SDSRBT	Database Services SRB Time	DGO0492	
SDTCBT	Database Services TCB Time	DGO0491	
SDTLSRBT	Total	DGO0501	
SDTLTCBT	Total	DGO0500	
SDTLTOTT	Total	DGO0502	
SDTOTT	Database Services Total Time	DGO0493	Yes
SSSRBT	System Services SRB Time	DGO0489	
SSTCBT	System Services TCB Time	DGO0488	
SSTOTT	System Services Total Time	DGO0490	Yes

Table 55. System Parameters - Application Programming Defaults		
Field name	**Field description**	**Help panel name**
QWPBAGID	ASCII GBCS CCSID	DGO1741
QWPBAMID	ASCII MBCS CCSID	DGO1742
QWPBAR	Default Decimal Arithmetic	DGO1748
QWPBASID	ASCII SBCS CCSID	DGO1743
QWPBCHAR	Default Character Set	DGO1763
QWPBDATE	Date Format	DGO1755
QWPBDE	Decimal Point Option	DGO1747
QWPBDL	Default Delimiter	DGO1749
QWPBDLEN	Local Date Length	DGO1757
QWPBDSD	Distributed SQL String Delimiter	DGO1754
QWPBENS	Default Encoding Scheme	DGO1750
QWPBGID	EBCDIC GBCS CCSID	DGO1744
QWPBGRA	Default Mixed Graphic	DGO1752
QWPBLANG	Default Host Language	DGO1751
QWPBMID	EBCDIC MBCS CCSID	DGO1745
QWPBSDL	Default SQL Delimiter	DGO1753
QWPBSID	EBCDIC SBCS CCSID	DGO1746
QWPBSQL	SQL Language Support Level	DGO1759
QWPBTIME	Time Format	DGO1756
QWPBTLEN	Local Time Length	DGO1758

Table 55. System Parameters - Application Programming Defaults (continued)		
Field name	**Field description**	**Help panel name**
QWP4CDEG	Current Degree (CDSSRDEF)	DGO1659
QWP4CDYN	Cache Dynamic SQL Statements	DGO1809
QWP4RCHL	Release Cursor Hold Locks	DGO1814

Table 56. System Parameters - Archive Log Installation Parameters		
Field name	**Field description**	**Help panel name**
QWP2ADL	Number of Copies	DGO1416
QWP2ARCL	Maximum Data Sets Recorded In BSDS	DGO1242
QWP2MRTU	Maximum Read Tape Units	DGO1248
QWP3BKSZ	Archive Log Block Size	DGO1251
QWP3COMP	Compact Data	DGO1252
QWP3CTLG	Catalog Archive Data Sets	DGO1253
QWP3CYL	Space Allocation Method	DGO1420
QWP3DTIM	Timestamp Archive Log Data Sets	DGO1254
QWP3MQP	Quiesce Period (seconds)	DGO1255
QWP3MSV1	Archive Copy 1 Mass Storage Group Name	DGO1256
QWP3MSV2	Archive Copy 2 Mass Storage Group Name	DGO1257
QWP3RETN	Days To Retain Archive Log Data Sets	DGO1258
QWP3RE1N	Copy 1 Prefix	DGO1259
QWP3RE2N	Copy 2 Prefix	DGO1260
QWP3RISP	Primary Space	DGO1261
QWP3SECS	Secondary Space	DGO1263
QWP3UNT1	Copy 1 Archive Log Device Type	DGO1264
QWP3UNT2	Copy 2 Archive Log Device Type	DGO1419
QWP3WTOR	Issue WTOR Before Mount for Archive Volume	DGO1265
ZWP2TIME	Tape Unit Deallocation Period	DGO1424

Table 57. System Parameters - Buffer Pool Information Page		
Field name	**Field description**	**Help panel name**
QDBPCAST	Castout Attribute	DGO1210
QDBPDWQT	Deferred Write Threshold	DGO1211
QDBPNM	Buffer Pool Name	DGO1214
QDBPPSQT	Parallel Sequential Threshold	DGO1215
QDBPVDQT	Vertical Deferred Write Threshold	DGO1216
QDBPVPSH	Virtual Sequential Threshold	DGO1217

Table 57. System Parameters - Buffer Pool Information Page (continued)		
Field name	**Field description**	**Help panel name**
QDBPVPSZ	Virtual Pool Size	DGO1218
QDBPXSQT	Assisting Parallel Sequential Threshold	DGO1660

Table 58. System Parameters - Data Definition Control Support		
Field name	**Field description**	**Help panel name**
QWP4ESC	Escape Character	DGO1273
QWP4REGA	Application Registration Table	DGO1286
QWP4REGC	Register Table Owner	DGO1287
QWP4REGD	Control All Applications	DGO1288
QWP4REGI	Install DD Control	DGO1289
QWP4REGN	DDL Registration Database Name	DGO1290
QWP4REGO	Object Registration Table	DGO1291
QWP4REGQ	Require Full Names	DGO1292
QWP4REGU	Unregistered DDL Default	DGO1293

Table 59. System Parameters - Data Installation Parameters		
Field name	**Field description**	**Help panel name**
QWP6CATN	Icf Catalog Qualifier	DGO1303

Table 60. System Parameters - Data-Sharing Parameters		
Field name	**Field description**	**Help panel name**
QWPAASST	Parallelism Assistant	DGO1780
QWPACOOR	Query coordinator	DGO1675
QWPAGRPN	Group name	DGO1455
QWPAIOPT	Data sharing enabled	DGO1548
QWPAMAXM	Maximum number of members	DGO1549
QWPAMBRN	Member name	DGO1547
QWPASUCV	SU conversion factor	DGO1676

Table 61. System Parameters - Distributed Data Facility Parameters		
Field name	**Field description**	**Help panel name**
QWP1SCER	Extended Security	DGO1674
QWP4HOP	Hop Site Authorization	DGO1274
QWP9CMST	DBAT Status	DGO1304
QWP9RLFN	Resource Limit Spec. Table Error Action (DDF)	DGO1305
QWP9RYC	Resynchronization Interval (minutes)	DGO1306

Table 61. System Parameters - Distributed Data Facility Parameters (continued)		
Field name	**Field description**	**Help panel name**
QWP9STRT	DB2 Startup Option	DGO1307
QWP9TTO	Idle Thread Timeout Interval	DGO1435

Table 62. System Parameters - Group Buffer Pools Parameters Page		
Field name	**Field description**	**Help panel name**
QBGBGAS	AUTOREC (automatic recovery)	DGO1725
QBGBGDR	Actual Directory Entry	DGO1559
QBGBGDT	Actual Data Entry	DGO1560
QBGBGR2	Pending Directory to Data Ratio	DGO1561
QBGBGSZ	Allocated Buffer Pool Size (4K)	DGO1558

Table 63. System Parameters - IRLM Installation Parameters		
Field name	**Field description**	**Help panel name**
QWP4IAUT	Automatic Start	DGO1405
QWP4IPRC	Start Procedure Name	DGO1276
QWP4ISID	Subsystem Name	DGO1277
QWP4ISWT	Time DB2 Will Wait for Start (seconds)	DGO1278
QWP4TOUT	Resource Timeout (seconds)	DGO1299
QWP4UTO	Utility Timeout Factor	DGO1300

Table 64. System Parameters - Lock Escalation Parameters		
Field name	**Field description**	**Help panel name**
QWP4LKTS	Maximum Locks per Table Space	DGO1279
QWP4LKUS	Maximum Locks per User	DGO1280
QWP4WAIT	Wait For Retained Locks	DGO1738

Table 65. System Parameters - Log Installation Parameters		
Field name	**Field description**	**Help panel name**
QWP2DUAL	Number of Copies	DGO1431
QWP2IBPS	Input Buffer Size (KB)	DGO1246
QWP2OBPS	Output Buffer Size (KB)	DGO1249
QWP2WRTH	Write Threshold On Filled Buffers	DGO1250

Table 66. System Parameters - Operator Functions Installation Parameters		
Field name	**Field description**	**Help panel name**
QWP1RLF	Resource Limit Facility Automatic Start	DGO1228
QWP1RLFN	Resource Limit Spec. Table Error Action	DGO1230

Table 66. System Parameters - Operator Functions Installation Parameters (continued)		
Field name	**Field description**	**Help panel name**
QWP1RLFT	Resource Limit Specification Table Suffix	DGO1231
QWP1SMRC	WTO Route Codes	DGO1236
QWP4ABN	Allow Autobind Operations	DGO1266
QWP4ABX	Allow Explain At Autobind	DGO1267
QWP4ENF	DPROP Support	DGO1404
QWP4SIT	Site Type	DGO1296
QWP9TCPA	TCP/IP Already Verified	DGO1761

Table 67. System Parameters - Other System Parameters		
Field name	**Field description**	**Help panel name**
MZDBSTRT	Databases and Table Spaces	DGO1208
QWP1DFRQ	Checkpoints Level ID Updates	DGO1434
QWP2DBSD	Dual BSDS Mode	DGO1243
QWP4DSMX	Maximum Open Data Sets (DSMAX)	DGO1271
QWP4DSST	Static describe (DESCSTAT)	DGO1701
QWP4ISWI	IRLM Initial Inquiry by DB2	DGO1433
QWP4MDDN	Asynchronous Drain Stop (%DSMAX)	DGO1281
QWP4TDDN	Asynchronous Drain Start (%DSMAX)	DGO1298
QWP4WBMP	IMS/BMP time-out factor (BMPTOUT)	DGO1669
QWP4WDLI	IMS/DLI time-out factor (DLITOUT)	DGO1670
XWP4CDEG	Current Degree (CDSSRDEF)	DGO1859

Table 68. System Parameters - Protection Installation Parameters		
Field name	**Field description**	**Help panel name**
QWP1RLFA	Resource Limit Table Creator Authid	DGO1229
QWP3RTCT	RACF Protect Archive Log	DGO1262
QWP4ADM2	System Administrator 2 Authid	DGO1268
QWP4AUCA	Plan Authorization Cache Size	DGO1428
QWP4AUTH	DB2 Authorization Enabled	DGO1269
QWP4BNVA	Bind New Version	DGO1430
QWP4DFID	Default (unknown) User Authid	DGO1270
QWP4OPR1	System Operator 1 Authid	DGO1283
QWP4OPR2	System Operator 2 Authid	DGO1284
QWP4PAC	Package Authorization Cache Size	DGO1779
QWP4SADM	System Administrator 1 Authid	DGO1294

Table 69. System Parameters - Storage Sizes Installation Parameters		
Field name	**Field description**	**Help panel name**
QWP1CDB	Maximum Remote	DGO1220
QWP1CT	Maximum Concurrent Threads	DGO1221
QWP1IDB	Maximum Batch	DGO1223
QWP1IDF	Maximum TSO	DGO1224
QWP1RMT	Maximum Remote Active	DGO1232
QWP4EDPL	Maximum Size of EDM Pool	DGO1272
QWP4IXTP	Default Index Type	DGO1546
QWP4MXKD	Maximum Kept Dynamic Statements	DGO1810
QWP4PST	Utility Cache Option	DGO1766
QWP4RMAX	Maximum Size of RID Pool	DGO1396
QWP4SCAC	3990 Cache	DGO1295
QWP4SPOL	Maximum Size of Sort Pool	DGO1297

Table 70. System Parameters - Stored Procedures Parameters		
Field name	**Field description**	**Help panel name**
QWP1SPAB	Abends Allowed	DGO1437
QWP1SPPN	MVS Procedure Name	DGO1436
QWP1SPTO	Timeout Value	DGO1438

Table 71. System Parameters - Tracing, Checkpoint and Pseudo-Close Parameters		
Field name	**Field description**	**Help panel name**
QWP1AUDT	Start Audit Trace	DGO1219
QWP1FREQ	Pseudo-Close Frequency	DGO1222
QWP1LOGL	Checkpoint Frequency	DGO1225
QWP1MON	Start Monitor Trace	DGO1226
QWP1MONS	Monitor Buffer Size (bytes)	DGO1227
QWP1SMFA	Start SMF Accounting	DGO1234
QWP1SMFS	Start SMF Statistics Trace	DGO1235
QWP1STIM	Statistics Interval (minutes)	DGO1237
QWP1TMR	Pseudo-Close Timer	DGO1238
QWP1TRST	Start Global Trace	DGO1239
QWP1TRSZ	Trace Table Size (4 KB multiple)	DGO1240
QWP1URCK	UR Check Frequency	DGO1712

OMEGAMON Collector purpose and function

The OMEGAMON Collector executes as a started task address space. The purpose of the OMEGAMON Collector is to support functions that are not suited to a TSO address space.

The following functions are available if the OMEGAMON Collector is installed and active at your site:

- Viewing past data
- Periodic exception processing while you are not logged on
- Exception event processing
- Collection of parallel tasks for query CP parallelism

There is one OMEGAMON Collector for all DB2 subsystems.

Viewing past data

Before you can view past data, the OMEGAMON Collector needs to be active so that instrumentation data can be gathered.

This data is gathered by the OMEGAMON Collector at installation-defined intervals. You can specify the types of data (IFCIDs) gathered and the interval at which the data is collected using the OMEGAMON Collector parameters. The data gathered is written to a VSAM history data set or data space where it can be later retrieved and browsed using the HISTORY command.

You can qualify the thread activity data gathered by the OMEGAMON Collector to reduce unnecessary system overhead and to limit the quantity of data stored using the OMEGAMON Collector parameters.

For more information, see *IBM Db2 for z/OS in the IBM Knowledge Center*.

Periodic exceptions

With the OMEGAMON Collector active, you can log off the system while periodic exception processing is running. Any periodic exception messages issued while you are offline are gathered by the OMEGAMON Collector and are written to the periodic exceptions list, where they can be examined by using the LOOK command. You are notified of any periodic exceptions when you log on to your TSO system the next time.

Exception events

With exception event processing, you can monitor the DB2 subsystem for the presence of specific events. When a specified event occurs and is detected, you are notified by the Exception Notification window.

You can log off the system while exception event processing is running. Any exception event messages issued while you are offline are gathered by the OMEGAMON Collector and are written to the exception event list, where they can be examined by using the LOOK command. You are notified of any exception events when you log on to your TSO system the next time.

You can specify the exception event traces to start during OMEGAMON Collector startup using the OMEGAMON Collector parameters. For more information, see *IBM Db2 for z/OS in the IBM Knowledge Center*.

Collection of parallelism data

The data that the Online Monitor shows for threads that exploit utility parallelism or query CP parallelism comes from three different sources:

1. The originating task
2. All currently active parallel tasks
3. All parallel tasks that have finished processing

While the first two types of data are readily available from DB2, the third type has to be stored and administered separately. This is accomplished by the OMEGAMON Collector if it has been set up to do so. See parameter COLLECTCPUPARALLEL or CCP in *IBM Db2 for z/OS in the IBM Knowledge Center*.

If your DB2 system exploits query CP parallelism, set CCP to YES to enable the OMEGAMON Collector to collect the parallel tasks that have finished processing. Otherwise, the performance data shown by the Online Monitor for a thread might not be correct, because it does not include all parallel tasks of that thread.

Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support

If you want to use Performance Expert Client, the SQL Dashboard, the end-to-end SQL or stored procedure monitoring support, you must enable the host data collector started task to listen on a specific TCP/IP port.

The SQL Dashboard allows you to monitor all dynamic and static SQL statements executed on DB2 for z/OS. The stored procedure monitoring allows you to see the overall execution but also to drill down into stored procedure nested SQL activities as well as information where stored procedures are used.

With the end-to-end SQL monitoring, distributed SQL statement execution can be monitored, as well as stored procedures called via DDF.

The three dashboards are using the InfoSphere Optim web user interface and its infrastructure with direct communication with the host data collector address space.

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

To enable Performance Expert Client, the SQL Dashboard, the end-to-end SQL or stored procedure monitoring to communicate with the data collector, set parameter **KD2_OMPE_PE_SUPPORT** or parameter **KD2_OMPE_E2E_MON_SPRT** to Y in the PARMGEN user profile. If you want to make further changes to Performance Expert Client support and/or end-to-end SQL or stored procedure monitoring support, refer to the related parameters in section "Basic product parameters" in the *Parameter Reference*.

Here is a list of the related parameters:

- KD2_OMPE_TCPIP_NAME
- KD2_OMPE_TCPIP_ADDRESS
- KD2_OMPE_MAX_SESSIONS

After you have enabled Performance Expert Client support and/or end-to-end SQL or stored procedure monitoring support, you must perform the following tasks:

- You have to specify a separate port for each DB2 subsystem if the Performance Expert Client or end-to-end SQL or stored procedure monitoring is enabled, otherwise there will be errors in the log. See “Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring” on page 136.
- Ensure that the OMEGAMON Collector is configured to use TCP/IP services. See “Setting up TCP/IP services for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring” on page 63 for detailed information.
- Install Performance Expert Client or end-to-end SQL or stored procedure monitoring on the workstation. For Performance Expert Client, see “Installing and configuring Performance Expert Client” on page 165 for more information. For end-to-end SQL or stored procedure monitoring, see “Installing and configuring end-to-end SQL or stored procedure monitoring” on page 430 for more information.

Enabling IBM Tivoli Monitoring

IBM Tivoli Monitoring (ITM) monitors and manages system and network applications and monitors the availability and performance of all parts of your enterprise. IBM Tivoli Monitoring also provides reports that you can use to track trends and troubleshoot problems.

IBM Tivoli Monitoring consists of the following components:

- Tivoli Enterprise Monitoring Agent. The Tivoli Enterprise Monitoring Agent for OMEGAMON for Db2 PE is the OMEGAMON Agent.
- Tivoli Enterprise Monitoring Server
- Tivoli Enterprise Portal Server
- Tivoli Enterprise Portal
- IBM Eclipse Help Server
- Tivoli Data Warehouse

To use IBM Tivoli Monitoring, you must install Tivoli Enterprise Monitoring Server, Tivoli Enterprise Monitoring Agent, and Tivoli Enterprise Monitoring Server application support. Additionally, you must install Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and IBM Eclipse Help Server on the workstation. Tivoli Data Warehouse is an optional component that is installed on the workstation.

The following sections contain detailed installation and configuration instructions or references to the respective documentation:

1. “Configuring Tivoli Enterprise Monitoring Server” on page 118
2. “Enabling Tivoli Enterprise Monitoring Agent” on page 118
3. “Verifying that Tivoli Enterprise Monitoring Agent starts correctly” on page 119
4. “Installing application support for a Tivoli Enterprise Monitoring Server on z/OS” on page 120

For more information about Tivoli Enterprise Portal, see “Installing and configuring Tivoli Enterprise Portal” on page 429.

For more information about Tivoli Data Warehouse, see “Adding Tivoli Data Warehouse” on page 430.

Detailed information about the components, additional instructions for installation, and additional instructions for configuration are available in the *Tivoli Monitoring in the IBM Knowledge Center*.

Configuring Tivoli Enterprise Monitoring Server

The Tivoli Enterprise Monitoring Server collects performance data from monitored resources, preprocesses it, and then archives it in a central database. You need at least one Tivoli Enterprise Monitoring Server to be the HUB for your Tivoli Enterprise Portal environment.

About this task

If you have many monitored resources, you might also install remote Tivoli Enterprise Monitoring Servers to preprocess some of the data for the HUB Tivoli Enterprise Monitoring Server.

Detailed configuration instructions are provided in the *Tivoli Monitoring in the IBM Knowledge Center*. Search for *Configuring Tivoli Enterprise Monitoring Server on z/OS*. Also see section ‘Installing and configuring the hub Tivoli Enterprise Monitoring Server'.

Enabling Tivoli Enterprise Monitoring Agent

The Tivoli Enterprise Monitoring Agent for OMEGAMON for Db2 PE is the OMEGAMON Agent.

About this task

When used with OMEGAMON for Db2 PE, the Tivoli Enterprise Monitoring Agent does not retrieve performance data. Instead, it connects with the OMEGAMON Collector so that the Tivoli Enterprise Portal infrastructure can access the performance data that is collected in the OMEGAMON Collector.

You can configure the Tivoli Enterprise Monitoring Agent as a stand-alone address space or as part of a Tivoli Enterprise Monitoring Server address space. To improve performance, you might want to configure the Tivoli Enterprise Monitoring Agent as a stand-alone address space.

Restriction: When more than one Tivoli Enterprise Monitoring Agent for DB2 is installed and running on the same LPAR connecting to the same hub Tivoli Enterprise Monitoring Server, the hub Tivoli Enterprise Monitoring Server can only accept data from one Tivoli Enterprise Monitoring Agent per LPAR at a time.

The instructions in this section describe how to configure a stand-alone Tivoli Enterprise Monitoring Agent in its own address space (that is on the same LPAR as the Tivoli Enterprise Monitoring Server). Instructions for configuring the Tivoli Enterprise Monitoring Agent in a Tivoli Enterprise Monitoring Server address space are available in the *Common PARMGEN - Implementation scenarios*.

To configure Tivoli Enterprise Monitoring Agent, refer to the KD5 parameters in section 'OMEGAMON XE for DB2 Agent' in the IBM OMEGAMON for DB2 Performance Expert/Performance Monitor *Parameter Reference*.

For more information, refer to the *IBM® OMEGAMON and Tivoli Management Services on z/OS shared documentation* and the *Common parameters*.

For the Complete the Configuration information, refer to the *Complete the Configuration for the OMEGAMON XE for Db2 Agent Technote*.

Verifying that Tivoli Enterprise Monitoring Agent starts correctly

Before you install Tivoli Enterprise Portal, check that the Tivoli Enterprise Monitoring Server and the Tivoli Enterprise Monitoring Agent are configured correctly and that they connect to the other components correctly.

About this task

To verify that Tivoli Enterprise Monitoring Agent starts successfully, perform the following steps:

Procedure

1. Start the OMEGAMON Collector.
2. Start the Tivoli Enterprise Monitoring Server.
3. Start the Tivoli Enterprise Monitoring Agent.
4. Check the Tivoli Enterprise Monitoring Agent startup messages.
   a) Verify that the Tivoli Enterprise Monitoring Server that is configured is correct.
      This information is found in the RKLVLOG in the following message:

      ```
      (000B-DA3327CB:kbbssge.c,52,"BSS1_GetEnv") CT_CMSLIST="<protocol>:<TEMS>;"
      ```

      where *<protocol>* is the communication protocol and *<TEMS>* is the name of the Tivoli Enterprise Monitoring Server.
   b) Verify that the Tivoli Enterprise Monitoring Agent connected to the Tivoli Enterprise Monitoring Server.
      This information is found in the RKLVLOG in the following message:

      ```
      (0001-DA300D6B:kraaulog.cpp,442,"ctira_insert_log") KRAREG000,
             Connecting to CMS MMRTE:CMS., Producer(IRA Manager)
      ```

      where *MMRTE:CMS* is the name of the Tivoli Enterprise Monitoring Server
   c) Verify that the Tivoli Enterprise Monitoring Agent connected to the OMEGAMON Collector.
      This information is in the JESMSGLG in the following message:

      ```
      KO2I0189I AGENT Agent STC CONNECTED TO D2
      OM Server STC VERSION V540 BY REQUEST - DB2 DB2SSID
      ```

where:

- *Agent STC* is the name of the Tivoli Enterprise Monitoring Agent started task.
- *OM Server STC* is the Started task ID of server.
- *DB2SSID* is the DB2 subsystem ID.

If you do not see this message, verify that the OMEGAMON Collector started task name specified in the **KD5_AGT_STC** parameter is correct on the **SPECIFY CONFIGURATION PARAMETERS** panel.

d) Verify that the Tivoli Enterprise Monitoring Agent connected to the OMEGAMON Collector.

This information is in the JESYSMSG of the OMEGAMON Collector in the following message:

```
KO2I0154I D5API COLLECTOR IS CONNECTING TO DB2 DB2SSID
ON BEHALF OF AGENT Agent STC
```

where:

- *DB2SSID* is the DB2 subsystem ID.
- *Agent STC* is the name of the Tivoli Enterprise Monitoring Agent started task.

If you do not see this message, verify on the **SPECIFY CONFIGURATION PARAMETERS** panel that the OMEGAMON Collector started task name, specified in the **KD5_AGT_STC** parameter, is correct.

Enabling InfoSphere Optim Performance Manager integration

If you want to use InfoSphere Optim Performance Manager integrated into Tivoli Enterprise Portal, you need to enable InfoSphere Optim Performance Manager integration.

About this task

Before you can use the InfoSphere Optim Performance Manager integrated into Tivoli Enterprise Portal, check that the subsystems are enabled for monitoring support in the Tivoli Enterprise Monitoring Agent configuration. To do this, set the appropriate values for the following parameters for each DB2 subsystem configuration:

- **KD5_DBnn_OPM_E2ESECURE_SECURE**
- **KD5_DBnn_OPM_E2ESQLHN_TCP_HOST**
- **KD5_DBnn_OPM_E2ESQLPT_PORT_NUM**

Installing application support for a Tivoli Enterprise Monitoring Server on z/OS

Before you can view data in the Tivoli Enterprise Portal on the workstation, you must install application support. Application support files provide agent-specific information for workspaces, helps, situations, templates, and other data.

About this task

Detailed configuration instructions are provided in the *Tivoli Monitoring in the IBM Knowledge Center*. Search for *Configuring Tivoli Enterprise Monitoring Server on z/OS*.

Configuring additional components on z/OS

OMEGAMON for Db2 PE provides additional optional z/OS components to help you analyze, monitor, and tune your DB2 databases. These components are configured outside of PARMGEN.

About this task

The following sections provide configuration instructions for the additional components on z/OS:

- "Enabling Application Trace Facility" on page 121

Enabling Application Trace Facility

You can enable and configure Application Trace Facility in the Classic Interface.

About this task

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

You enable Application Trace Facility in the Classic Interface.

Enabling Buffer Pool Analyzer

You can use the sample members in the TKO2SAMP library to help you configure Buffer Pool Analyzer.

About this task

IBM DB2 Buffer Pool Analyzer for z/OS helps database administrators manage buffer pools more efficiently by providing information about current buffer pool behavior and by using simulation to anticipate future behavior.

For detailed installation and configuration instructions see *IBM DB2 Buffer Pool Analyzer for z/OS Configuration Guide* on the *IBM Db2 Tools Product Documentation*.

Adding a Performance Database

You can use the sample statements in the sample library to create and to load a Performance Database. If you use an SMP/E sharing runtime environment, the sample library is TKO2SAMP. For all other types of runtime environments, the sample library is RKO2SAMP.

About this task

The Performance Database is a DB2 database that can hold aggregated and raw DB2 activity information spanning a long period of time. The type of data stored in the Performance Database depends on the reporter command (FILE or SAVE) used to create input data sets for the DB2 LOAD utility. This long-term history can help you with performance tuning activities, with trend analysis, and with capacity planning.

Important: If you are planning to use a Performance Warehouse and a Performance Database in the same DB2 subsystem, then you need to create the Performance Database tables with an owner ID that differs from the Performance Warehouse owner ID DB2PM.

To add a Performance Database, perform the following steps:

Procedure

1. Create data for the Performance Database from already collected performance data.

   You can use the OMEGAMON for Db2 PE batch reporter with either the FILE option or the SAVE option to create performance data. However, if you use the SAVE option, you must convert the data to the FILE format before you can load it into the tables.
2. Create the Performance Database tables.

   You can use the sample CREATE statements in the RKO2SAMP library as a starting point and then modify the statements to meet your needs.
3. Load data into the Performance Database.

You can use the sample LOAD statements in the RKO2SAMP library and the DB2 LOAD utility. If you modified the CREATE statements from the RKO2SAMP library, you must also modify the LOAD statements.

What to do next

For detailed information about the structure of the Performance Database, including the types of data that you can store in a Performance Database, and how it is formatted and loaded, see the *IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS; IBM Tivoli OMEGAMON XE for DB2 Performance Monitor on z/OS: Reporting User's Guide*.

Enabling Reporter

The Reporter is enabled when you download the program files from SMP/E.

About this task

The Reporter generates predefined reports to help you collect and analyze historical performance data. It also enables you to prepare performance data before you load it into the Performance Warehouse or into the Performance Database.

You do not need to perform any additional installation or configuration steps.

For more information about Reporter, see *IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS; IBM Tivoli OMEGAMON XE for DB2 Performance Monitor on z/OS: Report Command Reference*.

Enabling options in OMEGAMON for Db2 PE Collector Realtime Customer Options (OMPEOPTS)

You can enable options in OMEGAMON for Db2 PE Collector Realtime Customer Options to override default settings.

About this task

OMEGAMON for Db2 PE externalizes user-modifiable options in member OMPEOPTS of the '*hlq*.RKD2PAR' parameter library. You can use the defaults, or change them to conform to your installation standards.

When BATSQLID=YES is added to RKD2PAR(OMPEOPTS), statements using unqualified Db2 objects (tables) can be explained using the SQLPA interface in both the Classic interface and the Enhanced 3270 user interface.

The XCFMODE option specifies how the coupling facility component of the OMEGAMON for Db2 PE Collector subsystem is initialized at OMEGAMON for Db2 PE Collector initialization time. The default is XCFMODE=ACTIVE, which causes the coupling facility component of the OMEGAMON for Db2 PE to initialize in active mode. You can disable this option by specifying XCFMODE=INACTIVE. This causes the coupling facility XCF gateway component of the OMEGAMON for Db2 PE to be initialized in inactive mode.

Once XCFMODE is enabled, you can also enable user options DB2RTCPU and DB2REMIO. The default for both user options is enabled (DB2RTCPU=YES and DB2REMIO=YES).

The DB2RTCPU user option allows viewing DB2 remote thread CPU time for threads running on remote members of the data sharing group that the connected DB2 subsystem belongs to. It is also used for collecting lock information for remote threads. You can disable this user option by specifying DB2RTCPU=NO.

The DB2REMIO user option allows viewing Thread DSN Activity for threads running on remote members of the data sharing group that the connected DB2 subsystem belongs to. You can disable this user option by specifying DB2REMIO=NO.

The message subsystem displays the current DB2 subsystem and IRLM messages. It also allows you to issue DB2 commands, for example, to display the status of utility jobs or terminate utilities that have abended. Message subsystem activation and deactivation is controlled by the MGSUBSYS={ACTIVE/INACTIVE} user option specified in OMPEOPTS member of the RKD2PAR PARMGEN data set. By default,

OMEGAMON for Db2 PE on z/OS is shipped with MGSUBSYS=INACTIVE. To activate the message subsystem, set MGSUBSYS=ACTIVE and restart the OMEGAMON for Db2 PE Collector address space. You can then view messages when you select the DB2 CONSOLE option on the OMEGAMON Classic Interface Realtime main menu.

Cross-system coupling facility (OMEGAMON/XCF) feature

The cross-system-coupling facility (OMEGAMON/XCF) feature enables peer-to-peer communication between OMEGAMON Collectors.

The OMEGAMON Collector XCF gateway component allows peer-to-peer communication between OMEGAMON Collectors by implementing the cross-system coupling (XCF) services supported in the z/OS system complex (sysplex) environment. OMEGAMON Collectors use XCF member connection services to connect to a predefined **OMPEXCF** default group name. All OMEGAMON Collectors connected to the same group can then issue send and receive requests against each other to exchange DB2 performance monitoring data.

The OMEGAMON/XCF feature is initialized at OMEGAMON Collector initialization time when real-time user option **XCFMODE=ACTIVE** is specified in member OMPEOPTS of the **RKD2PAR** parameters data set. When **XCFMODE=ACTIVE** is specified, the XCF gateway component performs additional environmental initialization functions specified by the following parameters of member**OMPE00** of the **RKD2PAR** data set:

- **XCFGROUP=OMPEXCF**
- **XCFTASKS=04**
- **XCFTIMER=30**
- **DSPSIZE=128M**

The XCF group is a set of related members defined in the z/OS XCF by the OMEGAMON Collector XCF gateway, in which members of the group can communicate (send and receive data) between z/OS systems with other OMEGAMON Collector members of the same group. A group can span one or more of the systems in a sysplex and represents a complete logical entity to z/OS XCF. When a Classic or Common (D5API) OMEGAMON Collector session is started, the OMEGAMON Collector XCF gateway connects a member to the group name (**XCFGROUP=OMPEXCF**). The member connection persists for the life of the Classic or Common Collector session.

The z/OS XCF member connection is terminated when one of the following conditions is met:

- The Classic or Common Collector session terminates.
- The Classic session switches to a different DB2 subsystem.
- The OMEGAMON Collector address space is normally shut down.

When the OMEGAMON Collector address space is abnormally terminated, all connections are terminated. Cancelling or forcing the OMEGAMON Collector address space might under certain conditions only activate the XCF connections. Issuing the **D XCF,GROUP,OMPEXCF** z/OS command might still show these connections as defined to z/OS XCF.

Note:

The OMEGAMON Collector XCF gateway will reuse these existing connections on subsequent OMEGAMON Collector start ups.

Message KO2Z638I is issued to indicate that a Classic or Common Collector session has joined the OMPEXCF group. For example, `KO2Z638I OMPE V540 Session BPMYD2C/IPV$TCE0 joined XCF group OMPEXCF/PMO1SGP1DM520001`

KO2Z638I message explanation:

Value	Explanation
OMPE	Identifies the subsystem name assigned to the OMEGAMON Collector
V540	Identifies the OMEGAMON Collector release

Value	Explanation
BPMYD2C	Identifies the OMEGAMON Collector VTAM ACB name
IPV$TCE0	Identifies the VTAM terminal ID
/	Group name and member name separator
OMPEXCF	Identifies the OMEGAMON Collector XCF gateway group name
PM01	Identifies the SMF system ID
SGP1DM52	Identifies the name of the OMEGAMON Collector STC address space
0001	Identifies the joined unique XCF gateway connection ID

Message KO2Z806I is issued to indicate that a Classic or Common Collector session has been disconnected from the OMPEXCF group. For example, `KO2Z608I OMPE V540 Session BPMYD2C/IPV $TCE0 disconnected from XCF group OMPEXCF/PM01SGP1DM520001`

KO2Z806I message explanation:

Value	Explanation
OMPE	Identifies the subsystem name assigned to the OMEGAMON Collector
V540	Identifies the OMEGAMON Collector release
BPMYD2C	Identifies the OMEGAMON Collector VTAM ACB name
IPV$TCE0	Identifies the VTAM terminal ID
/	Group name and member name separator
OMPEXCF	Identifies the OMEGAMON Collector XCF gateway group name
PM01	Identifies the SMF system ID
SGP1DM52	Identifies the name of the OMEGAMON Collector STC address space
0001	Identifies the joined unique XCF gateway connection ID

This OMEGAMON Collector XCF gateway parameter specifies the number of receive tasks to attach in the OMEGAMON Collector address space. These tasks are used to receive and process OMEGAMON Collector service requests from other local or remote OMEGAMON Collectors connected to the same **OMPEXCF** group name.

The default number of tasks that are attached at OMEGAMON Collector initialization time is **MAXTASKS=04**. The minimum number of tasks that can be specified is **MAXTASKS=2**. At task initialization time, each receive task connects to the OMEGAMON Collector XCF gateway using the **XCFGROUP=OMPEXCF**. The XCF connection for each attached receive task persists for the life of the OMEGAMON Collector address space. When the OMEGAMON Collector is normally shut down, these XCF connections are terminated. When the OMEGAMON Collector is cancelled or forced, these XCF connections remain defined to the z/OS XCF and will be reused by the OMEGAMON Collector on subsequent start up.

You can display all XCF gateway connections by issuing the **D XCF,GROUP,OMPEXCF** z/OS XCF command. For example:

```
D XCF,GROUP,OMPEXCF

IXC332I  22.45.54  DISPLAY XCF 992
 GROUP OMPEXCF:

          PM01SGP1DM52X000    PM01SGP1DM52X001    PM01SGP1DM52X002
                    PM01SGP1DM52X003    PM01SGP1DM52X004    PM01SGP1DM52X005
                    PM01SGP1DM52X006    PM01SGP1DM52X007    PM01SGP1DM52X008
```

```
                    PM01SGP1DM52X009    PM01SGP1DM52X010    PM01SGP1DM52X011
                    PM01SGP1DM52X012    PM01SGP1DM52X013    PM01SGP1DM52X014
                    PM01SGP1DM52X015
```

Value	Explanation
OMPEXCF	Identifies the OMEGAMON Collector XCF gateway group name
PM01	Identifies the SMF system ID
SGP1DM52	Identifies the name of the OMEGAMON Collector STC address space
X	Identifies the member name as a receive task member name
0001	Identifies the joined unique XCF gateway connection ID

The default **XCFTIMER=30** parameter specifies the maximum elapsed time in seconds required to complete a send request for DB2 performance monitoring data from one OMEGAMON Collector to another collector, connected to the same **OMPEXCF** group. If a response is not received within the 30 seconds default elapsed time interval, the request is terminated and the KO2Z810E error message is issued. For example: `KO2Z810E OMPE V510 OMPE Collector SGP1DM5S SSID=D91A MEMBER=PM01SGP1DM5S0010 response not received`

This error condition might be caused by one or more of the following:

- The remote OMEGAMON Collector address space terminated either normally or abnormally.
- All receive tasks specified by the **MAXTASKS** parameter are busy.
- The remote LPAR/VMID has failed or is being restarted.
- The OMEGAMON Collector WLM dispatch priority is too low.

Take the following action(s):

- Verify that the remote OMEGAMON Collector is still active.
- Increase the number of receive tasks defined by the **XCFTASKS** parameter.
- Increase the **XCFTIMER** elapsed time seconds value.
- Verify that the OMEGAMON Collector is executing with the same priority or higher as your DB2 subsystem.

The default **DSPSIZE=128M** parameter specifies the size of the XCF gateway data space (in megabytes) that is created when a Classic or Common Collector session is connected to the OMEGAMON Collector XCF gateway. The date space is used to collect remote thread CPU data. Up to 20,000 remote threads CPU usage data can be collected in a single XCF send service request.

Note: z/OS page data set space is only incurred when remote thread CPU data is being retrieved. When remote thread CPU data is not being collected, the paging space is released and not used.

Dynamic subsystem name assignment

Dynamic subsystem name assignment removes the restriction that the OMEGAMON Collector subsystem name is specified in the **PARM=JCL** parameter.

This change does not affect you if you already specify the OMEGAMON Collector subsystem name in your JCL procedure. You can optionally specify a two-character prefix in addition to the four-character name that is required.

The following subsystem name specifications are supported:

- **PARM='/SUB=OMPE'**
  The OMEGAMON Collector JCL procedure is shipped with a default OMEGAMON Collector subsystem name of **OMPE(PARM='/SUB=OMPE')**.
  `//O2CI     EXEC PGM=KO2ZTOPB,`

```
//              REGION=0M,MEMLIMIT=NOLIMIT,DPRTY=(15,15),TIME=1440,
//              PARM='/SUB=OMPE'
```

- **PARM='/SUB=OM'**
  This serviceability enhancement also allows you to only specify a two-character OMEGAMON Collector subsystem prefix. When only the subsystem prefix is specified, the subsystem initialization driver dynamically adds an unused suffix in the range of 00 to 99 to form a complete four-character OMEGAMON Collector subsystem name.
  ```
  //O2CI     EXEC PGM=KO2ZTOPB,
  //              REGION=0M,MEMLIMIT=NOLIMIT,DPRTY=(15,15),TIME=1440,
  //              PARM='/SUB=OM'
  ```
  Once a subsystem name is associated with an OMEGAMON Collector address space, the association is maintained for the life of the z/OS operating system IPL.

The OMEGAMON Collector also creates a subsystem called O2. If Object Analysis is configured, a subsystem called E2 will be started.

Defining OMEGAMON Collector component message logs

This function allows units of work executing in the OMEGAMON Collector address space to have their messages stored in component message logs.

Component message logs are optional and are not required for normal OMEGAMON Collector operation.

The following component message logs are supported:

FPEVLOG
This log is activated when DD name "//FPEVLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the OMEGAMON Collector Performance Expert component.

OMPELOG
This log is activated when DD name "//OMPELOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by all OMEGAMON Collector components.

KO2ILOG
This log is activated when DD name "//KO2ILOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the Common Collector subsystem.

KO2HLOG
This log is activated when DD name "//KO2HLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the OMEGAMON Collector Near-Term History component.

KO2RLOG
This log is activated when DD name "//KO2RLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the capture server component.

KO2OLOG
This log is activated when DD name "//KO2OLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by OMEGAMON Collector Near-Term History parser component.

KO2SLOG
This log is activated when DD name "//KO2SLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by Virtual Storage Manager STORMAN component.

KO2XLOG
This log is activated when DD name "//KO2XLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by VTAM classic cross-memory component functions.

KO2ZLOG
This log is activated when DD name "//KO2ZLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the OMEGAMON Collector subsystem.

Completing the configuration for z/OS components

About this task

After you configured OMEGAMON for Db2 PE, go through the list of mandatory steps in the post-configuration README in PARMGEN. Also consider going through the optional steps in that README to see whether further configuration steps are required. To open the post-configuration README follow these steps:

1. In PARMGEN, navigate to the **Primary Option Menu** on panel **KCIPQPGB**.
2. Either:

   Select option **5 POSTCFG** to open **KCIP@FNL**.

   or:

   a. Type U as primary command to show the utilities panel **KCIPQPGU**.
   b. Select *13 Display a consolidated list of post-configuration READMEs*.
3. In the product list, select **KD5**.

Configuring monitoring profiles and DB2 subsystems

OMEGAMON for Db2 PE provides several optional z/OS components to help you analyze, monitor, and tune your DB2 subsystems.

About this task

You must add one or more monitoring profiles to configure the monitoring functionality that you want to use for the different DB2 subsystems. In the next step you can associate these monitoring profiles to the DB2 subsystems that you want to monitor.

Adding and configuring one or more monitoring profiles:

- The monitoring profiles define the monitoring functionality that you want to use. To add a new monitoring profile, see “Creating new DB2 subsystem configurations and/or monitoring profiles via duplication” on page 43.
- The following topics provide detailed configuration information on the functionality that can be configured as part of a monitoring profile:

  “Enabling Object Volume Analysis” on page 129
  “Enabling Periodic Exception Processing” on page 130
  “Enabling Near-Term History” on page 131
  “Enabling Snapshot History” on page 132
  “Enabling Performance Expert Agent for DB2 Connect Monitoring support” on page 133
  “Enabling DB2 EXPLAIN” on page 134
  “Enabling IBM DB2 SQL Performance Analyzer” on page 134
  “Starting Additional DB2 Traces” on page 135

Now you can configure which DB2 subsystems you want to monitor:

- For each DB2 subsystem, you must specify which monitoring profile it should use. Each profile can be used for one or more DB2 subsystems. You do this by associating the DB2 subsystem with a monitoring profile. See “Associating a DB2 subsystem with a monitoring profile” on page 129 for instructions on how to do this.

You can configure as many DB2 subsystems as you like. However, the server only monitors the first 32 monitoring-enabled DB2 subsystems as listed in RKD2PRF(DB2PROF). To monitor more DB2 subsystems on a single LPAR you need to configure an additional OMPE Collector.

- For configuring DB2 subsystem-specific Performance Expert Client and/or end-to-end SQL or stored procedure monitoring, see "Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring" on page 136 for configuration instructions.
- For configuring Performance Warehouse, see "Enabling Performance Warehouse" on page 137 for configuration instructions.

Monitoring profiles and DB2 subsystems

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

OMEGAMON for Db2 PE offers many functions that can be configured for each DB2 subsystem. In most cases however, the monitoring requirements for the different DB2 subsystems are not completely unique, which means that you can reuse one configuration for several DB2 subsystems. For example, in a development environment you might want to collect very detailed performance data to perform a sophisticated analysis, while in a production environment this level of detail is not needed and causes unnecessary overhead. So you would use one set of configuration values for the DB2 subsystems that are used for development and another set of configuration values for DB2 subsystems in production.

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

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

In PARMGEN, DB2 subsystems and monitoring profiles can be distinguished by their parameter name, as follows:

- **KD2_DBnn** - Parameters for the DB2 subsystem configuration
- **KD2_PFnn** - Parameters for the monitoring profiles

nn is used to distinguish between different DB2 subsystem configurations and monitoring profiles. The first profile uses *01*, the second *02*, and so on. It is required to put all **KD2_DBnn**/**KD2_PFnn** parameters between starting and ending identifiers, as in the following examples:

```
KD2_DB            START

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

```
KD2_PF            START

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

Configuring DB2 subsystem monitoring

You must associate each DB2 subsystem with a monitoring profile and build the DB2-related runtime members.

About this task

After you configure the monitoring profiles, you must configure the DB2 subsystem monitoring. The monitoring profiles define the monitoring functionality that you wish to use. Then you specify which monitoring profile you want to apply for each DB2 subsystem. In addition, you must enter some configuration information that is specific to each DB2 subsystem, and build the runtime members for the DB2 subsystem.

The following topic provides detailed configuration information:

1. “Associating a DB2 subsystem with a monitoring profile” on page 129

Associating a DB2 subsystem with a monitoring profile

You enter the configuration information for your DB2 subsystem and associate it with a monitoring profile.

About this task

In order to assign a monitoring profile to a DB2 subsystem configuration, provide the profile ID from the **KD2_PFxx_PROFID** parameter to the **KD2_DBxx_DB2_PROFID** parameter. The default profile assigned to the DB2 subsystems is P001.

Enabling Object Volume Analysis

The Object Volume Analysis function reveals the effect of an application on overall disk access. This can help you balance the load and determine where DB2 data sets should be placed to reduce system congestion.

About this task

The following sections provide detailed installation and configuration instructions:

1. “Configuring Object Volume Analysis” on page 129
2. “Verifying the Object Volume Analysis configuration” on page 130

What to do next

1. You configure Object Volume Analysis in a monitoring profile. After you have configured the component, you must associate a DB2 subsystem with this profile and create the runtime members for this DB2 subsystem. See “Configuring DB2 subsystem monitoring” on page 129 for detailed instructions.

Configuring Object Volume Analysis

You can enable and configure Object Volume Analysis in the PARMGEN user profile.

About this task

To enable Object Volume Analysis, set parameter **KD2_PFxx_OA_ECM** to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Object/Volume analysis" in the *Parameter Reference*.

Verifying the Object Volume Analysis configuration

Check the OMEGAMON Collector JESMSGLOG output to verify that the server accepted your parameters.

Before you begin

Before you test the setup of Object Volume Analysis, ensure that you have completed the product setup, so that you can start the OMEGAMON Collector.

About this task

After you have configured the DB2 subsystem, perform the following steps:

Procedure

1. Start the OMEGAMON Collector.
2. In SDSF, open the JESMSGLG output of the OMEGAMON Collector started task.
3. Review the JESMSGLG.

   You should see the output similar to the following excerpt:

```
…
KO2E3000I EVENTMGR INITIALIZATION IN PROGRESS
KO2E3001I EVENTMGR INITIALIZATION SUCCESSFUL
…
KO2E3070I OBJECT ANALYSIS - INITIALIZATION IN PROGRESS FOR DB2=D824
KO2E3050I OBJECT ANALYSIS - PHASE1 INITIALIZATION COMPLETE FOR DB2=D824
…
KO2E3051I OBJECT ANALYSIS - PHASE2 INITIALIZATION COMPLETE FOR DB2=D824
…
KO2E3071I OBJECT ANALYSIS - INITIALIZATION SUCCESSFUL FOR DB2=D824
```

   Messages KO2E3000I and KO2E301I indicate that the Event Collection Manager is configured and is starting.

   Messages KO2E3070I, KO2E3051I, and KO2E3071I indicate that the Object Analysis support is configured and is starting.

Enabling Periodic Exception Processing

Periodic Exception Processing analyzes system metrics and compares them against predefined thresholds, user-defined thresholds, and application metrics. When a threshold is exceeded, an exception event is shown.

About this task

You can use Periodic Exception Processing in three different ways:

- You configure Periodic Exception Processing in the PARMGEN user profile.

  In this case, the function is started automatically at startup of the OMEGAMON Collector. One common set of threshold definitions is used for all users.
- You start Periodic Exception Processing manually after you start Performance Expert Client.

  In this case, you do not need to configure the function in the PARMGEN user profile. You can define a set of threshold definitions for each user ID.
- You can use the Exception Processing user exit that issues messages to the operator console in case of exceptions.

The following section provides detailed instructions for configuring Periodic Exception Processing in the PARMGEN user profile:

“Configuring Periodic Exception Processing in PARMGEN” on page 131.

What to do next

1. After you configure the component, you allocate operational data sets. See the “Completing the configuration for z/OS components” on page 127 for detailed instructions.
2. In addition, you have to provide threshold definitions in the threshold data set. Before you can use Periodic Exception Processing, you must allocate additional runtime data sets first to allocate the Threshold Exception data set, and then copy the default threshold definitions. For more information, see the *Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS Reporting User's Guide* in the *Tivoli Monitoring in the IBM Knowledge Center*.

Configuring Periodic Exception Processing in PARMGEN

If you configure Periodic Exception Processing in PARMGEN, the function is started automatically at startup of the OMEGAMON Collector.

About this task

To configure Periodic Exception Processing, set parameter **KD2_PFxx_AEXCP_D2PYACT** to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Periodic exception processing" in the *Parameter Reference*.

Enabling Near-Term History

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

About this task

Important: Near-Term History is only available through the Classic Interface.

The following sections provide detailed installation and configuration instructions:

1. “Configuring the Near-Term History Data Collector” on page 131
2. “Verifying the Near-Term History configuration” on page 132

What to do next

1. After you configure the component, you must allocate operational data sets. See “Completing the configuration for z/OS components” on page 127 for detailed instructions.

Configuring the Near-Term History Data Collector

You must specify the settings for the Near-Term History Data Collector in the PARMGEN user profile.

About this task

To configure Near-Term History, set parameter **KD2_PFxx_HIS_START** to Y or C in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Near-Term History" in the *Parameter Reference*.

You can use variable *%DB%* for the DB2 subsystem ID or variable *%SY%* for the system ID in the VSAM data set names. Variable *%DB%* will be replaced by the DB2 subsystem ID for the allocation of the data sets, and variable *%SY%* will be replaced by the z/OS system ID that you configured.

Verifying the Near-Term History configuration

Check the OMEGAMON Collector JESMSGLOG output to verify that the server accepted your parameters.

Before you begin

Before you test the setup for Near-Term History, make sure that you have completed the product setup, so that you can start the OMEGAMON Collector.

About this task

To verify that the OMEGAMON Collector accepted your changes for Near-Term History, perform the following steps:

Procedure

1. Start the OMEGAMON Collector.
2. In SDSF, open the JESMSGLG output of the OMEGAMON Collector started task.
3. Review the JESMSGLG.

   You should see the output similar to the following excerpt:

```
.
.
.
KO2O1309I NEAR-TERM HISTORY DATA COLLECTOR SERVER KO2DMGRB
        IS ACTIVE (SERVINIE)
KO2R0100I DRIVER INITIALIZED (CPINIT )
KO2R0128I CAPTURING OUTPUT ON DATA SET
        SYS1PMO.V4.FULLTST.D824.RKD2VS03
KO2R0105I SET STARTED - CONTSET1 D824 KO2O1309I
        NEAR-TERM HISTORY DATA COLLECTOR
        SERVER KO2SSRVB IS ACTIVE (SERVINIE)
KO2O1308I NEAR-TERM HISTORY DATA COLLECTOR ACTIVELY
        MONITORING DB2 D824 (H2WLMGRE)
.
.
.
```

   Messages KO2O1309I and KO2O1308I indicate that Near-Term History started successfully for the configured DB2 subsystems. Message KO2R0128I identifies the previously configured Near-Term History data sets.
4. Review the SYSPRINT log.

   You should see the following message:

```
KO2O1318I NEAR-TERM HISTORY DATA COLLECTOR - NEW OPTIONS
        IN EFFECT FOR CURRENT INTERVAL (NEWINOPT)
```

Enabling Snapshot History

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

About this task

The following section provides detailed installation and configuration instructions:

"Configuring Snapshot History" on page 133

What to do next

1. After you configure the component, you must allocate operational data sets. See “Completing the configuration for z/OS components” on page 127 for detailed instructions.

Configuring Snapshot History

Here you specify the type of information that is collected in the Snapshot History.

About this task

To enable Snapshot History, set parameter **KD2_PFxx_SH_D2SHKHST** to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Snapshot history (including DB2 Connect Monitoring)" in the *Parameter Reference*.

Enabling Performance Expert Agent for DB2 Connect Monitoring support

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

Before you begin

You must enable Performance Warehouse before beginning. See “Enabling Performance Warehouse” on page 137 for more information.

Tip: If you do not want to use Performance Warehouse for purposes other than DB2 Connect Monitoring, you can enable it in PARMGEN a single time, verify that the OMEGAMON Collector has created the Performance Warehouse tables, and then return to PARMGEN to disable it. If you disable Performance Warehouse, you must enable it again before you install a PTF that indicates that in the ++HOLD. Otherwise, the necessary changes to the Performance Warehouse database are not made. This might result in SQL errors.

About this task

The following section provides detailed installation and configuration instructions:

“Configuring Performance Expert Agent for DB2 Connect Monitoring support” on page 133

What to do next

1. After you complete the configuration steps outside of PARMGEN, you must complete the configuration in PARMGEN. See “Completing the configuration for z/OS components” on page 127 for detailed instructions.
2. After you have enabled Performance Expert Agent for Db2 Connect Monitoring support, you must install Performance Expert Agent for Db2 Connect Monitoring on the system hosting a DB2 Connect gateway. See “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring” on page 139 for more information.

Configuring Performance Expert Agent for DB2 Connect Monitoring support

You can use the PARMGEN user profile to configure Performance Expert Agent for Db2 Connect Monitoring support.

About this task

To enable Performance Expert Agent for Db2 Connect Monitoring support, set parameter **KD2_PFxx_SH_D2SHKHST** to Y and parameter **KD2_PFxx_DCM_D2SHDCAP** to Y in the PARMGEN user

profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Snapshot history (including DB2 Connect Monitoring)" in the *Parameter Reference*.

Enabling DB2 EXPLAIN

Explain functions provide an easy-to-read representation of access plan information for your SQL queries and statements. You can use this information to decide how to tune your queries. The built-in explain functions are Easy Explain and the EXPLAIN report.

Before you begin

You must create a database to be used by EXPLAIN. There are no special requirements regarding database name, storage group, or index buffer pool. But you must use an 8 KB buffer pool. The database name has to be specified in parameter **KD2_PFxx_EX_D2EXDB**.

About this task

The following section provides detailed installation and configuration instructions:

"Configuring DB2 EXPLAIN" on page 134

What to do next

1. After you complete the configuration steps in PARMGEN, you must complete the configuration outside of PARMGEN. See "Completing the configuration for z/OS components" on page 127 for detailed instructions.

Configuring DB2 EXPLAIN

Before you can use DB2 EXPLAIN, you must enter your configuration values in PARMGEN.

About this task

To configure DB2 EXPLAIN, set parameter **KD2_PFxx_EX_D2EXACT** to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "DB2 Explain" in the *Parameter Reference*.

Enabling IBM DB2 SQL Performance Analyzer

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

Before you begin

You must enable Performance Warehouse before beginning. See "Enabling Performance Warehouse" on page 137 for more information. Performance Warehouse has to be running while you are using SQL Performance Analyzer.

- You must install IBM DB2 SQL Performance Analyzer as a separate product before you begin. See the *IBM DB2 SQL Performance Analyzer for z/OS Installation Guide* in the *IBM Db2 Tools Product Documentation*.

About this task

The following section provides configuration instructions for IBM DB2 SQL Performance Analyzer:

"Configuring IBM DB2 SQL Performance Analyzer" on page 135.

Configuring IBM DB2 SQL Performance Analyzer

You use PARMGEN to enable and configure IBM DB2 SQL Performance Analyzer.

About this task

To configure IBM DB2 SQL Performance Analyzer, set parameter **KD2_PFxx_SQLPA_ENABLE** to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "DB2 SQL Performance Analyzer" in the *Parameter Reference*.

Starting Additional DB2 Traces

With this option you can start additional DB2 traces. For certain functionality, such as displaying SQL statements and metrics for dynamic statement cache or EDM pool, it is required to start additional DB2 traces. Starting these traces causes considerable CPU overhead. Therefore, these traces are not started by default. With this option you can specify if additional DB2 traces should be started automatically when the OMEGAMON Collector starts.

About this task

The following section provides detailed installation and configuration instructions:

"Configuring Additional Db2 Traces" on page 135

Configuring Additional Db2 Traces

You can use the Configuration Tool to configure Additional Db2 Traces.

About this task

There are two ways to configure Additional Db2 Traces.

Procedure

- The first way is to set parameter **KD2_PFxx_TRACES_318** and parameter **KD2_PFxx_TRACES_400** to Y.

  This enables collection IFCID 318 for dynamic and IFCID 400 for static statement cache metrics.

  Note: Parameter **KD2_PFxx_TRACES_400** is only applicable for DB2 10 and above versions. The enablement of those two parameters is required when using Extended Insight (end-to-end SQL monitoring) and stored procedure monitoring.
- The second way is to use the **KD2_PFxx_TRACES_DB2CMDx** parameters (where *x* is either *2*, *3*, or *4*). This alternative gives you the possibility to provide three more custom **START TRACE** commands.

  Note: It is not possible to add line breaks to the statement. Therefore, use abbreviations for this command wherever possible.

  You find more information on these parameters in the *Parameter Reference*.

Configuring Additional Monitoring Features

Additional Monitoring Features are a special set of functions only for OMEGAMON for Db2 PE. If you want to enable additional monitoring functions, such as DB2 message monitoring and stored procedure monitoring, you must enable them in PARMGEN. DB2 message monitoring is used to show DB2 messages in the Tivoli Enterprise Portal workspaces. Stored procedure monitoring data is used in the InfoSphere Optim Performance Manager dashboards.

To start DB2 message monitor, set parameter **KD2_PFxx_ACS_DB2MSGMON** to Y.

To enable stored procedure monitoring support in the InfoSphere Optim Performance Manager user interface, set parameter **KD2_PFxx_READA_SPMON** to Y in the PARMGEN user profile. In order for this function to work, you also have to enable end-to-end SQL or stored procedure monitoring, see "Enabling

Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support" on page 117, and you also have to enable collection of IFCID 318 and 400 traces, see "Configuring Additional Db2 Traces" on page 135.

You find more information on this and an other function-specific parameters in the *Parameter Reference*.

Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring

If you want to use Performance Expert Client and/or end-to-end SQL or stored procedure monitoring for some DB2 subsystems, you must specify the Performance Expert Client port information for each DB2 subsystem.

Before you begin

You must enable Performance Expert Client support and/or end-to-end SQL or stored procedure monitoring support before you specify the port information. See "Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support" on page 117 for more information.

About this task

To specify the port information, use parameter **KD2_DBxx_DB2_PORT_NUM** for each of your DB2 subsystem configurations that you want to monitor using either Performance Expert Client or end-to-end SQL or stored procedure monitoring.

What to do next

1. For Performance Expert Client: After you have added Performance Expert Client support, you must install Performance Expert Client on the workstation. See "Installing and configuring Performance Expert Client" on page 165 for more information. For end-to-end SQL or stored procedure monitoring: After you have added end-to-end SQL or stored procedure monitoring support, you must install end-to-end SQL or stored procedure monitoring on the workstation. See "Installing and configuring end-to-end SQL or stored procedure monitoring" on page 430 for more information.

Verifying the Performance Expert Client support and/or end-to-end SQL or stored procedure monitoring support configuration

Check the OMEGAMON Collector started task SYSPRINT output to verify that the server accepted your parameters.

Before you begin

Before you test the setup of the OMEGAMON Collector, ensure you have completed the product setup, so that you can start the OMEGAMON Collector.

About this task

After you have configured the DB2 subsystem, perform the following steps:

Procedure

1. Start the OMEGAMON Collector.
2. Review the SYSPRINT output of the OMEGAMON Collector started task in SDSF. Verify that the following outputs match the parameters you specified:
   a) TCP/IP.
   b) IP ADDRESS OF SERVER INSTANCE.

If you left the IP address blank because your host only has one IP address, you will see 0.0.0.0 here.

c) MAXIMUM NUMBER OF PARALLEL SESSIONS.

d) TCPNAME (this value is not of interest for end-to-end SQL or stored procedure monitoring).

e) DATASHARINGGROUP.

f) TCPIP PORT.

3. Verify that the last output is FPEV1330I, TCP/IP SERVER TASK STARTED.
   This means that the TCP/IP port opened successfully.

Enabling Performance Warehouse

You can use PARMGEN to install and configure Performance Warehouse.

Before you begin

- The started task user ID must be DB2PM or associated with a group ID with the name DB2PM, see "Setting up security for the OMEGAMON Collector address spaces" on page 63.
- If you want to install the Performance Warehouse Client, you must enable Performance Expert Client support first. See "Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support" on page 117 and "Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring" on page 136 for more information.
- Verify that your system supports started jobs. For a detailed explanation, see "Enabling started jobs for Performance Warehouse" on page 64.
- Create any storage groups that you will use for this Performance Warehouse database.
- Create 4 KB and 32 KB buffer pools that you will use for this Performance Warehouse database.
- Grant user DB2PM or group DB2PM access to the buffer pools that you will use for this Performance Warehouse database.

About this task

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

The following section contains detailed installation and configuration instructions:

1. "Configuring the Performance Warehouse" on page 138

What to do next

After you enable Performance Warehouse, you must perform the following tasks:

- Complete the configuration outside of PARMGEN. See "Completing the configuration for z/OS components" on page 127 for more information.
- Install and configure the Performance Expert Client on the workstation. This enables you to view information that is stored in the Performance Warehouse using the Performance Warehouse Client function. For more information, see "Installing and configuring Performance Expert Client" on page 165 or "Configuring the Performance Warehouse Client" on page 171.
- Verify that the OMEGAMON Collector accepted your changes for Performance Warehouse. See "Verifying the Performance Warehouse configuration" on page 138 for more information.

Configuring the Performance Warehouse

You must configure Performance Warehouse so that the OMEGAMON Collector can create and control it.

About this task

You must configure Performance Warehouse on DB2 subsystem level. It cannot be configured on monitoring profile level, because several configuration parameters are unique for each DB2 subsystem.

During the configuration process, you can define some parameters for the database, but the database name is always DB2PM and you cannot change it.

To enable Performance Warehouse, set parameter **KD2_DBxx_PWH_D2PWPWHA** to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "DB2 subsystem parameters", "Performance Warehouse" in the IBM OMEGAMON for DB2 Performance Expert*Parameter Reference*.

Verifying the Performance Warehouse configuration

Check the OMEGAMON Collector started task SYSPRINT output to verify that the server accepted your parameters.

Before you begin

Before you test the setup of the Performance Warehouse, ensure that you have completed the product setup, so that you can start the OMEGAMON Collector.

About this task

To verify that the OMEGAMON Collector has successfully incorporated your changes, review the SYSPRINT output of the OMEGAMON Collector started task:

Procedure

1. Start the OMEGAMON Collector.
2. In SDSF, open the SYSPRINT output of the OMEGAMON Collector started task.
3. Review the SYSPRINT.

   You should see the output similar to the following excerpt:

```
0FPEV0129I D824 PERFORMANCEWAREHOUSE=YES
0FPEV0133I D824 - PERFORMANCEWAREHOUSEADDRESSSPACENAME=CANSPW
0FPEV1339I D824 TCPIP PORT=6080
…
0FPEV5003I D824 CHECKING DATABASE FOR NECESSARY CHANGES. PLEASE WAIT
0FPEV5016I D824 REQUIRED DBRM DGOZMIG1 NOT BOUND. BINDING IT
…
0FPEV5005I D824 DATABASE UPDATE COMPLETE
```

   Note: It might take several minutes to create the Performance Warehouse database. Message 0FPEV5016I indicates that the OMEGAMON Collector is still creating the database and binding the DBRMs. In every subsequent startup, the database already exists and the OMEGAMON Collector will only check for required updates and BINDs. After this check, the message 0FPEV5005I is displayed.

Installing and configuring components on the workstation

In addition to the components on z/OS, OMEGAMON for Db2 PE also offers several components that run on the workstation.

About this task

The following sections provide installation and configuration instructions for components that run on the workstation:

- “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring” on page 139
- “Installing and configuring Performance Expert Client” on page 165
- “Configuring the Performance Warehouse Client” on page 171
- “Adding Tivoli Data Warehouse” on page 430

Installing and configuring Performance Expert Agent for DB2 Connect Monitoring

You can use the installation wizard to install and configure Performance Expert Agent for DB2 Connect Monitoring on your workstation.

Before you begin

- You must enable Performance Warehouse before beginning. See “Enabling Performance Warehouse” on page 137 for more information.
- You must enable Performance Expert Agent for DB2 Connect Monitoring support on z/OS before beginning. See “Enabling Performance Expert Agent for DB2 Connect Monitoring support” on page 133 for more information.

About this task

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

The following topics provide detailed installation and configuration instructions:

- “Configuration scenarios for Performance Expert Agent for Db2 Connect Monitoring” on page 140
- “Installing and configuring Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 141
  1. “Hardware requirements for Performance Expert Agent on Windows” on page 141
  2. “Software requirements for Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 142
  3. “Downloading the program files of Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 142
  4. “Installing the program files of Performance Expert Agent Version 5 on Windows” on page 143
  5. “Configuring Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 144
  6. “Starting Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 151
  7. “Stopping Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 151
- “Installing and configuring Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 153
  1. “Hardware requirements for Performance Expert Agent on Linux and UNIX” on page 153

2. “Software requirements for Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 154
3. “Downloading the program files of Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 155
4. “Installing the program files of Performance Expert Agent Version 5 on UNIX and Linux” on page 155
5. “Configuring Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 159
6. “Starting Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 163
7. “Stopping Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 163

Configuration scenarios for Performance Expert Agent for Db2 Connect Monitoring

With DB2 Connect Monitoring, you can monitor remote DB2 clients that connect through a DB2 Connect gateway. There are several possible ways to set up Performance Expert Agent for Db2 Connect Monitoring.

DB2 Connect Monitoring involves the OMEGAMON Collector and the Performance Expert Agent for Db2 Connect Monitoring. The Performance Expert Agent for Db2 Connect Monitoring, also called DB2 Connect Agent, collects information about the requests that are issued from the clients through the DB2 Connect gateway and makes it available for the OMEGAMON Collector. You can view the monitoring information with Tivoli Enterprise Portal, Classic Interface, and Performance Expert Client. This means that you can choose the platform that you are most comfortable with, view the type of information available, and decide which monitoring component is the most useful for you.

There are two configuration scenarios for the Performance Expert Agent for Db2 Connect Monitoring. Either you configure it to report the DB2 Connect gateway information to each DB2 subsystem that is monitored by the OMEGAMON Collector, or you configure it to report the information to just one of the monitored DB2 subsystems. This affects what data you can see in the user interface, for example in Performance Expert Client.

Scenario 1: The Performance Expert Agent for Db2 Connect Monitoring reports all client requests that come through the DB2 Connect gateway to one DB2 subsystem.

If the following conditions are met, the Performance Expert Agent for Db2 Connect Monitoring reports all requests that are issued to the DB2 Connect gateway to only one DB2 subsystem:

- Monitoring is enabled for only one DB2 subsystem. See “Enabling a DB2 instance gateway to be monitored by using Performance Expert Agent for Db2 Connect Monitoring” on page 145.
- In the Configuration Tool, you enabled Performance Expert Agent for Db2 Connect Monitoring for only this one DB2 subsystem. See “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring” on page 139.

In this setup, the data that you can access in the user interface is limited. If you are using Performance Expert Client, for example, and you select the DB2 subsystem for which you configured DB2 Connect Monitoring, you can retrieve all information that you gathered on the DB2 Connect gateway for this DB2 subsystem. However, if you select another DB2 subsystem in Performance Expert Client, you will not see any DB2 Connect data because the data is stored in the Performance Warehouse database for the one DB2 subsystem that is enabled for monitoring. The OMEGAMON Collector does not check this Performance Warehouse database when another DB2 subsystem is selected.

To view the requests from all DB2 subsystems, do not select a specific DB2 subsystem in the Performance Expert Client but choose the DB2 Connect gateway. This view is only available in Performance Expert Client, not in Tivoli Enterprise Portal or Classic Interface.

The setup of this scenario is limited, but it requires less configuration effort. It is sufficient if you plan to use the Performance Expert Client for monitoring and want to monitor the DB2 Connect data for all DB2 subsystems from only the DB2 Connect gateway perspective, or if you need the detailed data for only one DB2 subsystem.

Scenario 2: The Performance Expert Agent for Db2 Connect Monitoring reports all client requests that come through the DB2 Connect gateway to all DB2 subsystems.

If the following conditions are met, the Performance Expert Agent for Db2 Connect Monitoring reports all requests that are issued to the DB2 Connect gateway to all DB2 subsystems:

- Monitoring is enabled for all DB2 subsystems that you want to monitor. See "Enabling a DB2 instance gateway to be monitored by using Performance Expert Agent for Db2 Connect Monitoring" on page 145.
- In PARMGEN, you enabled Performance Expert Agent for Db2 Connect Monitoring for all DB2 subsystems. See "Installing and configuring Performance Expert Agent for DB2 Connect Monitoring" on page 139.

In this setup, you can select each of the DB2 subsystems in the monitoring user interface and access all data. The restrictions that are mentioned above do not apply here. In most cases, this setup is preferred.

Installing and configuring Performance Expert Agent for Db2 Connect Monitoring on Windows

Performance Expert Agent for Db2 Connect Monitoring monitors connections of remote applications within the Distributed Relational Database Architecture (DRDA) of Db2. When Performance Expert Agent for Db2 Connect Monitoring is installed on the system on which Db2 Connect is installed as a gateway, it collects connection-related data, such as the connection status of a remote application. It also collects statistics about Db2 Connect activities.

The following topics provide additional information about how to install and configure Performance Expert Agent for Db2 Connect Monitoring on Windows:

Hardware requirements for Performance Expert Agent on Windows

The following are the minimum hardware requirements for Performance Expert Agent.

- A personal computer with Intel-based processor architecture, 400 MHz Pentium
- 256 MB RAM
- 150 MB disk space in the TEMP directory for the temporary program files used during the installation of Performance Expert Agent. This applies to Windows 64-bit.
- The following disk space in the installation directory for the program files of Performance Expert Agent according to your operating system:
  - Windows 64-bit: 320 MB
- 5 MB disk space in the working directory for `log` and `ini` files of Performance Expert Agent

  The name of the working directory is

  `C:\Program Files\IBM\IBM DB2 Performance Expert Agent V5\instances\<instance name>`

  where *<instance name>* is the name of the Db2 subsystem on which Performance Expert Agent runs.

Software requirements for Performance Expert Agent for Db2 Connect Monitoring on Windows

Performance Expert Agent for Db2 Connect Monitoring requires the following system and software prerequisites. Review these requirements to ensure that your environment is prepared for installation.

The minimum software requirements to install and run Performance Expert Agent for Db2 Connect Monitoring on Windows are:

- One of the following Windows versions:
  - Windows XP 64-bit Professional Edition
  - Windows Server 2003 32-bit Standard Edition, Enterprise Edition, or Datacenter Edition
  - Windows Server 2003 64-bit Standard Edition, Enterprise Edition, or Datacenter Edition
  - Windows Vista Business Edition, Enterprise Edition, or Ultimate Edition
  - Windows 7
- One of the following Db2 systems:
  - Db2 Enterprise systems:
    - Db2 Enterprise Server Edition V9.7 up to V10.5
  - Db2 Connect systems:
    - Db2 Connect Application Server Edition V9.7 up to V10.5

    To check the fix pack level of your Db2 installation, type **db2level** on the command line.
- TCP/IP installed on the workstation.
- Software programs to download files or code from z/OS, such as File Transfer Protocol (FTP) or IBM Personal Communications.

Support for password phrases and Multi-factor authentication (MFA)

- The PE Agent supports password phrases.
- The PE Agent does not support multi-factor authentication. The MFA token for authentication is not stored so the PE Agent cannot be restarted automatically when using MFA.

Downloading the program files of Performance Expert Agent for Db2 Connect Monitoring on Windows

About this task

Both, the initial version and later fixes for the program files for Performance Expert Agent for Db2 Connect Monitoring are available online. For download instructions, refer to the technote "OMEGAMON XE for DB2 PE/PM: web-based delivery and updates for Windows- and UNIX-based components" on the *IBM Software Support website*. If needed, the direct link to the technote is also included in the hold instructions of every Performance Expert Agent PTF on the host. The available program build levels and fix descriptions are documented in the technote.

Installing the program files of Performance Expert Agent Version 5 on Windows

Complete these steps to install Performance Expert Agent Version 5 or to migrate from Performance Expert Agent Version 3.

Before you begin

- The name of the directory from which you install the program files and the name of the directory to which you install the program files might not contain non-Latin-based characters.
- You need administration privileges and DB2 instance owner privileges.
- You must install Performance Expert Agent on the same system on which Database Connection Services (DCS) connections are performed.
- If you want to perform a silent installation for additional Performance Expert Agents, you must create a response file to record your installation steps. For detailed instructions on silent installation, see "Installing Performance Expert Agent silently by using a response file" on page 157.

About this task

To install the program files, complete these steps:

Procedure

1. Extract the files from the compressed file(s). Ensure that all downloaded files are extracted.
2. Ensure that all of the installation files are in the same directory.

   The installation package consists of these items:

   a. An installation launcher `db2pe.agent.*.install-on-win32.exe`

   b. An installation launcher `db2pe.agent.*.install-on-win64.exe`

   c. The `iehs321win.jar` file that contains the help system files

   The installation wizard starts, and the **IBM DB2 Performance Expert Agent V5 Setup** window opens.
3. Click **Next**.

   The next **IBM DB2 Performance Expert Agent V5 Setup** window shows the License Agreement.
4. Select **I accept the terms of the license agreement**, then click **Next**.

   The next **IBM DB2 Performance Expert Agent V5 Setup** window opens.
5. Specify the installation directory for the program files.

   This step depends on the task that you want to perform:

   New installation: You install Performance Expert Agent Version 5 whereas no previous version is installed.
   Migration from Performance Expert Agent Version 3: You replace Performance Expert Agent Version 3 with Performance Expert Agent Version 5.

   - If you install Performance Expert Agent Version 5 whereas no previous version is installed, take one of these steps:
     - To install the program files to the default installation directory, click **Next**.

       The name of the default installation directory is

       `C:\Program Files\IBM\IBM DB2 Performance Expert Agent V5`
     - To install the program files to a different directory, click **Browse**, select another directory, then click **Next**.

       The next **IBM DB2 Performance Expert Agent V5 Setup** window opens.
   - If you migrate from Performance Expert Agent Version 3, select the installation directory in which the previous version of Performance Expert Agent is installed.

The next **IBM DB2 Performance Expert Agent V5 Setup** window opens.

6. Check the displayed information, then click **Install**.

   The program files are copied to the specified directory, then the next **IBM DB2 Performance Expert Agent V5 Setup** window opens. It shows summary information about the installation. It also shows the location of the log file.

7. Check the summary information, then click **Finish** to exit the installation wizard.

Results

Performance Expert Agent Version 5 is installed.

You can now start the configuration GUI of **IBM DB2 Performance Expert Agent V5 Setup** at any time from the Windows **Start** menu in Performance Expert Agent.

Configuring Performance Expert Agent for Db2 Connect Monitoring on Windows

Performance Expert Agent for Db2 Connect Monitoring stores the collected data in the Performance Warehouse database DB2PM on the host (referred to as *performance database*) on which the OMEGAMON Collector resides. OMEGAMON Collector correlates this data with the monitored DB2 activity. Therefore, you must register the OMEGAMON Collector and prepare DB2 Connect monitoring before starting it.

You can use the GUI or the Command line utility to do this.

The following topics provide additional information:

- "Configuring Performance Expert Agent for Db2 Connect Monitoring by using the GUI" on page 144
- "Configuring Performance Expert Agent for Db2 Connect Monitoring by using the command line utility" on page 147

Configuring Performance Expert Agent for Db2 Connect Monitoring by using the GUI

To configure Performance Expert Agent for Db2 Connect Monitoring so that it monitors DB2 instances that serve as a gateway, you must perform several tasks within the Agent Configuration GUI.

Before you begin

Before you install the program files, ensure that you have the necessary privileges and that the users and user groups under which Performance Expert Agent for Db2 Connect Monitoring should run are defined. The required privileges and user group requirements are as follows:

- To install the program files, you must have the following privileges:
  - Windows administrator rights.
  - DB2 instance owner privileges. The DB2 instance user ID and password must be alphanumeric. White-space characters or multibyte characters are not allowed.
- The setup procedure can use only existing users and user groups.

  If you do not want to use the default account db2admin but the option **Account from locally defined users**, ensure that one of the following conditions applies:

  - The selected user has SYSADM authority in DB2 and the Windows right **Log on as service**.
  - The selected user is a member of the Windows administrators group.

  If none of these conditions applies, the selected user cannot start Performance Expert Agent for Db2 Connect Monitoring.
- One or more local DB2 instances that serve as a DB2 Connect gateway must be available.

About this task

The Performance Expert Agent for Db2 Connect Monitoring Configuration GUI guides you through the following tasks:

What to do next

The Performance Expert Agent for Db2 Connect Monitoring Configuration GUI window has the following panes:

- The left pane shows the local DB2 instance gateways, in a tree structure.
- The right pane shows details of the selected instance.

You can configure Performance Expert Agent for Db2 Connect Monitoring by using one of these options:

- The menu bar
- The context menu
- The buttons in the table pane

Note: These topics describe how to configure the Performance Expert Agent for Db2 Connect Monitoring by using the menu bar options.

Enabling a DB2 instance gateway to be monitored by using Performance Expert Agent for Db2 Connect Monitoring

When Performance Expert Agent for Db2 Connect Monitoring is newly installed, it does not yet monitor the local DB2 instances that serve as a DB2 Connect gateway. You must enable monitoring for these DB2 instances.

About this task

To enable a DB2 instance for monitoring, complete the following steps:

Procedure

1. Open the DB2 Performance Expert Agent for Db2 Connect Monitoring Configuration window by clicking **Start → Programs → IBM Db2 Performance Expert Agent V5 → Configure Using the GUI**.
   - The left pane shows the local DB2 instances that serve as a DB2 Connect gateway. Active DB2 instances that are available for monitoring are indicated with **(available)**.
   - If you have not yet configured a system for monitoring, the **Enable Monitoring** button is displayed in the right pane.
2. Select the DB2 instance that you want to monitor.
3. Click **Enable Monitoring**.
4. In the field **User ID**, enter the user ID of the administrator of the gateway.
5. In the field **Password**, enter the password for this user ID.
6. Click **OK**.

What to do next

After the DB2 instance is successfully enabled, you must add a performance database in which Performance Expert Agent for Db2 Connect Monitoring can store the collected data.

Adding a performance database for an enabled DB2 instance
You must add one or more performance databases to each enabled DB2 instance in which Performance Expert Agent for Db2 Connect Monitoring stores the collected data. A performance database is the database on the host that has been enabled for Performance Warehouse.

About this task

To add a performance database, complete the following steps:

Procedure

1. Open the **DB2 Performance Expert Agent for Db2 Connect Monitoring Configuration** window by clicking **Start → Programs → IBM Db2 Performance Expert Agent V5 → Configure Using the GUI**.
2. Select the DB2 instance for which you want to add a performance database.
3. Select **Add Database** from the **Selected** menu.
4. In the field **System**, select the system where the performance monitor is running, **z/OS** or **Multiplatform**.

   According to your selection, the relevant dialog details appear.
5. Complete all fields in the dialog box, then click **OK**.

   For more information about the fields, see Field description.

   After you click **OK**, the dialog box closes and the updated information is shown in the right pane of the **DB2 Performance Expert Agent for Db2 Connect Monitoring Configuration** window.

What to do next

Before Performance Expert Agent for Db2 Connect Monitoring can collect data and store it in the performance database, you must start the Windows service for Performance Expert Agent for Db2 Connect Monitoring as described in “Starting Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 151.

Changing authorization for a performance database
For security purposes, you might have to change authorization settings for a performance database. You must make these changes also on Performance Expert Agent for Db2 Connect Monitoring to enable connection to the database.

About this task

To change authorization for a performance database, complete the following steps:

Procedure

1. Open the **DB2 Performance Expert Agent for Db2 Connect Monitoring Configuration** window by clicking **Start → Programs → IBM Db2 Performance Expert Agent V5 → Configure Using the GUI**.
2. Select the DB2 instance that you want to change.
3. Select the performance database for which you want to change the authorization.
4. Select **Change Database Authorization** from the **Selected** menu.

   The connection details are disabled, you can change only the user details.
5. Change the user ID, or the password, or both, then click **OK**.

   If you change the user ID, the **User ID** column in the right pane shows the updated information.

Disabling a DB2 instance for monitoring by using Performance Expert Agent for Db2 Connect Monitoring
When you disable a DB2 instance, monitoring stops immediately. The DB2 instance remains in the list of registered DB2 instances.

About this task

To disable a DB2 instance, complete the following steps:

Procedure

1. Open the DB2 Performance Expert Agent for Db2 Connect Monitoring Configuration window by clicking **Start → Programs → IBM Db2 Performance Expert Agent V5 → Configure Using the GUI**.
2. Select the DB2 instance that you want to disable.
3. Select **Disable Monitoring** from the **Selected** menu.
4. Click **OK**.

   The selected DB2 instance is disabled for monitoring.

Removing a performance database from a DB2 instance
You might have to remove a performance database if the location of the OMEGAMON Collector changes or is no longer available.

About this task

To remove a performance database, complete the following steps:

Procedure

1. Open the **DB2 Performance Expert Agent for Db2 Connect Monitoring Configuration** window by clicking **Start → Programs → IBM Db2 Performance Expert Agent V5 → Configure Using the GUI**.
2. Select the DB2 instance for which you want to remove the performance database.
3. Select the performance database that you want to remove.
4. Select **Remove Database** from the **Selected** menu.
5. To confirm the removal, click **Yes**.

   The performance database is removed from the right pane in the **DB2 Performance Expert Agent for Db2 Connect Monitoring Configuration** window.

Testing the connection to a performance database
After you add a performance database, you can test the connection to ensure that Performance Expert Agent for Db2 Connect Monitoring can store collected data in this database.

About this task

To test the connection to a performance database, complete the following steps:

Procedure

1. Open the **DB2 Performance Expert Agent for Db2 Connect Monitoring Configuration** window by clicking **Start → Programs → IBM Db2 Performance Expert Agent V5 → Configure Using the GUI**.
2. Select the performance database that you want to test.
3. Select **Test Database Configuration** from the **Selected** menu.

   If the test is not successful, you get an SQL error message.

Configuring Performance Expert Agent for Db2 Connect Monitoring by using the command line utility
Performance Expert Agent for Db2 Connect Monitoring can be configured with the command line utility to monitor DB2 connect gateways for collecting data.

Before you begin

Before you install the program files, ensure that you have the necessary privileges and that the users and user groups under which Performance Expert Agent for Db2 Connect Monitoring should run are defined. The required privileges and user group requirements are as follows:

- To install the program files, you must have the following privileges:
  - Windows administrator rights.

  - DB2 instance owner privileges. The DB2 instance user ID and password must be alphanumeric. White-space characters or multibyte characters are not allowed.
- The setup procedure can use only existing users and user groups.

  If you do not want to use the default account db2admin but the option **Account from locally defined users**, ensure that one of the following conditions applies:

  - The selected user has SYSADM authority in DB2 and the Windows right **Log on as service**.
  - The selected user is a member of the Windows administrators group.

  If none of these conditions applies, the selected user cannot start Performance Expert Agent for Db2 Connect Monitoring.
- One or more local DB2 instances that serve as a DB2 Connect gateway must be available.

About this task

Configuring Performance Expert Agent for Db2 Connect Monitoring with the command line utility includes the following tasks:

- “Registering the OMEGAMON Collector on Windows” on page 148
- “Reusing the configuration file on Windows” on page 150
- “Reactivating the connection mode on Windows” on page 150

Registering the OMEGAMON Collector on Windows

Before Performance Expert Agent for Db2 Connect Monitoring can store the collected data, you must register the OMEGAMON Collector and prepare DB2 Connect monitoring.

About this task

To register the OMEGAMON Collector:

Procedure

1. Log on to the workstation on which Performance Expert Agent for Db2 Connect Monitoring is installed.
2. Open a Command Prompt window.
3. Change to the bin folder of the installation directory.
4. Stop Performance Expert Agent for Db2 Connect Monitoring.
5. Enter one of the following commands on the command line depending on what you want to do.
   a) To add an OMEGAMON Collector that is located on z/OS to the `e2e.ini` file of Performance Expert Agent for Db2 Connect Monitoring, enter **`e2e --addhost <host name> <DB2 port> <location name> <mainframe flag> <user login> <user password>`**

   Variable description:

   <host name>
   Denotes the network host name or IP address of the DB2 subsystem on which the registered OMEGAMON Collector runs.

   <DB2 port>
   Denotes the port number of the DB2 subsystem on which the registered OMEGAMON Collector runs.

   <location name>
   Denotes the location name of the DB2 subsystem on which the registered OMEGAMON Collector runs.

<mainframe flag>
Denotes whether the OMEGAMON Collector is located in a mainframe environment.

For a multiplatform environment, select 'N'.

<user login>
Denotes the user ID of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

<user password>
Denotes the password of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

Important: You should not include the password in the --addhost command if it contains special characters because the command might not work with special characters. You are then prompted to enter the password afterwards on a separate line. You can include the following special characters in passwords, but they might not work on the command line: ! @ # $ % ^ & ( ) [ ] { } * . - _ / \ ? : ; , < > = ' " + |

b) To change the user ID and password for a registered OMEGAMON Collector later, enter **e2e --change <number> <user login> <user password>**

where:

<number>
Denotes the number of the OMEGAMON Collector that you want to change the user login and password for.

<user login>
Denotes the user ID of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

<user password>
Denotes the password that you want to change.

Important: You should not include the password in the --change command if it contains special characters because the command might not work with special characters. You are then prompted to enter the password afterwards on a separate line. You can include the following special characters in passwords, but they might not work on the command line: ! @ # $ % ^ & ( ) [ ] { } * . - _ / \ ? : ; , < > = ' " + |

c) To see the numbers of all registered OMEGAMON Collectors, enter **e2e --listhosts**

d) To remove the registration entry of an OMEGAMON Collector from the `e2e.ini` file of Performance Expert Agent for Db2 Connect Monitoring, enter **e2e --removehost** *<number>*

where:

<number>
Denotes the number of the OMEGAMON Collector that you want to remove the registration entry for.

e) To test the connection to the registered server, enter **e2e --test <number>**

6. Ensure that the following subcommands for the PESERVER subtask are issued before you start DB2 Connect monitoring:
   - SNAPSHOTHISTORY=Y for Snapshot History processing
   - SHDB2CONNECTAPPLICATION=Y if you want to collect DB2 Connect application data
   - SHDB2CONNECTSYSTEM=Y if you want to collect DB2 Connect system data
7. When DB2 Connect monitoring is active for more than one server, ensure that only one of these servers accesses the collected data on the corresponding DB2 subsystem at a time.

   You must consider this if one of these conditions applies:
   - You use more than one OMEGAMON for Db2 PE.
   - You use DB2 Performance Expert for z/OS and OMEGAMON for Db2 PE, or both, or several of both.

- You use OMEGAMON for Db2 PE in a data sharing group running on different logically partitioned modes (LPARs) in a sysplex environment.

Results

All information regarding the server registration is added to the configuration file `e2e.ini`. You can reuse the configuration file that contains a list of registered OMEGAMON Collectors for other Performance Expert Agents for Db2 Connect Monitoring that you want to install.

Reusing the configuration file on Windows
You can reuse the `e2e.ini` configuration file of Performance Expert Agent for Db2 Connect Monitoring each time you install a new Performance Expert Agent for Db2 Connect Monitoring.

About this task

When you start Performance Expert Agent for Db2 Connect Monitoring, it uses the configuration file in the agent's working directory. If you want to reuse an existing `e2e.ini` configuration file for a new Performance Expert Agent for Db2 Connect Monitoring, perform the following steps:

Procedure

1. Copy the `e2e.ini` configuration file that you want to reuse from the agent's working directory to another directory to store it there.
2. Install the new Performance Expert Agent for Db2 Connect Monitoring.
3. Copy the `e2e.ini` configuration file from the directory where you stored it to the new agent's working directory.

Reactivating the connection mode on Windows
If the host of the connection mode is in *paused* status, you can reactivate the connection in the `e2e.ini` configuration file. Refer to the **`--change`** command

About this task

Hosts in connection mode *paused* are shown in the log file and on the console after each start of Performance Expert Agent for Db2 Connect Monitoring. You can see the paused flag also by using the command **`e2e --listhosts`**.

Note: This information is not displayed in the GUI.

The connection to the corresponding host is changed to *paused* in the `e2e.ini` configuration file if one of the following conditions applies:

- You specified the wrong user ID or password.
- The password on the OMEGAMON Collector side is changed or expired.

To reactivate the connection to the registered OMEGAMON Collector, you must change the incorrect user ID or password by using either the command **`e2e --change`** or by selecting the **Change** option in the GUI.

Note: Starting with Performance Expert Agent V5, Performance Expert for Multiplatforms V5 and later are no longer supported. If a Performance Expert agent detects a connection to a Performance Expert for Multiplatforms V5 or later performance database, the corresponding connection is set in paused mode. This can happen in environments where Performance Expert agent retrieves both Multiplatforms and z/OS connection data from the DB2 Connect gateway and the Performance Expert for Multiplatforms V3.2.0 server is updated to version V5. In this scenario it is not possible to reactivate the paused connection.

Starting Performance Expert Agent for Db2 Connect Monitoring on Windows

On Windows, you start Performance Expert Agent from the Windows Start Menu or from the Control Panel.

About this task

To start Performance Expert Agent for Db2 Connect Monitoring from the Control Panel:

Procedure

1. Click **Start** → **Settings** → **Control Panel** → **Administrative Tools**.
2. Double-click **Services**.
3. Check that the **DB2 Performance Expert Agent for DB2 Instance (DB2)** service is started, where *(DB2)* denotes the DB2 instance on which Performance Expert Agent for Db2 Connect Monitoring runs.

   If it is not started, right-click the corresponding service and click **Start**.
4. Optional: Configure the service to start automatically at system start.
   a) Right-click the corresponding service and click **Properties**.
   b) In the **Startup Type** list, select **Automatic**.

   The service will start automatically the next time Windows is started.

What to do next

Before you can work with Performance Expert Agent for Db2 Connect Monitoring, you must configure it as described in “Configuring Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 144.

Stopping Performance Expert Agent for Db2 Connect Monitoring on Windows

On Windows, you stop Performance Expert Agent for DB2 Connect Monitoring from the Control Panel.

About this task

To stop Performance Expert Agent for Db2 Connect Monitoring on Windows:

Procedure

1. Click **Start** → **Settings** → **Control Panel** → **Administrative Tools**.
2. Double-click **Services**.
3. Right-click **Performance Expert Agent for DB2 Connect Monitoring**.
4. Click **Stop**.

Updating Performance Expert Agent for Db2 Connect Monitoring on Windows

This method is a step-by-step update of Performance Expert Agent for Db2 Connect Monitoring using an installation wizard.

About this task

To update Performance Expert Agent for Db2 Connect Monitoring manually:

Procedure

1. Ensure that the OMEGAMON Collector from which you want to get the update is registered and configured for Performance Expert Agent for Db2 Connect Monitoring.
2. Log on to the system on which Performance Expert Agent for Db2 Connect Monitoring is installed.
3. Click **Start** → **Settings** → **Control Panel**.
4. Double-click **Administrative Tools**.
5. Double-click **Services**.
6. Stop the service **DB2 Performance Expert Agent for DB2 Instance (DB2)**, where *(DB2)* denotes the DB2 instance on which Performance Expert Agent for Db2 Connect Monitoring runs.
7. Open a **Command Prompt** window.
8. Change to your installation directory, for example, `C:\Program Files\IBM\Performance Expert Agent for DB2 Connect Monitoring\bin`
9. Enter **`e2e --update`** on the command line.

   If a new version of Performance Expert Agent for Db2 Connect Monitoring is found, you get the message `New version downloaded`.
10. Restart Performance Expert Agent for Db2 Connect Monitoring in one of the following ways:
    - Start the Performance Expert Agent for Db2 Connect Monitoring service in the **Services** window.
    - Enter **`e2e --start`** on the command line.

Results

The latest version of Performance Expert Agent for Db2 Connect Monitoring is installed. To test it, perform the following steps:

1. Ensure that Performance Expert Agent for Db2 Connect Monitoring is started.
2. Use Performance Expert Client to log on to a DB2 subsystem for which Performance Expert Agent for Db2 Connect Monitoring collects data about the connection status.
3. Verify that the data is collected.

If the update does not work correctly, you can recover the previous version of Performance Expert Agent for Db2 Connect Monitoring by doing the following:

1. Stop the service **Performance Expert Agent for DB2 Connect Monitoring (DB2)** if it is already started, where *(DB2)* denotes the DB2 instance on which Performance Expert Agent for Db2 Connect Monitoring runs.
2. Open a **Command Prompt** window.
3. Change to your installation directory, for example, `C:\Program Files\IBM\Performance Expert Agent for DB2 Connect Monitoring\bin`
4. Enter **`e2e --rollback`** on the command line.

The previous version of Performance Expert Agent for Db2 Connect Monitoring is reinstalled and you get the message `Old version restored`.

Removing Performance Expert Agent for Db2 Connect Monitoring on Windows

About this task

To remove Performance Expert Agent for Db2 Connect Monitoring from your Windows workstation:

Procedure

1. Stop Performance Expert Agent for Db2 Connect Monitoring.
2. Click **Start** → **IBM DB2 Performance Expert Agent V5** → **Uninstall**.

The **Performance Expert Agent for Db2 Connect Monitoring Setup** window opens.

3. Click **Next**.
4. Check the summary information, then click **Uninstall**.

   The program files are removed. You are asked if you want to remove the files that were not deleted from the installation directory.
5. To completely remove Performance Expert Agent for Db2 Connect Monitoring, click **Next**.

   The files are removed and the next Performance Expert Agent for DB2 Connect Monitoring Setup window opens. It shows summary information and the location of the log file.
6. Click **Finish** to exit the InstallAnywhere Wizard.

Results

Performance Expert Agent for Db2 Connect Monitoring is completely removed from your Windows workstation.

Installing and configuring Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux

Performance Expert Agent for Db2 Connect Monitoring monitors connections of remote applications within the Distributed Relational Database Architecture (DRDA) of Db2. When Performance Expert Agent for Db2 Connect Monitoring is installed on the system on which Db2 Connect is installed as a gateway, it collects connection-related data, such as the connection status of a remote application. It also collects statistics about Db2 Connect activities.

The following topics provide additional information about how to install and configure it on UNIX and Linux® systems.

- "Hardware requirements for Performance Expert Agent on Linux and UNIX" on page 153
- "Software requirements for Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux" on page 154
- "Downloading the program files of Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux" on page 155
- "Installing the program files of Performance Expert Agent Version 5 on UNIX and Linux" on page 155
- "Configuring Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux" on page 159
- "Starting Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux" on page 163
- "Stopping Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux" on page 163
- "Removing Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux" on page 164

Hardware requirements for Performance Expert Agent on Linux and UNIX

Ensure that your system has enough resources. Check the RAM and available disk space.

The minimum hardware requirements for Performance Expert Agent are:

- 512 MB RAM
- The following disk space in a temporary directory for the temporary program files during the installation of Performance Expert Agent:
  - Linux on xSeries 32-bit: 260 MB
  - Linux on xSeries 64-bit: 500 MB
  - Linux on pSeries: 300 MB
  - Linux on zSeries: 300 MB
  - AIX®: 150 MB

- The following disk space in the installation directory for the program files and log files of Performance Expert Agent:
  - Linux on xSeries 32-bit: 200 MB
  - Linux on xSeries 64-bit: 350 MB
  - Linux on pSeries: 200 MB
  - Linux on zSeries: 200 MB
  - AIX: 200 MB
- 5 MB disk space in the working directory for `log` and `ini` files of Performance Expert Agent

Software requirements for Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux

Performance Expert Agent for Db2 Connect Monitoring requires the following system and software prerequisites. Review these requirements to ensure that your environment is prepared for installation.

The minimum software requirements to install and run Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux are:

- One of the following operating systems:
  - AIX V6.1
  - AIX V7.1
- One of the Linux systems as shown in the following table:
  - Validated distributions are marked with *Validated*.
  - Distributions that are supported, but have not yet been validated are marked with *Supported*.
  - Unsupported distributions are marked with *Not supported*.

Table 72. Supported Linux systems

Distribution	Linux on xSeries 64-bit	Linux on zSeries 64-bit	Linux on pSeries 64-bit
SUSE Linux Enterprise Server 11	Validated	Validated	Validated
SUSE Linux Enterprise Server 12	Validated	Validated	Validated
Red Hat Enterprise Linux 6	Validated	Validated	Validated
Red Hat Enterprise Linux 7	Validated	Validated	Validated

- One of the following Db2 systems:
  - Db2 systems:
    - Db2 Enterprise Server Edition V9.7 up to V10.5
  - Db2 systems for HP-UX Version 11i v3 for Itanium-based HP Integrity Series systems:
    - Db2 Enterprise Server Edition V9.1 FP3 up to V10.5
  - Db2 Connect systems:
    - Db2 Connect Enterprise Edition V9.7 up to V10.5
    - Db2 Connect Application Server Edition V9.7 up to V10.5
    - Db2 Connect Personal Server Edition V9.7 up to V10.5
  - Db2 Connect systems for HP-UX Version 11i v3 for Itanium-based HP Integrity Series systems:
    - Db2 Connect Enterprise Edition V9.1 FP3 up to V10.5

- Db2 Connect Unlimited Edition (for zSeries) V9.1 FP3 up to V10.5
- Db2 Connect Application Server Edition V9.1 FP3 up to V10.5

- TCP/IP installed on the workstation
- Software programs to download files or code from z/OS, such as File Transfer Protocol (FTP) or IBM Personal Communications

The following table shows which bit width Performance Expert supports for the Db2 instances on the supported platforms.

Table 73. Platform support matrix

Operating system	**32-bit**	**64-bit**
AIX	Not supported	Validated
HP-UX	Not supported	Not supported
Solaris on SPARC	Not supported	Not supported
Linux on System x	Supported	Supported
Linux on System p	Not supported	Supported
Linux on System z	Not supported	Supported
Windows 2008 SP2	Not supported	Validated
Windows 2008 R2 SP1	Not supported	Validated
Windows 2012	Not supported	Validated
Windows 2016	Not supported	Validated
Windows 10	Not supported	Validated

Downloading the program files of Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux

About this task

Both, the initial version and later fixes for the program files for Performance Expert Agent for Db2 Connect Monitoring are available online. For download instructions, refer to the technote "OMEGAMON XE for DB2 PE/PM: web-based delivery and updates for Windows- and UNIX-based components" on the *IBM Software Support website*. If needed, the direct link to the technote is also included in the hold instructions of every Performance Expert Agent PTF on the host. The available program build levels and fix descriptions are documented in the technote.

Installing the program files of Performance Expert Agent Version 5 on UNIX and Linux

Complete these steps to install Performance Expert Agent Version 5 or to migrate from Performance Expert Agent Version 3.

Before you begin

- The name of the directory from which you install the program files and the name of the directory to which you install the program files, might not contain non-Latin-based characters or blanks.
- You must install Performance Expert Agent on the same system on which DCS connections are performed.
- If you want to perform a silent installation for additional Performance Expert Agents, you must create a response file to record your installation steps. For detailed instructions on silent installation, see “Installing Performance Expert Agent silently by using a response file” on page 157.
- If you want to run the installation wizard in GUI mode, ensure that you can run X applications.

- If you are migrating from Performance Expert Agent Version 3 on AIX, Linux on System z, HP-UX, or Solaris on a 32–bit platform, you must uninstall Performance Expert Agent Version 3 before beginning. If you want to reuse your current settings, you can save your existing configuration file. The configuration is stored in the e2e.ini file.

About this task

To install the program files, complete these steps:

Procedure

1. Log on as **root** and ensure that your umask is 022.

   sudo is not supported.
2. Extract the file from the downloaded compressed file into one directory.

   The installation package consists of the following item:

   - An installation launcher db2pe.agent.*.install-on-*<operating system>*.bin

     where *<operating system>* is your operating system, for example, db2pe.agent.*.install-on-xlinux.bin.
3. Start the installation wizard in GUI mode or in console mode.

   - To run the installation wizard in GUI mode, open a shell window and run the executable file that is appropriate for your operating system. The executable files have the following form:

     For Linux on xSeries:
     ./db2pe.agent.*.install-on-xlinux-x86-32.bin
     ./db2pe.agent.*.install-on-xlinux-x86-64.bin

     For Linux on pSeries:
     ./db2pe.agent.*.install-on-pseries.bin

     For Linux on zSeries:
     ./db2pe.agent.*.install-on-zseries.bin

     For AIX:
     ./db2pe.agent.*.install-on-aix.bin

     For HP-UX:
     ./db2pe.agent.*.install-on-hpia.bin

     For the Solaris Operating Environment:
     ./db2pe.agent.*.install-on-solaris.bin
   - To run the installation wizard in console mode, enter the appropriate command for your operating system and append **-i console**.

     For example, for Linux on xSeries enter:

     ./db2pe.agent.*.install-on-xlinux -i console

     Note: To avoid problems with multiple versions of the script being present in the installation directory, you should use the original file name, replacing the * as appropriate.

     Important: Installation path names might not contain blanks.

   The program files are temporarily stored in a temporary directory. By default, the temporary directory is created in the home directory of the root user, for example, /root.

   Important: If you specify a different temporary directory, program files are stored in the new temporary directory, and program scripts are stored in the default temporary directory. Therefore, you must ensure that both temporary directories have enough disk space.

   To specify a different path name for the temporary directory, enter the command

   export IATEMPDIR=<temp dir name>

where *<temp dir name>* is the name of the temporary directory.

The installation wizard starts, and the **IBM DB2 Performance Expert Agent V5 Setup** Welcome window opens.

4. Click **Next**.

   The **IBM DB2 Performance Expert Agent V5 Setup** window shows the License Agreement.

5. Select **I accept the terms of the license agreement**, then click **Next**.

   The next **IBM DB2 Performance Expert Agent V5 Setup** window opens.

6. Specify the installation directory for the program files.

   This step depends on the task that you want to perform:

   New installation: You install Performance Expert Agent Version 5 whereas no previous version is installed.
   Migration from Performance Expert Agent Version 3 on the same platform: You replace Performance Expert Agent Version 3 by Performance Expert Agent Version 5.
   Migration from Performance Expert Agent Version 3 on AIX, Linux on System z, or Solaris on a 32–bit platform: You uninstall Performance Expert Agent Version 3 and then follow the new installation instructions.

   - If you install Performance Expert Agent Version 5 whereas no previous version is installed or you migrate from Performance Expert Agent Version 3 on an older platform, take one of these steps:
     – To install the program files to the default installation directory, click **Next**.

       The name of the default installation directory is:

       `/opt/IBM/db2peage/v5`

     – To install the program files to a different directory, click **Browse**, select another directory, then click **Next**.

       The next **IBM DB2 Performance Expert Agent V5 Setup** window opens.
   - If you migrate from Performance Expert Agent Version 3 on the same platform, select the installation directory in which the previous version of Performance Expert Agent is installed.

     The next **IBM DB2 Performance Expert Agent V5 Setup** window opens.

7. Click **Next**.

   The next **IBM DB2 Performance Expert Agent V5 Setup** window opens.

8. Check the displayed information, then click **Install**.

   The program files are copied to the specified directory, then the next **IBM DB2 Performance Expert Agent V5 Setup** window opens. It shows summary information about the installation. It also shows the location of the log file.

9. Check the summary information, then click **Finish** to exit the installation wizard.

Results

Performance Expert Agent Version 5 is installed.

Installing Performance Expert Agent silently by using a response file
A silent installation is an installation that runs without displaying an interface or prompting you for input. You can do silent installations of Performance Expert Agent to simplify the process of installing it on multiple computers.

Before you begin

Before you install Performance Expert Agent silently, you must first create a response file. A *response file* is a file that contains the properties and values that drive the installation. You create a response file by running the installation wizard or console mode with the following command-line option: `-r` *`response_file_name`*. When you complete the installation, the information that you entered in the

installation wizard or console mode is recorded in the response file. You will use this file to install the product silently on other computers.

Procedure

To install Performance Expert Agent silently by using a response file:

1. From the directory of the installation image for Performance Expert Agent, run the following command:

   On Windows 64-bit:

   ```
   db2pe.agent.*.install-on-win64.exe -i silent -f response_file_name
   ```

   For Linux on xSeries:

   ```
   db2pe.agent.*.install-on-xlinux-x86-32.bin -i -silent -f response_file_name
   ```

   ```
   db2pe.agent.*.install-on-xlinux-x86-64.bin -i -silent -f response_file_name
   ```

   For Linux on pSeries:

   ```
   db2pe.agent.*.install-on-pseries.bin -i -silent -f response_file_name
   ```

   For Linux on zSeries:

   ```
   db2pe.agent.*.install-on-zseries.bin -i -silent -f response_file_name
   ```

   For AIX:

   ```
   db2pe.agent.*.install-on-aix.bin -i -silent -f response_file_name
   ```

   For HP-UX:

   ```
   db2pe.agent.*.install-on-hpia.bin -i -silent -f response_file_name
   ```

   For the Solaris Operating Environment:

   ```
   db2pe.agent.*.install-on-solaris.bin -i -silent -f response_file_name
   ```

   where *response_file_name* is the name of the response file that you created during a previous installation of the product.

   The product is installed.

2. Verify that the installation was successful by checking the db2peage.log installation log file in the following directory:
   - On Windows: **%USERPROFILE%** (For example: `C:\Documents and Settings\Administrator`)
   - On Linux and Solaris: `/var/log`
   - On AIX and HP-UX: `/var/adm/sw`
3. Start Performance Expert Agent:
   - “Starting Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 163
   - “Starting Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 151

What to do next

You are now ready to configure the product. For instructions on configuring and using Performance Expert Agent, see “Configuring Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 159 and/or “Configuring Performance Expert Agent for Db2 Connect Monitoring on Windows” on page 144.

Configuring Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux

Performance Expert Agent for Db2 Connect Monitoring stores the collected data in the Performance Warehouse database DB2PM on the host (referred to as *performance database*) on which the OMEGAMON Collector resides. OMEGAMON Collector correlates this data with the monitored DB2 activity. Therefore, you must register the OMEGAMON Collector and prepare DB2 Connect monitoring before starting it.

Restriction: Consider the following restrictions before configuring Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux:

- When DB2 Connect monitoring is active for more than one server, only one of these servers should access the collected data on the corresponding DB2 subsystem at a time.
- When more than one Performance Expert Agent for Db2 Connect Monitoring is installed on one LPAR, the hub Tivoli Enterprise Monitoring Server can only accept monitoring data from one Performance Expert Agent for Db2 Connect Monitoring per LPAR at a time.

You must consider this if you use one of the following:

- More than one OMEGAMON for Db2 PE
- DB2 Performance Expert for z/OS and OMEGAMON for Db2 PE, or both, or several of both
- OMEGAMON for Db2 PE in a data sharing group running on different logically partitioned modes (LPARs) in a sysplex environment

The following topics provide additional information:

- "Registering the OMEGAMON Collector on UNIX and Linux as root" on page 159
- "Registering an OMEGAMON Collector on UNIX and Linux as DB2 instance owner" on page 160
- "Reusing the configuration file on UNIX and Linux" on page 162

Registering the OMEGAMON Collector on UNIX and Linux as root

Before Performance Expert Agent for Db2 Connect Monitoring can store collected data, you must register the OMEGAMON Collector and prepare DB2 Connect monitoring before starting it.

About this task

To register the OMEGAMON Collector:

Procedure

1. Log on directly as root via telnet or ssh, for example, or switch to root by entering **su -**
2. Change to the directory `/opt/IBM/db2peage/V5/bin`
3. Invoke the configuration script by entering **./db2peage-config**

   You get a list of available DB2 instances.
4. Type the name of the DB2 instance for which you want to configure Performance Expert Agent for Db2 Connect Monitoring.

   A menu from which you can choose options for the selected DB2 instance opens.
5. Select **Add a host to your Performance Expert Agent**.

   This host is the DB2 system on which the OMEGAMON Collector runs. It contains the DB2PM database in which the collected data is to be stored.

   To add all OMEGAMON Collectors now, select this option repeatedly.

6. Ensure that the following subcommands for the PESERVER subtask are issued before you start DB2 Connect monitoring.

   SNAPSHOTHISTORY=Y
   for Snapshot History processing

   SHDB2CONNECTAPPLICATION=Y
   if you want to collect DB2 Connect application data

   SHDB2CONNECTSYSTEM=Y
   if you want to collect DB2 Connect system data
7. When DB2 Connect monitoring is active for more than one server, ensure that only one of these servers accesses the collected data on the corresponding DB2 subsystem at a time.

   You must consider this if you use one of the following:

   - More than one OMEGAMON for Db2 PE
   - DB2 Performance Expert for z/OS and OMEGAMON for Db2 PE, or both, or several of both
   - OMEGAMON for Db2 PE in a data sharing group running on different logically partitioned modes (LPARs) in a sysplex environment

Results

All information regarding the server registration is added to the configuration file `e2e.ini`. It is located in the directory `/var/db2pe/V3/<DB2 subsystem>`, where *<DB2 subsystem>* denotes the DB2 subsystem on which Performance Expert Agent for Db2 Connect Monitoring runs. You can reuse the configuration file that contains a list of registered OMEGAMON Collectors for other Performance Expert Agents for Db2 Connect Monitoring that you want to install.

Registering an OMEGAMON Collector on UNIX and Linux as DB2 instance owner
Probably, you have registered OMEGAMON Collectors during configuration of Performance Expert Agent for Db2 Connect Monitoring by using the script `db2peage-config`. You can, however, register and unregister OMEGAMON Collectors at any time without root authorization.

Before you begin

- You must prepare instances for the Performance Expert Agent for Db2 Connect Monitoring before beginning. You can do this either by:
  - Having registered an OMEGAMON Collector by using the script `db2peage-config` as root.
  - Starting the `db2peage-config` configuration script to prepare the instances, but exit the script without actually having configured the server. This will prepare the instances for later configuration.
- If Performance Expert Agent for Db2 Connect Monitoring is started, you must stop it before you can issue any command.

Note: Starting with Performance Expert Agent V5, Performance Expert for Multiplatforms V5 and later are no longer supported. If a Performance Expert agent detects a connection to a Performance Expert for Multiplatforms V5 or later performance database, the corresponding connection is set in paused mode. This can happen in environments where the Performance Expert agent retrieves both Multiplatform and z/OS connection data from the DB2 Connect gateway and the Performance Expert for Multiplatforms V3.2.0 server is updated to version V5. In this scenario it is not possible to reactivate the paused connection.

About this task

To register an OMEGAMON Collector:

Procedure

1. Log on to the DB2 instance on which Performance Expert Agent for Db2 Connect Monitoring is installed.

2. Change to the BIN folder of the installation directory of Performance Expert Agent for Db2 Connect Monitoring.
3. Stop Performance Expert Agent for Db2 Connect Monitoring by entering **./e2e --stop**
4. Enter one of the following commands on the command line depending on what you want to do:
   a) To add an OMEGAMON Collector that is located on z/OS to the e2e.ini file of Performance Expert Agent for Db2 Connect Monitoring, enter **./e2e --addhost <host name> <DB2 port> <location name> <mainframe flag> <user login> <user password>**

      where the variables represent the following:

      <host name>
      the network host name or IP address of the DB2 subsystem on which the registered OMEGAMON Collector runs.

      <DB2 port>
      the port number of the DB2 subsystem on which the registered OMEGAMON Collector runs.

      <location name>
      the location name of the DB2 subsystem on which the registered OMEGAMON Collector runs.

      <mainframe flag>
      whether the OMEGAMON Collector is located in a mainframe environment.

      For a z/OS environment, specify Y. For a multiplatform environment, specify N.

      <user login>
      the user ID of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

      <user password>
      the password of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

      Important: You should not include the password in the --addhost command if it contains special characters because the command might not work with special characters. You are then prompted to enter the password afterwards on a separate line. You can include the following special characters in passwords, but they might not work on the command line:

      ! @ # $ % ^ & ( ) [ ] { } * . - _ / \ ? : ; , < > = ' " + |

   b) To later change the user ID and password for a registered OMEGAMON Collector, enter **./e2e --change <number> <user login> <user password>**

      where the variables represent the following:

      <number>
      the number of the OMEGAMON Collector for which user login and password are to be changed.

      <user login>
      the user ID of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

      <user password>
      the password that is to be changed.

      Important: You should not include the password in the --change command if it contains special characters because the command might not work with special characters. You are then prompted to enter the password afterwards on a separate line. You can include the following special characters in passwords, but they might not work on the command line:

      ! @ # $ % ^ & ( ) [ ] { } * . - _ / \ ? : ; , < > = ' " + |

   c) To see the numbers of all registered OMEGAMON Collectors, enter **./e2e --listhosts**

   d) To remove the registration entry of an OMEGAMON Collector from the e2e.ini file of Performance Expert Agent for Db2 Connect Monitoring, enter **./e2e --removehost <number>**

where *<number>* denotes the number of the OMEGAMON Collector for which you want to remove the registration entry.

e) To test the connection, enter **e2e --test <number>**

5. Ensure that the following subcommands for the PESERVER subtask are issued before you start DB2 Connect monitoring:

   SNAPSHOTHISTORY=Y
   for Snapshot History processing

   SHDB2CONNECTAPPLICATION=Y
   if you want to collect DB2 Connect application data

   SHDB2CONNECTSYSTEM=Y
   if you want to collect DB2 Connect system data

6. When DB2 Connect monitoring is active for more than one server, ensure that only one of these servers accesses the collected data on the corresponding DB2 subsystem at a time.

   You must consider this if you use one of the following:

   - More than one OMEGAMON for Db2 PE
   - DB2 Performance Expert for z/OS and OMEGAMON for Db2 PE, or both, or several of both
   - OMEGAMON for Db2 PE in a data sharing group running on different logically partitioned modes (LPARs) in a sysplex environment

Results

All information regarding the server registration is added to the configuration file `e2e.ini`. You can reuse the configuration file that contains a list of registered OMEGAMON Collectors for other Performance Expert Agents for Db2 Connect Monitoring that you want to install. For more information about reusing the configuration file, see “Reusing the configuration file on UNIX and Linux” on page 162.

Reusing the configuration file on UNIX and Linux

You can reuse the `e2e.ini` configuration file of Performance Expert Agent for Db2 Connect Monitoring each time you install a new Performance Expert Agent for Db2 Connect Monitoring.

About this task

To reuse the `e2e.ini` configuration file, it must be located in the directory `/var/db2pe/V3/<DB2 instance>`, where *<DB2 instance>* denotes the name of the monitored DB2 instance that serves as a gateway.

To reuse the `e2e.ini` configuration file for a new Performance Expert Agent for Db2 Connect Monitoring:

Procedure

1. Copy the `e2e.ini` configuration file that you want to reuse from the home directory to another directory to store it there.
2. Install the new Performance Expert Agent for Db2 Connect Monitoring.
3. Copy the `e2e.ini` configuration file from the directory in which you stored it to the directory `/var/db2pe/V3/<DB2 instance>`, where *<DB2 instance>* denotes the name of the monitored DB2 instance that serves as a gateway.

   When you start Performance Expert Agent for Db2 Connect Monitoring, it uses the configuration file in the directory `/var/db2pe/V3/<DB2 instance>`

Reactivating the connection mode on UNIX and Linux
If the host of the connection mode is in *paused* status, you can reactivate the connection in the `e2e.ini` configuration file.

About this task

Hosts in connection mode *paused* are shown in the log file and on the console after each start of Performance Expert Agent for Db2 Connect Monitoring. You can see the paused flag also by using the command **e2e --listhosts**

The connection to the corresponding host is changed to *paused* in the `e2e.ini` configuration file if one of the following conditions applies:

- You specify the user ID or the password incorrectly.
- The password on the OMEGAMON Collector side is changed or expired.

To reactivate the connection to the registered OMEGAMON Collector, change the incorrect user ID or password by using the command **e2e --change**

Starting Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux

About this task

To start Performance Expert Agent for Db2 Connect Monitoring:

Procedure

1. Log on as the DB2 instance owner under which you want to run Performance Expert Agent for Db2 Connect Monitoring.
2. Change to the directory *<installdiragent>*`/bin`

   where *<installdiragent>* denotes the installation directory of Performance Expert Agent for Db2 Connect Monitoring, for example, `/opt/IBM/db2peage/V5`
3. Enter **./e2e --start**.

   To start Performance Expert Agent for Db2 Connect Monitoring as a background process, enter one of the following commands:

   - **./e2e --start &**
   - **./e2e --start -bg**

What to do next

Before you can work with Performance Expert Agent for Db2 Connect Monitoring, you must configure it as described in “Configuring Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux” on page 159.

Stopping Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux

About this task

To stop Performance Expert Agent for Db2 Connect Monitoring:

Procedure

1. Log on as the DB2 instance owner under which you want to run Performance Expert Agent for Db2 Connect Monitoring.
2. Change to the directory `<installdiragent>/bin`

   where *<installdiragent>* denotes the installation directory of Performance Expert Agent for Db2 Connect Monitoring.

3. Enter the command **./e2e --stop**

Updating Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux

This method is a step-by-step update of Performance Expert Agent for Db2 Connect Monitoring.

About this task

To update Performance Expert Agent for Db2 Connect Monitoring manually:

Procedure

1. Log on as the DB2 instance owner.
2. Change to the directory `<installdiragent>/bin`

   where *<installdiragent>* denotes the installation directory of Performance Expert Agent for Db2 Connect Monitoring.
3. Stop Performance Expert Agent for Db2 Connect Monitoring if it is started by using the command **./e2e --stop**.
4. Log on as root.
5. Enter the command **./e2e --update**.

   If a new version of Performance Expert Agent for Db2 Connect Monitoring is found, you get the message `New version downloaded`.
6. Restart Performance Expert Agent for Db2 Connect Monitoring by entering the command **./e2e --start** on the command line.

Results

The latest version of Performance Expert Agent for Db2 Connect Monitoring is installed. To test it, perform the following steps:

1. Ensure that Performance Expert Agent for Db2 Connect Monitoring is started.
2. Use Performance Expert Client to log on to a DB2 subsystem or DB2 instance for which Performance Expert Agent for Db2 Connect Monitoring collects data about the connection status.
3. Verify that the data is collected.

If the update does not work correctly, you can recover the previous version of Performance Expert Agent for Db2 Connect Monitoring by doing the following:

1. Stop Performance Expert Agent for Db2 Connect Monitoring by entering **./e2e --stop** on the command line.
2. Enter **./e2e --rollback** on the command line.

The previous version of Performance Expert Agent for Db2 Connect Monitoring is reinstalled and you get the message `Old version restored`.

Removing Performance Expert Agent for Db2 Connect Monitoring on UNIX and Linux

About this task

To remove Performance Expert Agent for Db2 Connect Monitoring from your UNIX or Linux system:

Procedure

1. Log on as the DB2 instance owner.

2. Change to the directory *<installdiragent>*/bin

   where *<installdiragent>* denotes the installation directory of Performance Expert Agent for Db2 Connect Monitoring.
3. Stop Performance Expert Agent for Db2 Connect Monitoring.
4. Log on as root.
5. Enter **<installdiragent>/uninstall/uninstaller**

   where *<installdiragent>* denotes the installation directory of Performance Expert Agent for Db2 Connect Monitoring.
6. Press Enter.

   The InstallAnywhere Multiplatform Wizard opens.
7. Select **Next** and follow the instructions.
8. Select **Finish** to complete the procedure.

   The InstallAnywhere Multiplatform Wizard is closed.
9. Enter **rm -fr /<installdiragent>** to delete the installation directory of Performance Expert Agent for Db2 Connect Monitoring.

Installing and configuring Performance Expert Client

Performance Expert Client provides real-time and historical monitoring of a DB2 subsystem or DB2 data sharing group. This section describes how to enable Performance Expert Client to an existing runtime environment.

Before you begin

You must do the following before beginning:

- Verify that your system meets the hardware and software requirements.
- Enable Performance Expert Client support on z/OS. See "Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support" on page 117.

About this task

The following topics provide detailed installation instructions:

- "Hardware requirements for Performance Expert Client" on page 165
- "Software requirements for Performance Expert Client" on page 166
- "Downloading the program files of Performance Expert Client" on page 167
- "Installing the program files of Performance Expert Client" on page 167
- "Preparing access to Performance Warehouse" on page 169
- "Defining the DB2 subsystem" on page 170

Hardware requirements for Performance Expert Client

Performance Expert Client requires the following hardware prerequisites. Review these requirements to ensure that your environment is prepared for installation.

The minimum hardware requirements to install and run Performance Expert Client are:

- A personal computer with Intel-based processor architecture, 400 MHz Pentium
- 512 MB RAM
- 650 MB (Windows 32-bit and 64-bit) disk space in the installation directory for the installation files
- 400 MB temporary space for running the installation program
- A high-resolution display unit of 1024 x 768 or higher

- If you install OMEGAMON for Db2 PE, which includes buffer pool object placement, the following free memory for object placement:
  - 60 MB for up to 1000 objects
  - 220 MB for up to 100 000 objects
  - 500 MB for up to 200 000 objects

  where objects are table spaces and index spaces.

Recommendation: If you have installed only the minimum requirements, you should not run other applications at the same time.

Software requirements for Performance Expert Client

Performance Expert Client requires the following system and software prerequisites. Review these requirements to ensure that your environment is prepared for installation.

The minimum software requirements to install and run Performance Expert Client are:

- One of the following Windows (x86-64) versions:
  - Windows XP Professional Edition with Service Pack 2, including XP FDCC
  - Windows Vista Business Edition, Enterprise Edition, and Ultimate Edition, including Vista XP FDCC
  - Windows 7 Professional Edition and Ultimate Edition including FDCC
  - Windows 8 Standard Edition, Professional Edition, and Enterprise Edition
  - Windows Server 2003 with Service Pack 1, Standard Edition, Enterprise Edition, and Datacenter Edition
  - Windows Server 2003 R2 Standard Edition, Enterprise Edition, and Datacenter Edition
  - Windows Server 2008 Standard Edition, Enterprise Edition, and Datacenter Edition
  - Windows Server 2008 R2 Standard Edition, Enterprise Edition, and Datacenter Edition
- The following data servers (64-bit) are supported for Db2 Performance Expert Client:
  - IBM Db2 Enterprise Server Edition for Linux, UNIX, and Windows Version 9.1 up to V10.5
  - IBM Db2 Workgroup Server Edition for Linux, UNIX, and Windows Version 9.1 up to V10.5
  - IBM Db2 Personal Server Edition for Linux, UNIX, and Windows Version 9.1 up to V10.5
  - IBM Db2 Connect Enterprise Edition for Linux, UNIX, and Windows Version 9.1 up to V10.5
  - IBM Db2 Connect Personal Edition for Linux, UNIX, and Windows Version 9.1 up to V10.5
  - IBM Db2 Connect Application Server Edition for Linux, UNIX, and Windows Version 9.1 up to V10.5
  - IBM Db2 Connect Unlimited Edition for zSeries Version 9.1
  - IBM Db2 Client Version 9.1
  - IBM Db2 Data Server Client Version 9.5 and Version 9.7
- If the Explain function is used:
  - IBM Db2 Query Workload Tuner for z/OS Version 5.1
  - IBM InfoSphere Optim Query Workload Tuner Version 4.1 or later (including Data Studio) (Db2 V12 requires Data Studio 4.1.3 or later)
  - IBM Data Server Manager V2.1.5
- TCP/IP installed on the workstation
- One of the following web browsers:
  - Microsoft Internet Explorer Version 7 or later
  - Netscape Navigator Version 7 or later
  - Mozilla Firefox Version 3.6 or later

Downloading the program files of Performance Expert Client

About this task

Both the initial version and later fixes for the program files for Performance Expert Agent for Db2 Connect Monitoring are available online. For download instructions, refer to the technote "OMEGAMON XE for DB2 PE/PM: web-based delivery and updates for Windows- and UNIX-based components" on the *IBM Software Support website*. If needed, the direct link to the technote is also included in the hold instructions of every Performance Expert Agent PTF on the host. The available program build levels and fix descriptions are documented in the technote.

Installing the program files of Performance Expert Client

After downloading the program files of Performance Expert Client, you install them using the InstallAnywhere Wizard.

Before you begin

Before beginning, you must do the following:

- Verify that you have administration privileges.
- Download the program files of Performance Expert Client. See "Downloading the program files of Performance Expert Client" on page 167 for more information.
- Close the DB2 Control Center before installing the Performance Expert Client program files (if applicable).
- If you want to perform a silent installation, you must create a response file to record your installation steps. For detailed instructions on silent installation, see "Installing Performance Expert Client silently by using a response file" on page 168.

About this task

To install the program files, do the following:

Procedure

1. Verify that you have closed the DB2 Control Center. The DB2 Control Center must be closed before you start the client installation in order for the Control Center plug-in to be installed properly.
2. Extract the files and directories from the compressed file(s) into the installation directory, for example, `C:\PROGRAMS\IBM\PECLIENT`.

   The archives contain the following files and directories:

   - `db2pe.client.*.exe`
   - `iehs*win.jar`
3. Run the `*.exe` file.

   With Windows 8 or later, ensure that you run the `*.exe` file in Windows 7 Compatibility mode.

   The InstallAnywhere Wizard starts, and the IBM Db2 Performance Expert V5 Setup window opens.

   If you did not close the DB2 Control Center before installing the plug-in then you might not be able to access the Performance Expert Client from the DB2 Control Center.
4. Click **Next**.

   The next setup window shows the License Agreement.
5. To install Performance Expert Client, click **I accept the terms of the license agreement**, then click **Next**.
6. Click **Performance Expert on z/OS**, then click **Next**.

If you only want to install IBM Tivoli OMEGAMON XE for DB2 Performance Monitor on z/OS, click **Performance Monitor on z/OS** instead.

In the next window, you can specify the installation path.

7. Select the setup type that you prefer, then click **Next**.
8. To install the program files to the default destination folder, click **Next**. To install the program files to a different folder, click **Browse**, then select another folder.
9. Check the summary information, then click **Install**.

   The program files are copied to the specified destination folder and the next setup window opens. It shows summary information about the installation. It also shows the location of the log file.
10. Click **Finish** to exit the InstallAnywhere Wizard.

Results

Performance Expert Client is installed.

Installing Performance Expert Client silently by using a response file

A silent installation is an installation that runs without displaying an interface or prompting you for input. You can do silent installations of Performance Expert Client to simplify the process of installing it on multiple computers.

Before you begin

Before you install Performance Expert Client silently, you must first create a response file. A *response file* is a file that contains the properties and values that drive the installation. You create a response file by running the installation wizard or console mode with the following command-line option: `-r` *`response_file_name`*. When you complete the installation, the information that you entered in the installation wizard or console mode is recorded in the response file. You will use this file to install the product silently on other computers.

Procedure

To install Performance Expert Client silently by using a response file:

1. From the directory of the installation image for Performance Expert Client, run the following command:

   On Windows 64-bit:

   ```
   db2pe.client.*.install-on-win64.exe -i silent -f response_file_name
   ```

   where *response_file_name* is the name of the response file that you created during a previous installation of the product.

   Note: Run as Administrator.

   Note: If you are on Windows 8, ensure that you run the `*.exe` file in Windows 7 Compatibility mode.

   The product is installed.
2. Verify that the installation was successful by checking the `db2pecli.log` installation log file in the following directory:

   - On Windows: **%USERPROFILE%** (For example: `C:\Documents and Settings\Administrator`)
3. Start the Performance Expert Client from the Windows **Start** menu or the created Desktop icon.

What to do next

You are now ready to configure the product. For instructions on configuring and using Performance Expert Client, see “Preparing access to Performance Warehouse” on page 169 and “Defining the DB2 subsystem” on page 170.

Preparing access to Performance Warehouse

Before you can access Performance Warehouse on z/OS from Performance Expert Client or use SQL activity tracing, you must configure the DB2 subsystem on which Performance Warehouse and the associated database DB2PM reside.

Before you begin

You must complete the configuration of Performance Warehouse as described in "Enabling Performance Warehouse" on page 137 before starting.

About this task

The following example shows how to configure the DB2 subsystem by using the Configuration Assistant. Note that the description applies to the Configuration Assistant for DB2 V10.

Procedure

1. Open the Configuration Assistant.
2. From the Selected menu, select **Add Database Using Wizard...**.

   The Add Database Wizard opens.
3. On the **Source** page, click **Manually configure a connection to a database**, then click **Next**.
4. On the **Protocol** page, click **TCP/IP**, select **The database physically resides on a host or OS/400 system**, then click **Next**.
5. On the **TCP/IP** page, specify the host name or TCP/IP address, and the TCP/IP port number, then click **Next**.
6. On the **Database** page, specify the database name (DB2 subsystem location) and type a name for the database alias, then click **Next**.

   Note: You use this database alias in the **Connect to Performance Warehouse** window.
7. This step is optional. On the **Data Source** page:
   a) Select **Register this database for ODBC**.
   b) Select **As system data source**.
   c) Click **Next**.
8. On the **Node Options** page, select **z/OS** as operating system, specify DB2 as instance name, then click **Next**.
9. On the **Systems Options** page, accept the default values, then click **Next**.
10. On the **Security Options** page, accept the default values, then click **Finish**.
11. This step is optional: On the **DCS Options** page, customize your direct connection to host or OS/400® databases.

Results

The DB2 subsystem is configured and you can access Performance Warehouse on z/OS or use SQL activity tracing.

Perform the following steps to start SQL activity trace from the Performance Expert Client:

1. Open the **DB2 Subsystem Properties** panel of the DB2 subsystem of interest.
2. On the **Performance Warehouse** tab, in the **Database alias** field, specify the database alias you just created.

Setting up your environment for Performance Warehouse

Before you can access Performance Warehouse on z/OS from Performance Expert Client, you must have at least DB2 Data Server Runtime Client installed with the appropriate licenses to access DB2 for z/OS. With OMEGAMON for Db2 PE, you receive a limited license for this usage.

About this task

Perform the following steps:

Procedure

1. Download the DB2 Data Server Runtime Client (version 9.7 or later) from the *Download Db2 Fix Packs by version for Db2 for Linux, UNIX and Windows website*.
   - For DB2 9.7, select Fixpack 6.
   - For DB2 10.1, select Fixpack 1.
2. Download the member FPEKCNLI from your TKO2WS01 SMPE/E library in binary format. Add the extension *.zip*. Extract the zip file.

   It contains several *.lic* and *.jar* files for the various Data Server Runtime client versions.
3. Locate the `\consv_ee\db2\licence` folder for your version within the *.zip* file. Extract the *.lic* file to `Program Files\IBM\SQLLIB` and the `db2cc_license_cisuz.jar` file to `\IBM\SQLLIB\java`
4. Install the downloaded DB2 Data Server Runtime Client.
5. After successful installation, run the following command to register the license: **`db2licm –a nnnn`** where *nnnn* is the version-related *.lic* file name you have just extracted. Double check with command **`db2licm –l`** that you have the necessary permanent licenses installed.
6. Before you can access your z/OS database, it needs to be added to your workstation's DB2 catalog. Enter `db2cmd` to start the DB2 Command Line Processor window from `\IBM\SQLLIB`. At the next prompt, type db2.

   Note: For the 9.7 driver, you can use the Client Configuration Assistant to perform this task.

   a) **`CATALOG TCPIP NODE <node-name> REMOTE <host-name> SERVER <port-number> OSTYPE OS390`** where port number is the port on which the DB2 subsystem is listening, not the port on which OMEGAMON is listening.

   b) **`CATALOG DATABASE <location-name> AS <alias> AT NODE <node-name> AUTHENTICATION SERVER`**

   c) **`CATALOG DCS DATABASE <alias> AS <target-DB-name>`**

Results

Now you can start the Performance Expert Client and add the alias for the Performance Warehouse connection and open Performance Warehouse.

Defining the DB2 subsystem

Before you can use the Performance Expert Client, you must establish a connection to the OMEGAMON Collector.

Before you begin

If there is a local firewall on the processor where the Performance Expert Client is installed, you must grant access for DB2PEClient.exe. Otherwise, the connection fails.

About this task

To monitor a DB2 subsystem from the PE Client, you must establish a connection between the PE Client and the OMEGAMON Collector. This allows the PE Client access to the performance data for this DB2 subsystem.

To define the DB2 subsystem, perform the following steps:

Procedure

1. Establish the connection.
   a) Start the Performance Expert Client and go to **Monitor → New DB2 Subsystem**.
   b) Select **DB2 on z/OS, OS 390** systems. Click **Next**.
   c) In the **Host** field, enter the hostname where the OMEGAMON Collector is running.
   d) In the **Port** field, enter the port for the OMEGAMON Collector. Click **Next**.
   e) Click **Retrieve**.
      The Wizard adds information about the DB2 subsystem to your configuration.
   f) When prompted, enter a user ID and a password for a TSO user on the system where the OMEGAMON Collector is running.
      If the retrieval fails, check the following and then click retrieve again.
      - Check that the OMEGAMON Collector is started.
      - Check that the TCP/IP port is correct.
      - Check that a firewall is not blocking your connection request.

      When retrieval is successful, the **DB2 System Properties** panel is displayed.
   g) Optional: If you want to work with Performance Warehouse, specify the database alias on the **Performance Warehouse** tab, in the **Database alias** field, specify the database alias you created.
   h) Click **Finish**.
2. Verify that the connection was successful.
   a) Logon to the OMEGAMON Collector.
      To do so, from the DB2 Performance Expert - System Overview window, right click on the server in the navigation tree in the panel on the left. Select **Logon**.
   b) Verify that the main functions for the Performance Expert Client are displayed in the middle panel of the window.

Configuring the Performance Warehouse Client

You can view information that is stored in the Performance Warehouse from the Performance Warehouse Client. If you want to use the Performance Warehouse Client, you must configure it first.

Before you begin

- You must install the Performance Expert Client before beginning. See "Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support" on page 117 and "Installing and configuring Performance Expert Client" on page 165 for more information.
- You must install Performance Warehouse on z/OS before beginning. See "Enabling Performance Warehouse" on page 137 for more information.

About this task

To complete this task, you can use the DB2 Configuration Assistant, or you can use the DB2 command line utility. These instructions explain how to use the DB2 Configuration Assistant. This is also a prerequisite action to be able to start SQL activity tracing.

Procedure

1. Define a DB2 connection to the Performance Warehouse database DB2PM. See"Preparing access to Performance Warehouse" on page 169 for a detailed description.
2. Configure the Performance Warehouse Client.

   In this step, you tell the Performance Warehouse Client which DB2 connection to use to access the Performance Warehouse.

   a) Start the Performance Expert Client.

   b) Right click on the DB2 subsystem that contains the Performance Warehouse from the navigation tree in the left frame. Select **Properties**.

   c) Select the **Performance Warehouse** tab. In the **Database alias** field, enter the Database alias that you just created. Click **OK**.

   The Performance Warehouse Client is configured. You can start it by choosing one of the Performance Warehouse options in the **Tools** menu.

Supported Versions

Here you find an overview of the supported versions.

The following releases of OMEGAMON XE for DB2 PE are supported if you are running IBM Tivoli Management Services 6.3.0:

- Version 5.1.1
- Version 5.2.0
- Version 5.3.0
- Version 5.4.0

With OMEGAMON XE for DB2 PE you can:

- Obtain information about the performance and health of DB2.
- Get general information about OMEGAMON XE for DB2 PE workspaces, attributes, and predefined situations.
- Use the table of contents to view detailed information about a specific workspace or attributes.

Support for a staged migration

OMEGAMON XE for DB2 PE:

- V5.1.1 and V5.2 must run with Tivoli Management Services V6.2.3 Fix Pack 1 or later.
- V5.3 and V5.4 must run with Tivoli Management Services V6.3.0 Fix Pack 2 or later.
- V5.4 must run with Tivoli Management Services V6.3.0 Fix Pack 6 or later

If you have installed an earlier version of ITM, it must be upgraded to V6.3.0 Fix Pack 6 or later. Tivoli Management Services V6.3.0 and later supports OMEGAMON XE for DB2 PE V5.1.1 and later running in your environment during a migration period, so that you can deploy new V5.4 monitoring agents along with older monitoring agents of the same product. If you are running in this mixed-migration environment, there might be differences when viewing data for an agent running an earlier version.

General migration hints

The attribute *Product*, which is a two-letter code of a monitoring agent in the Tivoli Enterprise Monitoring Server (TEMS) table **INODESTS**, depends on the version installed:

- In V5.1.1 and later, the two-letter product code is **DP**.

Note: If you have customized your workspace or situations in Tivoli Enterprise Monitoring Server (TEMS) table **INODESTS** and filtering on attribute *Product* is set to **D5** (applies to versions of OMEGAMON XE for

DB2 PE that are no longer supported), you must set the filtering to **D5** or **DP**. This migration is not required, if you use OMEGAMON XE for DB2 PE V5.1.1 or later.

Migrating a workspace

The attribute *Product* in workspace **Managed System Status** has the following values:

- **DP** for OMEGAMON XE for DB2 PE V5.1.1 or later

Note: The workspace **Managed System Status** can be navigated from navigator item **Enterprise**. If you have customized your workspace based on workspace **Managed System Status** and filtering on attribute *Product* is set to **D5** (applies to versions of OMEGAMON XE for DB2 PE that are no longer supported), you must set the filtering to **D5** or **DP**.

Migrating situations

If you have a customized situation based on product-provided situation **MS_Offline** from **All Managed Systems**, and filtering on attribute *Product* is set to **D5** (applies to versions of OMEGAMON XE for DB2 PE that are no longer supported), you must set the filtering to **D5** or **DP**.

Upgrading to OMEGAMON XE for DB2 PE V5.4.0

OMEGAMON XE V5.4.0 monitoring agents require Tivoli Management Services V6.3.0 Fix Pack 6.

If you upgrade from OMEGAMON XE for DB2 PE V4.2, V5.1.0, V5.1.1, V5.2 or V5.4, you must upgrade to Tivoli Management Services V6.3.0 Fix Pack 6 or later.

If you have installed an earlier version of Tivoli Management Services V6.3.0, you must, at least, upgrade the hub Tivoli Enterprise Monitoring Server before you install your first V5.4.0 monitoring agent. In addition, any remote monitoring server through which a V5.4.0 OMEGAMON XE monitoring agent reports to the hub monitoring server must also be upgraded to Tivoli Management Services V6.3.0 Fix Pack 6 or later.

The OMEGAMON XE V5.4.0 products support a staged migration. This means as you are migrating from OMEGAMON XE V4.2, V5.1, V5.2 or V5.3 products to OMEGAMON XE V5.4.0 products, you may have a combination of V5.1.0, V5.1.1, V5.2, V5.3 and V5.4 monitoring agents installed in your environment. For example, you may have an OMEGAMON XE for DB2 PE monitoring agent V5.3 and an OMEGAMON XE for DB2 PE monitoring agent V5.1 running in the same hub Tivoli Enterprise Monitoring Server environment during the migration period. Support of a mixed environment is provided as a migration help. Operators working in such a transitional environment should be aware of the following issues:

- OMEGAMON XE for DB2 supports agent versioning. If a workspace has different versions, it always shows the agent that corresponds to the version. For example, a V5.2 workspace is displayed for a V5.2 agent. The full-text help and the situation editor provides information for all supported versions of agents.
- You can use the predefined dynamic workspace links provided by the OMEGAMON XE for DB2 workspace in the workspace of another OMEGAMON XE product as long as the target workspace exists in this IBM Tivoli Monitoring (ITM) enterprise. If the target workspace does not exist, you will receive message KFWITM081E.
- You can use the predefined dynamic workspace links provided by V5.4.0 agents to link from an OMEGAMON XE V5.4.0 workspace to the workspace of another OMEGAMON XE V4.2 product as long as the target workspace exists in the product. If the target workspace does not exist, you will receive message KFWITM081E.
- In cases where the V5.4.0 of the target workspace has been modified (for example, HTML links added to some workspaces) you may notice a different behavior when you migrate the target product from V5.1.1 to V5.4.0.
- All user interfaces (except for the Configuration Tool and Install Shield) provided with Tivoli Enterprise Portal version 6.2 or later and the OMEGAMON XE version 5.1 or later monitoring agents are globalized. As a result, workspaces in OMEGAMON XE V5.1 or later are displayed in the specified language (for example, Spanish or Chinese).

Organization of the Predefined Workspaces

In most cases, a workspace contains data or columns that have similar attributes in an attribute group.

This table shows the relationships between the predefined workspaces and the attribute groups. (The workspaces are listed in alphabetical order.)

Workspace	Related Attribute Group
"All Threads Connected to DB2 Workspace" on page 179	"All Threads Attributes" on page 180
"Application Information Workspace" on page 192	"DB2 Connect Server Attributes" on page 193
"Buffer Pool Details Workspace" on page 195	"DB2 SRM BPD Attributes" on page 196
"Buffer Pool Management Workspace" on page 198	"DB2 SRM BPM Attributes" on page 198
"CICS Connections Workspace" on page 199	"DB2 CICS Exceptions Attributes" on page 199
"CICS Threads Workspace" on page 200	"DB2 CICS Threads Attributes" on page 200
"CICS Thread Summary Workspace" on page 200	"All Threads Attributes" on page 180
"Common Storage Workspace" on page 201	"DB2 Memory Attributes" on page 201 "MVS Storage Attributes" on page 209
"Coupling Facility Connections Workspace" on page 214	"Group Buffer Pool Connection Attributes" on page 215
"Coupling Facility Structures Workspaces" on page 215	"DB2 Group Coupling Facility Attributes" on page 216
"Critical DB2 Messages by Message ID Workspace" on page 218	"DB2 Message Attributes" on page 218
"Data Sharing Thread Activity Workspace" on page 219	"Data Sharing Thread Detail Attributes" on page 219
"Data Sharing Thread Statistics Workspace" on page 225	"Data Sharing Thread Statistics Attributes" on page 225
"DB2 Connect/Gateway Statistics Workspace" on page 227	"DB2 Connect Server Attributes" on page 193
"DB2 Connect Server Workspace" on page 226	"DB2 Connect Server Attributes" on page 193
"DB2 Connect Server Package Statistics Workspace" on page 227	"DB2 Connect Server Package Attributes" on page 227
"DB2 Connect Server at Thread Level Workspace" on page 229	"DB2 Connect Server at Thread Level Overview Attributes" on page 229
"DB2 Messages Workspace" on page 237	"DB2 Message Attributes" on page 218
"DB2 Messages by Message ID Workspace" on page 237	"DB2 Message Attributes" on page 218
"DB2 Messages by Time Interval Workspace" on page 238	"DB2 Message Attributes" on page 218
"DBAT End-to-End SQL Monitoring Workspace" on page 238	"All Threads Attributes" on page 180, "DB2 SRM Subsystem Attributes" on page 239
"DDF Conversations Workspace" on page 241	"DB2 DDF CONV Attributes" on page 241
"DDF Statistics Workspace" on page 242	"DB2 DDF STAT Attributes" on page 242

Workspace	Related Attribute Group
“Detailed Thread Exception Workspace” on page 244	“DB2 Thread Exceptions Attributes” on page 245
“Distributed Allied Thread Summary Workspace” on page 252	“All Threads Attributes” on page 180
“Distributed Thread Detail Workspace” on page 253	“Distributed Thread Detail Attributes” on page 253
“Distributed Thread SQL Statistics Workspace” on page 257	“Distributed Thread Detail Attributes” on page 253
“DSG DSNZPARM Application Parameters Workspace” on page 258	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Archiving Parameters Workspace” on page 280	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Authorization, RLF, and DDF Parameters Workspace” on page 281	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Buffer Pool Parameters Workspace” on page 281	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Data Parameters Workspace” on page 282	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Data Sharing Parameters Workspace” on page 282	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Data Set and Database Parameters Workspace” on page 283	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM DDCS Parameters Workspace” on page 283	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM IRLM Parameters Workspace” on page 283	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Logging Parameters Workspace” on page 284	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Other System Parameters Workspace” on page 284	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Performance and Optimization Parameters Workspace” on page 285	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Storage and Size Parameters Workspace” on page 285	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Stored Procedures Parameters Workspace” on page 286	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Thread Parameters Workspace” on page 286	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280
“DSG DSNZPARM Trace Parameters Workspace” on page 287	“DB2 Parameters Attributes” on page 258
“DSG DSNZPARM Utility Parameters Workspace” on page 287	“DB2 Parameters Attributes” on page 258, “DSG DB2 Parameters” on page 280

Workspace	Related Attribute Group
“DSNZPARM Application Parameters Workspace” on page 287	“DB2 Parameters Attributes” on page 258
“DSNZPARM Archiving Parameters Workspace” on page 288	“DB2 Parameters Attributes” on page 258
“DSNZPARM Authorization, RLF, and DDF Parameters Workspace” on page 288	“DB2 Parameters Attributes” on page 258
“DSNZPARM Buffer Pool Parameters Workspace” on page 289	“DB2 Parameters Attributes” on page 258
“DSNZPARM Data Parameters Workspace” on page 293	“DB2 Parameters Attributes” on page 258
“DSNZPARM Data Sharing Parameters Workspace” on page 289	“DB2 Parameters Attributes” on page 258
“DSNZPARM Data Set and Database Parameters Workspace” on page 290	“DB2 Parameters Attributes” on page 258
“DSNZPARM DDCS Parameters Workspace” on page 290	“DB2 Parameters Attributes” on page 258
“DSNZPARM IRLM Parameters Workspace” on page 290	“DB2 Parameters Attributes” on page 258
“DSNZPARM Logging Parameters Workspace” on page 291	“DB2 Parameters Attributes” on page 258
“DSNZPARM Other System Parameters Workspace” on page 291	“DB2 Parameters Attributes” on page 258
“DSNZPARM Performance and Optimization Parameters Workspace” on page 292	“DB2 Parameters Attributes” on page 258
“DSNZPARM Storage and Size Parameters Workspace” on page 292	“DB2 Parameters Attributes” on page 258
“DSNZPARM Stored Procedures Parameters Workspace” on page 294	“DB2 Parameters Attributes” on page 258
“DSNZPARM Thread Parameters Workspace” on page 293	“DB2 Parameters Attributes” on page 258
“DSNZPARM Trace Parameters Workspace” on page 294	“DB2 Parameters Attributes” on page 258
“DSNZPARM Utility Parameters Workspace” on page 294	“DB2 Parameters Attributes” on page 258
“EDM Pool Workspace” on page 295	“EDM Pool Attributes” on page 295
“EDM Pool (DB2 10) Workspace” on page 298	“EDM Pool Attributes” on page 295
“Enclave Thread Summary Workspace” on page 299	“Thread Enclave Attributes” on page 299
“End-to-End SQL Monitoring Workspace” on page 305	“All Threads Attributes” on page 180
“Global Lock Conflicts Workspace” on page 306	“DB2 Lock Conflict Attributes” on page 306
“Group Buffer Pool Workspace” on page 317	“Group Buffer Pool Attributes” on page 317

Workspace	Related Attribute Group
“Group Buffer Pool Connections Workspace” on page 318	“Group Buffer Pool Connection Attributes” on page 215
“Group Buffer Pool Detailed Statistics Workspace” on page 319	“Group Buffer Pool Statistics Detail Attributes” on page 319
“Group Buffer Pool Statistics Workspace” on page 319	“Group Buffer Pool Statistics Attributes” on page 321
“Group Buffer Pool Structures Workspace” on page 323	“Group Buffer Pool Attributes” on page 317
“Group Object Activity Database Workspace” on page 323	“Group Object Activity Summary Attributes” on page 324
“Group Object Activity by Space Name” on page 325	“Group Object Space Name Attributes” on page 325
“Group Object Activity by Space Name Detail Workspace” on page 326	“Group Object Space Name Attributes” on page 325
“Group Object Analysis Workspace” on page 326	“Group Object Analysis Attributes” on page 326
“Group Object Analysis Thread Database Workspace” on page 327	“Group Object Analysis Thread Activity Summary Attributes” on page 327
“Group Object Analysis Thread Space Name Workspace” on page 329	“Group Object Analysis Thread Volume Summary Attributes” on page 329
“Group Object Analysis Thread Space Name Detail Workspace” on page 330	“Group Object Analysis Thread Volume Summary Attributes” on page 329
“Group Object Analysis Volume Workspace” on page 330	“Group Object Analysis Volume Summary Attributes” on page 331
“Group Object Analysis Volume Database Workspace” on page 332	“Group Object Analysis Volume Database Summary Attributes” on page 332
“Group Object Analysis Volume Space Name Workspace” on page 333	“Group Object Analysis Volume Database Summary Attributes” on page 332
“Group Object Analysis Volume Space Name Detail Workspace” on page 333	“Group Object Analysis Volume Database Summary Attributes” on page 332
“Group Object Analysis Volume Thread Workspace” on page 333	“Group Object Analysis Thread Volume Summary Attributes” on page 329
“Group Object Analysis Volume Thread Detail Workspace” on page 333	“Group Object Analysis Thread Volume Summary Attributes” on page 329
“IMS Connections Workspace” on page 334	“DB2 IMS Connections Attributes” on page 334
“IMS Region Information Workspace” on page 334	“DB2 IMS Regions Attributes” on page 334
“IMS Thread Summary Workspace” on page 338	“All Threads Attributes” on page 180
“Installation Parameters” on page 339	“DB2 Parameters Attributes” on page 258
“Lock Conflicts Workspace” on page 339	“Local DB2 Lock Conflict Attributes” on page 339
“Log Manager Workspace” on page 350	“DB2 SRM Log Manager Attributes” on page 351
“MVS Storage Above 2 GB Workspace” on page 354	“MVS Storage Attributes” on page 209

Workspace	Related Attribute Group
“MVS Storage Below 2 GB Workspace” on page 354	“MVS Storage Attributes” on page 209, “DB2 Memory Attributes” on page 201
“Object Analysis Database Workspace” on page 354	“Group Object Analysis Attributes” on page 326
“Object Analysis Space Name Workspace” on page 355	“Group Object Space Name Attributes” on page 325
“Object Analysis Space Name Detail Workspace” on page 355	“Group Object Space Name Attributes” on page 325
“Overall Transaction Data Workspace” on page 355	“DB2 Connect Server at Thread Level Overview Attributes” on page 229
“Package Statistics Workspace” on page 226	“DB2 Connect Server Package Attributes” on page 227
“Performance Workspace” on page 356	“DB2 Connect Server Attributes” on page 193
“SQL Counts 1 Workspace” on page 356	“SQL Counts Attributes” on page 356
“SQL Counts 2 Workspace” on page 362	“SQL Counts Attributes” on page 356
“SQL Counts 3 Workspace” on page 362	“SQL Counts Attributes” on page 356
“Statement Information Workspace” on page 363	“Thread DB2 Connect Statement Attributes” on page 363
“Storage Consumption Workspace” on page 369	“DB2 Memory DBM1 or DIST Attributes” on page 369 “DB2 Memory Attributes” on page 201 “Storage Consumption Attributes” on page 372 “MVS Storage Attributes” on page 209
“Subsystem Management Workspace” on page 375	“DB2 SRM Subsystem Attributes” on page 239
“System Status Workspace” on page 375	“DB2 System States Attributes” on page 376 “ZOS CPU Utilization Attributes” on page 383
“Tasks List Workspace” on page 384	“DB2 Connect Server Tasklist Attributes” on page 384
“Threads Workspaces” on page 385	“All Threads Attributes” on page 180
“Thread Activity Workspace” on page 385	“Thread Detail Attributes (Data Sharing)” on page 386
“Thread Activity by Package Workspace” on page 391	“All Threads Attributes” on page 180
“Thread Activity by Plan Workspace” on page 391	“All Threads Attributes” on page 180
“Thread Detail Workspace” on page 392	“Thread Detail Attributes (Data Sharing)” on page 386
“Thread Enclave Detail Workspace” on page 393	“Thread Enclave Attributes” on page 299
“Thread Enclave Service Period Information Workspace” on page 393	“Thread Enclave Attributes” on page 299

Workspace	Related Attribute Group
“Thread Locks Owned Workspace” on page 394	“Thread Locks Owned Attributes” on page 394 “Thread Locks Owned Summary Attributes” on page 402
“Thread SQL Counts 1 Workspace” on page 404	“Thread SQL Counts Attributes” on page 405
“Thread SQL Counts 2 Workspace” on page 411	“Thread SQL Counts Attributes” on page 405
“Thread SQL Counts 3 Workspace” on page 412	“Thread SQL Counts Attributes” on page 405
“Thread Statistics Workspace” on page 412	“Thread Statistics Attributes” on page 412
“Thread Wait Events Workspace” on page 413	“Thread Detail Attributes (Data Sharing)” on page 386
“Utility Jobs Workspace” on page 414	“DB2 SRM UTL Attributes” on page 414
“Volume Activity Workspace” on page 415	“DB2 Volume Activity Attributes” on page 415

The following attribute groups are not associated with predefined workspaces. They can be used to create situations:

“Data Sharing Status Attributes” on page 416

“Local Group Object Analysis Thread Volume Attributes” on page 417

“Local Group Object Analysis Volume Group Attributes” on page 417

“Local Group Object Analysis Volume Database Attributes” on page 418

“Local Object Activity Attributes” on page 419

“Local Object Space Name Attributes” on page 420

All Threads Connected to DB2 Workspace

The All Threads Connected to DB2 workspace provides an overview of the activity of all threads that are connected to DB2.

This workspace is comprised of the following views:

In-DB2 CP CPU Time (bar chart)
Shows the class 2 CPU time (in DB2) for all threads.

In-DB2 Time (bar chart)
Shows the class 2 elapsed time (in DB2) for all threads.

All Threads Connected to DB2 (table view)
Provides key data for all threads that are connected to DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238

- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

All Threads Attributes

Use the All Threads attributes to create situations to monitor thread activity including DB2 thread activity that originates from connected IMS or CICS subsystems.

Ace Address The DB2 thread ACE address for internal use.

Agent Address The address of the agent in DB2 associates all processes that are involved in a DB2 unit of work.

AGNT ASID The address space ID (ASID) of the agent.

Agent TCB Address The z/OS Task Control Block that is associated with this DB2 thread.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Begin Time Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

Bytes Sent The number of bytes of data sent to the requester location.

Cancel Command The command string needed to cancel a thread. You can use Take Action with this attribute to cancel a thread: The format is "src CANCEL THREAD(nnnnnn)", where src is the subsystem recognition character and nnnnnn is the thread token.

CICS MVS ID The CICS MVS ID.

Collection ID This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters.

Collection ID (Unicode) The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Commits The number of successful phase 2 or single-phase commit (sync) requests. Valid value is an integer in the range 0-999 commits.

All Thread Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

All Thread Attributes The type of connection associated with the thread.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach

Value	Description
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Conversations The number of conversations that were initiated from the requester location.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters. For example: DLKEX212.

CP CPU Rate The central processor CPU rate.

Current Period The service class period number in goal mode.

Database Access CPU The database access agent CPU time. This value is calculated by accumulating the amount of CPU time spent by the database access thread at the DB2 server each time a request message is processed.

Database Access Time The timestamp of last send or receive in distributed database access.

DB2 ID The DB2 subsystem ID.

DB2 Status The current DB2 status of the thread. It is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Distributed Allied Elapsed Time The elapsed time for this thread executing on distributed host.

Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0-99999999 seconds.

Elapsed Per Commit The average amount of elapsed time for each database commit performed.

Enclave CP CPU Time The central processor CPU time used by each thread that is associated with an enclave token.

Enclave CPU Time The enclave CPU time.

Enclave Token The ID assigned by the z/OS workload manager for this enclave. A z/OS enclave lets each thread have its own performance objective. Using z/OS workload management (WLM) support, you can establish z/OS performance objectives for individual DDF server threads.

Enclave Token Unused This field is unused.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (Field name: QWHCEUID).

Get Page The number of getpage requests. This field counts successful requests for pages for queries that are processed in parallel and both successful and unsuccessful requests for pages for queries that are not processed in parallel. Valid value is an integer in the range 0-99999 pages.

Get Page 64 The number of getpage requests. This field counts successful requests for pages for queries that are processed in parallel and both successful and unsuccessful requests for pages for queries that are not processed in parallel. Valid value is an integer in the range 0-999999999 pages.

Get Page Per Read The ratio of requested pages that resulted in actual I/O versus being found in a buffer. The read I/O count divided by Get Page count.

Get Page Per Read 64 The ratio of requested pages that resulted in actual I/O versus being found in a buffer. The read I/O count divided by Get Page count.

IIP CPU The accumulated CPU time consumed while executing on an IBM zIIP in all environments.

IIP In-DB2 CPU The amount of time that the In DB2 CPU has been running on a zIIP processor.

In DB2 IIP CPU The total amount of CPU time that DB2 has accumulated for a thread in the zIIP processor. Valid value is an integer in the range 0-99999999 seconds.

In DB2 CP CPU Time The CP CPU time accumulated in DB2 when the SQL statement exit from DB2.

In DB2 Per Commit The average amount of in-DB2 CPU time used between each commit.

In DB2 Time The elapsed time accumulated in DB2 when the SQL statement exit from DB2.

Interval Start The start time of the interval.

Job Name The job name that is associated with a thread.

Local Elapsed Time The elapsed time, in tenths of a second, for local thread (in units that represent tenths of seconds).

Location The requesting location.

Location (Unicode) The requesting location.

Logical Unit Name The LUNAME of the connection to the remote DB2 system.

Messages Sent The number of messages sent to remote location.

MVSID The MVS system identifier.

Original Authorization ID The DB2 original Authorization ID of the thread. It is an alphanumeric text string, with a maximum length of 8 characters.

Original Authorization ID (Unicode) The DB2 original Authorization ID of the thread. It is an alphanumeric text string, with a maximum length of 8 characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package Name Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

Package Name (Unicode) Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

Parallel Indicator The thread parallelism indicator.

Valid values are:

*****
Indicates that this thread is a parallel task initiated for another (originating) thread to process a query request in parallel.

O
Indicates that this thread is the originating thread that invoked autonomous procedures.

P
Indicates that this thread is the parent, or originating thread, of the parallel tasks created to process a query request in parallel. The activity performed for this (originating) thread is reflected under the parallel tasks.

X
Indicates that this thread is a parallel task initiated for another (originating) thread on another DB2 for SYSPLEX parallelism.

Parent Ace The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

Performance Index This field is related to the z/OS Workload manager. A Performance Index less than one is an indication that the goal for this service class period is being exceeded. The service class period may be considered as a "donor", giving up CPU or pageable storage for other more important service class periods on the system. A Performance Index greater than one is an indication that the goal for this service class period is not being met. Depending on the importance, this Service class period may be considered for additional services to meet the defined goal.

Plan The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For

example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Prefetch Requests The number of prefetch requests issued per second over the last interval.

Remote CPU The database access agent CPU time at the remote location.

Remote Elapsed The elapsed database access agent time at the remote location.

Request Type The request type for a ALL THREAD related workspaces. Internal use only.

Rows Sent The number of rows of data sent to the requester location.

Service Class The service class name associated with this address space.

SQL Calls Sent The number of SQL statement sent to the server.

SQL Received The number of SQL statements received from the requester.

Sync Reads The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

Synchronous Read I/O Rate The thread synchronous read I/O rate.

Thread Status The current status of a thread.

Valid values are:

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

Thread Type The thread type. It can be:

A =
IMS

B =
BATCH

C =
CICS

0 =
Unknown

1 =
DB_Access

3 =
SYSTEM

5 =
UTILITY

6 =
RRSAF

7 =
TSO

9 =
Allied

10 =
WAIT_LOCKLAT

Transaction ID The transaction ID at the workstation.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (Field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Updates The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page that is updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2 internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

Wait Time Total class 3 wait time for a thread.

Workstation ID The end user's workstation name. This field contains blanks if this information was not supplied by the client.

zIIP Different Speed The setting if the zIIP processor is at a different speed. Valid values are:

Yes
The zIIP processor is set to a different speed.

No
The zIIP processor is set to the same speed.

zIIP Processor The setting to confirm that the enclave is using a zIIP processor.

Yes
The enclave is using a zIIP processor.

No
The enclave is not using a zIIP processor. If No then the other zIIP related fields will be N/A.

Application Information Workspace

The Application Information workspace provides details on the Database Connection Services (DCS) application. You can use it for problem determination on DCS applications.

This workspace is comprised of the following views:

Application Information (table view)
Shows the key data for the DCS application.

Client Information (table view)
Shows details on the client application.

DB2 Host (table view)
Identifies the host database and shows how communication between the DB2 Connect gateway and the host database is established.

Thread/Application ID (table view)
Identifies the thread and the DCS application.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect Server Attributes

Use DB2 Connect Server attributes to create situations that monitor all active and inactive gateways.

Agents Assigned from Pool The number of agents assigned by an agent pool.

Agents Created because of Empty Pool The number of agents created because the agent pool was empty.

Agents Registered The number of agents registered in the database manager instance that is being monitored.

You can use this counter in conjunction with the **Agents - Agents waiting for token** counter to determine the percentage of agents waiting for a token so they can perform a transaction in the database manager. If the percentage is high, you can improve the concurrency in the database manager by increasing the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter. This number is always greater than, or equal to, the number of local databases with current connects.

Agents Waiting for Token The number of agents waiting for a token so they can perform a transaction in the database manager.

You can use this counter in conjunction with the Agents - Agents registered counter to determine the percentage of "sleeping" agents. If the percentage is high, you can you can improve the concurrency in the database manager by increasing the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter.

Attempted Connections for DB2 Connect The total number of current connections initiated from remote clients to the instance of the database manager that is being monitored. It also shows the level of activity between this instance and other instances of the database manager.

Committed Private Memory The amount of private memory that the instance of the database manager has committed at the time of the snapshot.

You can use this counter to set the MIN_PRIV_MEM (minimum committed private memory) database manager configuration parameter to ensure you have enough private memory available. This counter is only applicable to platforms containing an agent pool, such as OS/2.

Connection Switches The number of the times that an agent from the agent pool was primed with a connection and was stolen for use with a different DRDA database.

Connection Waiting for Client to Send Request The current number of connections to the host databases that are handled by the DB2 Connect gateway and are waiting for the client to send a request.

Connection Waiting for Host Reply The current number of connections to the host databases that are handled by the DB2 Connect gateway and are waiting for a reply from the host.

Current Connections The number of applications that are currently connected to the database.

You can use this counter to understand the level of activity within a database and the amount of system resource being used. It can help you adjust the setting of the MAXAPPLS (maximum number of applications) database configuration parameter and the MAXAGENTS (maximum number of agents) database manager configuration parameter. If its value is always the same as MAXAPPLS, you may want to increase the value of MAXAPPLS. If it is always less than MAXAPPLS, you may want to increase the value of MAXAGENTS.

DB2 ID The DB2 subsystem ID.

Gateway Snapshot Time The date and time at which the database system monitor information was collected.

Idle Agents The number of agents in the agent pool that are currently unassigned to an application and are, therefore, idle.

IP Address The current IP address.

Maximum Agent Overflows The number of times a request to create a new agent was received when the MAXAGENTS (maximum number of agents) database manager configuration parameter had already been reached.

Maximum Agents Registered The maximum number of agents that the database manager has registered at the same time since it was started.

You can use this counter to evaluate your setting of the MAXAGENTS (maximum number of agents) database manager configuration parameter. The number of agents registered at the time the snapshot was taken is recorded in the **Agents - Agents Registered** counter.

Maximum Agents Waiting The maximum number of agents that have been waiting for a token at the same time since the database manager was started.

You can use this counter to evaluate your setting of the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter. If MAXCAGENTS is set to its default value, which is -1, no agents should wait for a token and the value for this counter should be zero.

The number of agents waiting for a token at the time the snapshot was taken is recorded in the **Agents Waiting for Token** counter.

Maximum Coordinating Agents The maximum number of coordinating agents working at one time.

MVS ID The MVS system identifier.

Name The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

Node Name The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

This information can be useful if you are saving your monitor output in a file or database for later analysis and you need to differentiate the data from different database server nodes. This node name is determined based on the NNAME configuration parameter.

Node Number The number assigned to the node in the file with filename db2nodes and file type cfg. (db2nodes.cfg).

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Remote Connections The current number of connections initiated from remote clients to the instance of the database manager that is being monitored.

Remote Connections Executing in the DBM The number of remote applications that are currently connected to a database and are currently processing a unit of work within the database manager instance being monitored.

Server Instance Name The name of the database manager instance for which the snapshot was taken. If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

Server Product Version ID The product and version that is running on the server in the form pppvvrrm.

It provides the following information:

- *ppp* stands for SQL
- *vv* identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- *rr* identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- *m* identifies a 1-digit modification level

Server Status Shows whether the server is active or inactive.

Server Version The version of the server returning the information.

Sort Heap Allocated The total number of allocated pages of sort heap space for all sorts at the level chosen and at the time the snapshot was taken.

The amount of memory allocated for each sort can be part of or the entire sort heap size available. Sort heap size is the amount of memory available for each sort as defined in the SORTHEAP database configuration parameter. It is possible for a single application to have concurrent sorts active. For example, in some cases a SELECT statement with a subquery can cause concurrent sorts. Information can be collected at two levels:

- At the database manager level, it represents the sum of sort heap space allocated for all sorts in all active databases in the database manager.
- At the database level, it represents the sum of the sort heap space allocated for all sorts in a database.

Stolen Agents The number of times that agents are stolen from an application. Agents are stolen when an idle agent associated with an application is reassigned to work on a different application.

Time in DB2 Connect For a DCS statement, this counter shows the elapsed time for processing an SQL request at a host database server. This value is reported by this server. In contrast to the **Times for sample SQL statement - Total statement time** counter, this counter does not include the network elapsed time between DB2 Connect and the host database server.

Time in Network Connection The total time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement.

Time on DB2 Host The total time, in seconds and microseconds, that was spent executing a particular statement in the SQL cache.

Time Stamp The start time of this interval.

Time Zone Displacement The number of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

Total Inactive DRDA agents The number of connections made by a subagent to the database at the node.

Total Statement Time For a DCS statement, this counter shows the elapsed time between the time the statement was sent from the DB2 Connect gateway to the host for processing and the time at which the result was received from the host.

For a DCS database or application, this counter shows the sum of the elapsed times for all the statements that were executed for a particular application or database.

This counter shows the sum of the values for the **Times for sample SQL statement - Time in DB2 Connect** and **Times for sample SQL statement - Time in network connection** counters.

Buffer Pool Details Workspace

The Buffer Pool Details workspace provides status, threshold, and ratio details associated with specific buffer pool activity.

This workspace is comprised of the following views:

Ratio (table view)
Provides thread performance details associated with the buffer pool.

Status (table view)
Provides "at a glance" buffer pool details, including size and page allocation information.

Thresholds (table view)
Lists the thread's performance and status thresholds for the selected buffer pool.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 SRM BPD Attributes

Use the DB2 SRM BPD attributes to create situations to monitor activity details associated with specific buffer pools.

Buffer Pool Hit Percent Random The random buffer pool hit percentage calculated as follows: ((# of Random Getpages - # Random Sync Read I/O) / # of Random Getpages) * 100. Valid entry ranges from 0.0 to 100.0.

Buffer Pool Hit Percent Sequential The sequential buffer pool hit percentage calculated as follows: ((# of Sequential Getpages - #Getpage Fails - # pages read from DASD) / # of Sequential Getpages - #Getpage Fails) * 100. The # pages read from DASD is the sum of Sequential Sync Read I/O, Sequential Prefetch Pages, List Prefetch Pages, and Dynamic Prefetch Pages. Valid entry ranges from 0.0 to 100.0.

Value	Description
Yes	MVS is allowed to discard data cached in the hiperpool when a shortage of expanded storage arises.
No	MVS is prevented from discarding data cached in the hiperpool unless expanded storage pages are reconfigured out of the system.

It is an alphanumeric text string, with a maximum length of four characters.

Deferred Write Thresh The deferred write threshold for the virtual buffer pool - DWQT. Write operations are scheduled when the percentage of unavailable pages in the virtual buffer pool exceeds this threshold in order to decrease the unavailable pages to 10% below the threshold.

Dyn Prefetch Per IO The ratio of dynamic prefetch requests to dynamic prefetch I/Os.

Dyn Prefetch Per IO Extended Precision The ratio of dynamic prefetch requests to dynamic prefetch I/Os.

Getpages Per Syn IO The ratio of getpage requests to read I/Os.

GetPages Per Synchronous IO Extended Precision The ratio of getpage requests to read I/Os.

Interval Time The number of seconds since last sample.

List Prefetch Per IO The ratio of list prefetch requests to list prefetch I/Os.

List Prefetch Per IO Extended Precision The ratio of list prefetch requests to list prefetch I/Os.

Max Concur Prefetch The highest number of concurrent prefetch I/O streams allocated to support I/O parallelism.

Maximum Concurrent Prefetch Extended Precision The highest number of concurrent prefetch I/O streams allocated to support I/O parallelism.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Page Reads Per Dyn Prefetch The ratio of pages read by dynamic prefetch to dynamic prefetch requests.

Page Reads Per Dyn Prefetch Extended Precision The ratio of pages read by dynamic prefetch to dynamic prefetch requests.

Page Reads Per List Prefetch The ratio of pages read by list prefetch to list prefetch requests.

Page Reads Per List Prefetch Extended Precision The ratio of pages read by list prefetch to list prefetch requests.

Page Reads Per Prefetch The ratio of pages read by prefetch processing to total prefetch requests.

Page Reads Per Prefetch Extended Precision The ratio of pages read by prefetch processing to total prefetch requests.

Page Reads Perseq Prefetch The ratio of pages read by sequential prefetch to sequential prefetch requests.

Page Reads Per Sequential Prefetch Extended Precision The ratio of pages read by sequential prefetch to sequential prefetch requests.

Page Writes Per Write IO The ratio of page writes to physical I/Os.

Page Writes Per Write IO Extended Precision The ratio of page writes to physical I/Os.

Pages In Use The number of virtual buffer pool pages in use at the end of the interval (a snapshot value of the current number of non-stealable buffers). A non-stealable buffer is either one which has an outstanding getpage (someone is currently looking at this page) or one which has been updated and not yet written out to DASD.

Pool ID Buffer Pool ID.

Prefetch Per IO The ratio of prefetch requests to physical I/Os.

Prefetch Per IO Extended Precision The ratio of prefetch requests to physical I/Os.

Sequential Prefetch Per IO The ratio of pages read by sequential prefetch to sequential prefetch I/O.

Sequential Prefetch Per IO Extended Precision The ratio of pages read by sequential prefetch to sequential prefetch I/O.

Sysplex Parallel Thresh Parallel I/O sequential threshold - VPPSEQT. This threshold determines how much of the virtual buffer pool might be used for parallel I/O operations. It is a percentage of the VPSEQT. If set to zero, I/O parallelism is disabled.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Use Count The number of open table spaces and index spaces in this buffer pool.

Vert Deferred Write Thresh The vertical deferred write threshold for the virtual buffer pool - VDWQT. This is the percentage of the buffer pool that might be occupied by updated pages from a single data set.

Virtual Page Steal Method Identifies the page stealing algorithm (PGSTEAL) that is used for the virtual buffer pool (DB2 field name: QDBPPGST). It controls when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Possible values are:

LRU
Least recently used (LRU) objects are removed first. This means it takes away pages that are not used so that more recently used pages can remain in the virtual buffer pool. This is used by default.

FIFO
This results in a small decrease in the cost of a Getpage operation. It can reduce internal DB2 latch contention in environments that require very high concurrency.

NONE
Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

VP Buffers Allocated The number of pages allocated to the virtual buffer pool.

VP Buffers Delete The number of pages to be deleted from an active virtual buffer pool as a result of pool contraction.

VP Parallel Sequential Thresh The parallel I/O sequential threshold - VPPSEQT. This threshold determines how much of the virtual buffer pool might be used for parallel I/O operations. It is a percentage of the VPSEQT. If set to zero, I/O parallelism is disabled.

VP Sequential Thresh The sequential steal threshold for the virtual buffer pool - VPSEQT. This is the percentage of the virtual buffer pool that might be occupied by sequentially accessed pages. If set to zero, prefetch is disabled.

VP Size The size of the virtual buffer pool.

Workfile Maximum The maximum number of work files that were allocated during sort/merge processing during the current statistics period.

Workfile Maximum Extended Precision The maximum number of work files that were allocated during sort/merge processing during the current statistics period.

Buffer Pool Management Workspace

Buffer pools, also called virtual buffer pools, are areas of virtual storage where DB2 temporarily stores pages of table spaces or indexes.

The Buffer Pool Management workspace provides an overview of buffer pool activity. This workspace is comprised of the following views:

Buffer Pool Management (table view)
Shows activity details for specific buffer pools.

Buffer Pool Rates (bar chart)
Shows the rate of get page operations, read I/O operations, prefetch requests, and write I/Os performed.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 SRM BPM Attributes

Use the DB2 SRM BPM attributes to create situations to monitor buffer pool activity.

Allocated Pages The total number of pages allocated to the buffer pool: It includes pages that are currently read or updated, updated pages, and available pages.

Get Page Rate The number of get page operations per second over the last interval.

Get Page Rate Extended Precision The number of get page operations per second over the last interval.

Interval Time The number of seconds since last sample.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Pages In Use The number of virtual buffer pool pages in use at the end of the interval (a snapshot value of the current number of non-stealable buffers): A non-stealable buffer is either one which has an outstanding Getpage (someone is currently looking at this page) or one which has been updated and not yet written out to DASD.

Pool ID The buffer pool ID.

Prefetch Request Rate The number of prefetch requests issued per second over the last interval.

Prefetch Request Rate Extended Precision The number of prefetch requests issued per second over the last interval.

Read IO Rate The number of read I/O operations per second over the last interval.

Read IO Rate Extended Precision The number of read I/O operations per second over the last interval.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Utilization The percentage of the buffer pool currently in use: It is calculated as: (QBSTCBA / QBSTVPL)*100 for DB2 9 and (QBSTCBA / QDBPVPSZ)*100 for DB2 10 or later.

Field descriptions:

QBSTCBA
The total number of currently active (nonstealable) buffers.

QBSTVPL
The number of buffers allocated for a virtual buffer pool.

QDBPVPSZ
The size of the virtual buffer pool.

Valid entry ranges from 0 to 10000.

VP Size The size of the virtual buffer pool.

Write IO Rate The number of write I/Os performed per second over the last interval.

Write IO Rate Extended Precision The number of write I/Os performed per second over the last interval.

CICS Connections Workspace

The CICS Connections workspace provides an overview of DB2 thread activity originating from connected CICS subsystems. It provides information on a connection level about all CICS subsystems identified to DB2.

This workspace is comprised of the following views:

CICS Connections Summary (table view)
Lists thread status details, including the components of the Thread Usage chart and thread utilization data.

Thread Usage (bar chart)
Shows the counts of currently active pool threads, pool threads that are waiting because the maximum has been reached, and active threads for this CICS connection (including entry and pool threads).

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 CICS Exceptions Attributes

Use the DB2 CICS Exceptions attributes to create situations to monitor thread activity originating from connected CICS subsystems.

CICS ID The job name of the CICS region connected to this DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

CICS Release The enumerated value for the CICS release of the CICS region connected to this DB2 system.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Pool Thread Maximum The maximum number of pool threads that are allowed.

Pool Thread Utilization The utilization of pool threads based on the current pool thread in use count divided by the maximum allowed pool threads.

Pool Thread Waits The count of pool threads that are waiting because the maximum has been reached.

Pool Threads In Use The count of pool threads that are currently active.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Total Thread Utilization The utilization of threads based on the current total threads in use divided by the maximum allowed threads.

Total Threads In Use The count of active threads for this CICS connection (including both entry and pool threads).

Total Threads Maximum The maximum number of threads that can be used concurrently for this CICS connection (entry plus pool threads).

CICS Threads Workspace

The CICS Threads workspace provides data to monitor DB2 thread activity originating from connected CICS subsystems.

This workspace is comprised of the following views:

CICS Threads (table view)
Identifies and measures thread activity from the CICS region.

Thread Counts (bar chart)
Shows "at a glance" counts of entry threads in use, entry threads waiting, and pool thread overflow.

Note: This workspace is available only when at least one thread is active from the CICS region.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 CICS Threads Attributes

Use the DB2 CICS Threads attributes to create situations to monitor DB2 thread activity originating from connected CICS subsystems.

CICS ID The job name of the CICS region connected to this DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

CICS Release The enumerated value for the CICS release of the CICS region connected to this DB2 system.

Entry Thread Waiting The count of threads waiting because the maximum entry thread limit has been reached.

Entry Threads In Use The count of active entry threads for this plan and transaction within the CICS region.

Entry Threads Utilization The percentage of total entry threads allowed for this plan.

Maximum Entries The cap on the number of entry threads allowed for this plan.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of the DB2 plan being executed by this CICS region. It is an alphanumeric text string, with a maximum length of eight characters.

Pool Thread Overflow The number of threads for this plan and transaction that is being executed on a thread from the global pool.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Transaction ID The ID for the transaction currently being executed for the plan. It is an alphanumeric text string, with a maximum length of four characters.

CICS Thread Summary Workspace

The CICS Thread Summary workspace provides an overview for threads originating from CICS.

This workspace is comprised of the following views:

CICS Thread Summary (table view)
Shows summary information for the CICS threads.

In-DB2-CPU Time (bar chart)
Shows the class 2 CPU time (in DB2) for CICS threads.

In-DB2 Time (bar chart)
Shows the class 2 elapsed time (in DB2) for CICS threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- "All Threads Connected to DB2 Workspace" on page 179
- "CICS Thread Summary Workspace" on page 200
- "Detailed Thread Exception Workspace" on page 244
- "Distributed Allied Thread Summary Workspace" on page 252
- "DBAT End-to-End SQL Monitoring Workspace" on page 238
- "Enclave Thread Summary Workspace" on page 299
- "IMS Thread Summary Workspace" on page 338
- "Lock Conflicts Workspace" on page 339
- "Thread Activity by Package Workspace" on page 391
- "Thread Activity by Plan Workspace" on page 391
- "Utility Jobs Workspace" on page 414

Common Storage Workspace

The Common Storage workspace provides an overview of the common storage above and below the 2 GB bar. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:

- Common Storage Below 2 GB (table view)
- Common Storage Above 2 GB (table view)
- MVS LPAR Shared Storage Above 2 GB
- DB2 Subsystem Shared Storage Above 2 GB
- DB2 Subsystem Shared Variable Storage Above 2 GB

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the **MVS LPAR Shared Storage Above 2 GB** view to open:

- "MVS Storage Above 2 GB Workspace" on page 354
- "MVS Storage Below 2 GB Workspace" on page 354

DB2 Memory Attributes

Use the attributes to view the DB2 memory for the database address space (DBM1 or DIST).

4-Bit Aux Frames Shared Stack Identifies the number of auxiliary slots (4K) in use for 64-bit shared stack storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out (DB2 field name: QW0225ShrStkStg_Aux). This field is available in z/OS 1.10 (and maintenance) or later.

Shared stack storage (MB) Identifies the number of real-storage frames (4K) in use for 64-bit shared stack storage. This is recorded at the subsystem level (DB2 field name: QW0225ShrStkStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.

64-Bit Shared Storage (MB) Identifies the number of 64-bit shared memory pages allocated for this MVS LPAR (this count includes hidden pages) (DB2 field name: QW0225SHRPAGES).

Active and Disconnect DBATs Identifies the number of active and disconnected DBAT threads (DB2 field name: QW0225DB).

Active Threads Identifies the number of active allied threads (DB2 field name: QW0225AT).

Average Thread Footprint 64-bit common real Shows the current average real storage in use for common storage of active user threads (allied threads + active and pooled DBATs).

Average Thread Footprint (MB) Shows the current average real storage in use for subsystem shared storage of active user threads (allied threads + active and pooled DBATs).

Agent Local Storage (MB) The amount of storage, in MB, allocated for agent-related local storage (DB2 field name: QW0225AL). This storage is used for operations such as sort. Valid value is an integer in the range 0 - 9999999. This field includes the total agent local storage (31-bit DBM1 private variable pools) and total agent local storage (64-bit shared variable pools).

Agent System Storage (MB) Identifies the storage used by system agents (DB2 field name: QW0225AS). This field includes the total system agent storage (31-bit DBM1 private variable pools) and the total system agent storage (64-bit shared variable pools).

Aux Storage Used 64-Bit shared (MB) Shows the amount of auxiliary storage used for 64-bit shared storage for this MVS LPAR (including reserved auxiliary slots for pages that are paged in).

Aux Stg In Use 64-Bit Common (MB) Shows the number of auxiliary slots (4K) in use for 64-bit common storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out (DB2 field name: QW0225ComStg_Aux). This field is available in z/OS 1.10 (and maintenance) or later.

Auxiliary Slots Used Shared Storage 64 Bit Shows the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

Auxiliary Storage in use (MB) Shows the number of 4 KB auxiliary slots that are used for 64-bit shared stack storage. This value is recorded at the subsystem level. It includes only auxiliary slots that are occupied by pages that are page out. This field is available in z/OS 1.10 (and maintenance) or later.

Buffer Manager Storage Control Blocks (MB) Identifies the total storage used for page set control blocks (DB2 field name: QW0225BB).

Castout Engines Identifies the number of engines available for data-sharing castout processing (DB2 field name: QW0225CE).

Common Fixed Pool Above (MB) Identifies the amount of storage allocated for 64-bit common fixed pool storage (DB2 field name: QW0225FCG).

Common Fixed Pool Below (MB) Identifies the amount of storage allocated for 31-bit common fixed pool storage (DB2 field name: QW0225FC).

Common Getmained Above (MB) Identifies the amount of storage allocated for 64-bit common getmained storage (DB2 field name: QW0225GCG).

Common Getmained Below (MB) Identifies the amount of storage allocated for 31-bit common getmained storage (DB2 field name: QW0225GC).

Common Storage Manager Control Block Above (MB) Identifies the amount of storage allocated for 64-bit common storage for storage manager control structures (DB2 field name: QW0225SMC).

Common Variable Pool Above (MB) Shows the amount of storage allocated for 64-bit common variable pool storage (DB2 field name: QW0225VCG).

Common Variable Pool Below (MB) Identifies the amount of storage allocated for 31-bit common variable pool storage (DB2 field name: QW0225VC).

Compression Dictionary Identifies the storage space allocated for the compression dictionary (DB2 field name: QW0225CD).

Data Sharing Group The name of the DB2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.

Data Sharing Member The name of the DB2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

DB2 Subsystem The name of the DB2 subsystem.

DB2 Version The version of the DB2 system.

Deferred Write Engines Identifies the number of engines used for deferred write operations (DB2 field name: QW0225DW).

Dynamic Statement Cache Control Block (MB) Identifies the amount of storage used for dynamic statement cache control blocks above the 2 GB bar (DB2 field name: QW0225S2).

Extended CSA Size (MB) Identifies the size of the common storage area (CSA) above the 16 MB line (DB2 field name: QW0225EC).

GBP Write Engines Identifies the number of engines for group buffer pool writes (DB2 field name: QW0225GW).

HWM 64-Bit Shared Storage (MB) Identifies the high water mark number of 64-bit shared bytes for this MVS LPAR (DB2 field name: QW0225SHRGBYTES).

HWM Requested Non Shr Dyn SQL (MB) Shows statistics interval high-water mark (HWM) of requested non-shareable storage for dynamic SQL statements used by active threads. For DB2 10 or later, this value is related to shared agent local variable pools above the bar.

HWM Shr Dyn SQL (MB) Identifies the statistics interval high-water mark (HWM) of requested shareable storage for dynamic SQL statements used by active threads.

Interval Start The start time of this interval.

IRLM Current used 31-bit private Shows the total amount of 31-bit private storage that is currently in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW0225I_BBPVT). This value is the total of all 31-bit IRLM private pools.

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM Current used 64-bit common Shows the total amount of 64-bit common storage that is currently in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW0225I_ABCSA). This value is the total of all 64-bit common IRLM pools.

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM Current used 64-bit private Shows the total amount of 64-bit private storage in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW0225I_ABPVT).

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM Current used ECSA Shows the total amount of Extended Common Service Area (ECSA) storage in use by Internal Resource Lock Manager (IRLM) pools.

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM ECSA high water mark Shows the high water mark of Extended Common Service Area (ECSA) storage allocated by Internal Resource Lock Manager (IRLM) pools.

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM HWM for 31-bit private (MB) Shows the high water mark of 31-bit private storage that has been in use (DB2 field name: QW0225I_BBPVH). This value is the total amount of all 31-bit private IRLM pools.

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM HWM for 64-bit common (MB) Shows the high water mark of 64-bit common storage that has been in use. This value is the total of all 64-bit common IRLM pools (DB2 field name: QW0225I_ABCSH).

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM HWM for 64-bit private Shows the high water mark of 64-bit private storage allocated by IRLM pools (DB2 field name: QW0225I_ABPVH).

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).

- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM Threshold virtual 31-Bit Shows the threshold of 31-bit virtual storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded (DB2 field name: QW0225I_BPMAX).

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM Threshold virtual 64-Bit Shows the threshold of 64-bit virtual storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded.

It can show the following values:

N/A
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.

- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P
Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

Log Manager Control frames Aux (MB) The number of frames in auxiliary storage that are being used for log manager control structures.

Log Manager Control frames REAL (MB) The number of frames in real storage that are being used for log manager control structures.

Log Manager Wrt buff frames REAL (MB) The number of frames in real storage that are being used for log manager write buffers.

MVS System ID The MVS system identifier.

Number of active parallel child threads Shows the number of active parallel child threads.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

P-Lock Notify Exit Engines Identifies the number of data sharing P-Lock engines and Notify Exit engines (DB2 field name: QW0225PL).

Prefetch Engines Identifies the number of engines used for sequential, list, and dynamic prefetch (DB2 field name: QW0225PF).

RID Pool Storage (MB) Identifies the storage for RID list processing such as list prefetch, index ANDing and ORing (DB2 field name: QW0225RP).

Real Frames Common 64-Bit Identifies the number of real-storage frames (4K) in use for 64-bit common storage. This is recorded at the subsystem level (DB2 field name: QW0225ComStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.

Real Storage in use (MB) Shows the total amount of real storage in use for 64-bit shared storage. This is recorded at the subsystem level. This field is available in z/OS 1.10 (and maintenance) or later.

Shared Agent Local Storage (MB) Shows the amount of storage allocated for agent-related 64-bit local storage (DB2 field name: QW0225ALG).

Shared Agent Non-System Storage (MB) Shows the amount of 64-bit storage used by non-system agents. It is the difference between the Total Agent Local Storage (DB2 field name: QW0225ALG) and the Total Agent System Storage (DB2 field name: QW0225ASG).

Shared Agent System Storage (MB) Shows the amount of 64-bit storage used by system agents (DB2 field name: QW0225ASG).

Shared Fixed Storage 64-bit (MB) Identifies the amount of total fixed virtual shared storage above the 2 GB bar (DB2 field name: QW0225SF).

Shared Getmained Storage (MB) Identifies the amount of virtual shared storage acquired by GETMAIN above the 2 GB bar (DB2 field name: QW0225SG).

Shared Memory Objects Identifies the number of shared memory objects allocated for this MVS LPAR (DB2 field name: QW0225SHRNMOMB).

Shared Non-System Agent Stack Storage (MB) Shows the amount of 64-bit shared storage allocated for non-system agent stack use.

Shared Non-System Agent Stack Storage in Use (MB) Shows the amount of 64-bit shared non-system agent stack that is in use.

Shared Pages Backed in Real Storage 64 Bit Shows the number of 64-bit shared pages backed in real storage (4K pages) for this MVS LPAR (DB2 field name: QW0225SHRINREAL).

Shared Pages Paged In from Aux Storage 64 Bit Identifies the number of 64-bit shared pages paged in from auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEINS).

Shared Pages Paged Out from Auxiliary Storage 64 Bit Shows the number of 64-bit shared pages paged out to auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEOUTS).

Shared System Agent Stack Storage (MB) Shows the amount of 64-bit shared storage allocated for system agent stack use.

Shared Storage Manager Control Block (MB) Shows the amount of 64-bit shared storage allocated for storage manager control structures.

Shared Variable Storage (MB) Identifies the amount of virtual shared variable storage above the 2 GB bar (DB2 field name: QW0225SV).

Stack Storage In Use (MB) Shows the amount of 64-bit shared system agent stack that is in use.

Shared thread and system (MB) Shows the number of real-storage frames (4K) in use for 64-bit shared storage. This does not include shared stack storage (DB2 field name: QW0225ShrStg_Real). This is recorded at the subsystem level. This field is available in z/OS 1.10 (and maintenance) or later.

Subsystem 64-bit Shared Thd and Sys Shows the number of auxiliary slots (4K) in use for 64-bit shared storage. This does not include shared stack storage (DB2 field name: QW0225ShrStg_Aux). This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS 1.10 (and maintenance) or later.

Thread Copies of Cached SQL Date at HWM Identifies the timestamp at high-water storage (DB2 field name: QW0225HT).

Thread Copies of Cached SQL Statement Count Identifies the number of statements in the local cache storage pool (DB2 field name: QW0225LC).

Thread Copies of Cached SQL Statement Count at HWM Identifies the number of statements in the local cache storage pool at high storage time (DB2 field name: QW0225HC).

Total Agent Non-System Storage (MB) Shows the total Agent Non-System Storage. It is the difference between the Total Agent Local Storage (QW0225AL) and the Total Agent System Storage (QW0225AS).

Total Alloc Shr Static SQL (MB) Identifies the total shareable storage allocated for static SQL statements.

Total Allocated Shareable Storage for dynamic (MB) Identifies the total shareable storage allocated for dynamic SQL statements used by active threads.

Total Requested Non Shr Dyn SQL (MB) Identifies the total non-shareable storage requested for dynamic SQL statements used by active threads. For DB2 10 or later, this value is related to shared agent local variable pools above the bar.

Total Requested Shr Dyn SQL (MB) Identifies the total shareable storage requested for dynamic SQL statements used by active threads.

MVS Storage Attributes

Use the MVS Storage attributes to view the system storage sizes. This information is provided with DB2 10.

24 Bit High Private (MB) Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225HI). This storage is obtained from top downward, usually for authorized programs.

24 Bit Low Private (MB) Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225LO). This storage is obtained from bottom upward, usually for unauthorized programs.

31 Bit Extended High Private (MB) Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EH). This storage is obtained from top downward, usually for authorized programs.

31 Bit Extended Low Private (MB) Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EL). This storage is obtained from bottom upward, usually for unauthorized programs.

Active and Disconnect DBATs Identifies the number of active and disconnected DBAT threads (DB2 field name: QW0225DB).

Active Threads Identifies the number of active allied threads (DB2 field name: QW0225AT).

Address Space Name Shows the address space name (DBM1 or DIST) (DB2 field name: QW0225AN).

Agent Local Storage (MB) Identifies the amount of storage allocated for agent-related local storage (DB2 field name: QW0225AL). This storage is used for operations such as sort.

Agent Non-System Storage (MB) Identifies the total agent non-system storage. It is the difference between the Total Agent Local Storage (QW0225AL) and the Total Agent System Storage (QW0225AS).

Agent System Storage (MB) Identifies the storage used by system agents (DB2 field name: QW0225AS).

Auxiliary 4K Slot in Use 31 Bit Identifies the number of auxiliary slots (4K) in use by DBM1 (DB2 field name: QW0225AX).

Auxiliary 4K Slot in Use 64 Bit Identifies the number of auxiliary 4K slots in use for 64-bit private pools (DB2 field name: QW0225HVAuxSlots). This value is available from z/OS 1.11.

Auxiliary Slots Used Shared Storage 64 Bit Identifies the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

Auxiliary Storage in Use (MB) Identifies the number of auxiliary slots (4K) in use by DBM1 (DB2 field name: QW0225AX).

Avg Thread Footprint (MB) The current average memory usage of active allied threads and the maximum number of existing active DBATs. Valid value is an integer.

It is calculated as follows:

[(total variable storage)
- (total agent system storage)
- (amount of storage allocated for the local cache storage pool)]
/ [(active allied threads) + (active DBATs)]

Average Thread Footprint (MB) The current average memory usage of active allied threads and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:

[(total variable storage)
- (total agent system storage)
- (amount of storage allocated for the local cache storage pool)]
/ [(active allied threads) + (active DBATs)]

Buffer Manager Data Manager Trace Table (MB) Identifies the storage used for Buffer Manager and Data Manager internal trace tables (DB2 field name: QW0225TT).

Buffer Manager Storage Control Blocks (MB) Identifies the storage used for page set control blocks (DB2 field name: QW0225BB).

Castout Buffers (MB) Identifies the storage used for castout buffers (DB2 field name: SW0225C2).

Castout Engines Identifies the number of engines available for data-sharing castout processing (DB2 field name: QW0225CE).

Common Fixed Pool Above (MB) Identifies the amount of storage allocated for 64-bit common fixed pool storage (DB2 field name: QW0225FCG).

Common Fixed Pool Below (MB) Identifies the amount of storage allocated for 31-bit common fixed pool storage (DB2 field name: QW0225FC).

Common Getmained Above (MB) Identifies the amount of storage allocated for 64-bit common getmained storage (DB2 field name: QW0225GCG).

Common Getmained Below (MB) Identifies the amount of storage allocated for 31-bit common getmained storage (DB2 field name: QW0225GC).

Common Storage Manager Control Block Above (MB) Identifies the amount of storage allocated for 64-bit common storage for storage manager control structures (DB2 field name: QW0225SMC).

Common Variable Pool Above (MB) Identifies the amount of storage allocated for 64-bit common variable pool storage (DB2 field name: QW0225VCG).

Common Variable Pool Below (MB) Identifies the amount of storage allocated for 31-bit common variable pool storage (DB2 field name: QW0225VC).

Compression Dictionary Identifies the storage space allocated for the compression dictionary (DB2 field name: QW0225CD).

Current Private High Addr 24 Bit Identifies the current high address of the 24-bit private region (DB2 field name: QW0225TP). It indicates the highest value (upper limit) of the private area of the DB2 database address space and the private area of the distributed data address space.

Current Private High Addr 31 Bit Identifies the current high address of the 31-bit private region (DB2 field name: QW0225EP).

DB2 ID Identifies the DB2 ID.

DB2 Version The version of the DB2 system.

Deferred Write Engines Identifies the number of engines used for deferred write operations (DB2 field name: QW0225DW).

Dynamic Statement Cache Control Block (MB) Identifies the amount of storage used for dynamic statement cache control blocks above the 2 GB bar (DB2 field name: QW0225S2).

Extended CSA Size (MB) Identifies the size of the common storage area (CSA) above the 16 MB line (DB2 field name: QW0225EC).

Fixed Storage Identifies the total amount of fixed storage (DB2 field name: QW0225FX).

Fixed Storage above (MB) Identifies the total amount of fixed storage above the 2 GB bar (DB2 field name: QW0225FA).

GBP Write Engines Identifies the number of engines for group buffer pool writes (DB2 field name: QW0225GW).

Getmained Storage (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GM). This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Storage above (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GA). This includes space for the compression dictionary, and statement and DBD cache that can be used by the Environmental Descriptor Manager (EDM). This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Stack Storage (MB) Identifies the total GETMAINED storage allocated for program stack use (DB2 field name: QW0225GS).

HWM Auxiliary 4K Slot in Use 64 Bit Identifies the high water mark for the number of auxiliary 4K slots in use for 64-bit private pools (DB2 field name: QW0225HVGAuxSlots). This value is available from z/OS 1.11.

HWM Real 4K Frame in Use 64 Bit Identifies the high water mark for the number of real 4K frames in use for 64-bit private pools (DB2 field name: QW0225HVGPagesInReal). This value is available from z/OS 1.11.

HWM Shared Bytes 64 Bit (MB) Identifies the high water mark for number of 64-bit shared bytes for this MVS LPAR (DB2 field name: QW0225SHRGBYTES).

HWM Thread Copies Cached SQL (MB) Identifies the statistics interval high-water mark of allocated storage for thread copies in the local cache storage pool (DB2 field name: QW0225HS).

Interval Start The time at the Tivoli Enterprise Monitoring Server location when the data was sampled. The format is MM/DD/YY HH:MM:SS.

Local Dynamic Statement Cache Control Block (MB) Identifies the storage for local dynamic statement cache control blocks (DB2 field name: QW0225SB).

Max Extended Region Size (MB) Identifies the maximum amount of MVS private storage available above the 16 MB line (DB2 field name: QW0225RG).

Max Number of Threads The maximum number of possible threads. This depends on the storage size, the average memory usage of active user threads, and the maximum number of existing active DBATs. Valid value is an integer.

It is calculated as follows:

{(extended region size) - (31 bit extended low private)
- minimum (extended region size / 8, 200 * 1024 * 1024)
- [(total getmained storage) + (total getmained stack storage) + (total fixed storage)]}
/ (average thread footprint)

Maximum Number of Threads The maximum number of possible threads. This depends on the storage size, the average memory usage of active user threads, and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:

{(extended region size) - (31 bit extended low private)
- minimum (extended region size / 8, 200 * 1024 * 1024)
- [(total getmained storage) + (total getmained stack storage) + (total fixed storage)]}
/ (average thread footprint)

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Prefetch Engines Identifies the number of engines used for sequential, list, and dynamic prefetch (DB2 field name: QW0225PF).

Pipe Manager Subpool Storage (MB) Identifies the storage allocated to Pipe Manager for parallel query operations (DB2 field name: QW0225PM).

P-Lock Notify Exit Engines Identifies the number of data sharing P-Lock engines and Notify Exit engines (DB2 field name: QW0225PL).

RDS OP Pool Storage (MB) Identifies the storage for RDS operations pool used for sort, prepare, and so on (DB2 field name: QW0225RO).

Real 4K Frame in Use 31 Bit Identifies the amount of real-storage frames in use for 31-bit and 64-bit private pools (DB2 field name: QW0225RL).

Real 4K Frame in Use 64 Bit Identifies the number of real 4K frames in use for 64-bit private pools (DB2 field name: QW0225HVPagesInReal). This value is available from z/OS 1.11.

Real Storage in Use (MB) Identifies the amount of real storage in use for 31-bit and 64-bit private pools.

RID Pool Storage (MB) Identifies the storage for RID list processing such as list prefetch, index ANDing and ORing (DB2 field name: QW0225RP).

Shared Agent Local Storage (MB) Identifies the amount of storage allocated for agent-related 64-bit local storage (DB2 field name: QW0225ALG).

Shared Agent Non-System Storage (MB) Identifies the amount of 64-bit storage used by non-system agents. It is the difference between the Total Agent Local Storage (QW0225ALG) and the Total Agent System Storage.

Shared Agent System Storage (MB) Identifies the amount of 64-bit storage used by system agents (DB2 field name: QW0225ASG).

Shared Fixed Storage (MB) Identifies the amount of total fixed virtual shared storage above the 2 GB bar (DB2 field name: QW0225SF).

Shared Getmained Storage (MB) Identifies the amount of virtual shared storage acquired by GETMAIN above the 2 GB bar (DB2 field name: QW0225SG).

Shared Memory Objects Identifies the number of shared memory objects allocated for this MVS LPAR (DB2 field: QW0225SHRNMOMB).

Shared Memory Storage (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM).

Shared Memory Pages 64 Bit Identifies the number of 64-bit shared memory pages allocated for this MVS LPAR (this count includes hidden pages) (DB2 field name: QW0225SHRPAGES).

Shared Non-System Agent Stack Storage (MB) Identifies the amount of 64-bit shared storage allocated for non-system agent stack use (DB2 field name: QW0225GSG).

Shared Non-System Stack Storage in Use (MB) Identifies the amount of 64-bit shared non-system agent stack that is in use (DB2 field name: QW0225SUG).

Shared Pages Backed in Real Storage 64 Bit Identifies the number of 64-bit shared pages backed in real storage (4K pages) for this MVS LPAR (DB2 field name: QW0225SHRINREAL).

Shared Pages Paged In from Auxiliary Storage 64 Bit Identifies the number of 64-bit shared pages paged in from auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEINS).

Shared Pages Paged Out from Auxiliary Storage 64 Bit Identifies the number of 64-bit shared pages paged out to auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEOUTS).

Shared Storage Manager Control Block (MB) Identifies the amount of 64-bit shared storage allocated for storage manager control structures (DB2 field name: QW0225SMS).

Shared System Agent Stack Storage (MB) Identifies the amount of 64-bit shared storage allocated for system agent stack use (DB2 field name: QW0225GSG_SYS).

Shared System Agent Stack Storage in Use (MB) Identifies the amount of 64-bit shared system agent stack that is in use (DB2 field name: QW0225SUG_SYS).

Shared Variable Storage (MB) Identifies the amount of virtual shared variable storage above the 2 GB bar (DB2 field name: QW0225SV).

Stack Storage In Use (MB) Identifies the amount of stack storage that is in use (DB2 field name: QW0225SU).

Storage Cushion (MB) Identifies the storage reserved to allow DB2 to complete critical functions while short on storage (DB2 field name: STORCUSH). This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use.

Storage Manager Control Block (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM).

Thread Copies of Cached SQL (MB) Identifies the amount of storage allocated for the local cache storage pool (DB2 field name: QW0225SC). For DB2 10, the storage is allocated for executable code sequences of dynamic SQL statements

Thread Copies of Cached SQL above HWM Allocated Statement (MB) Identifies the statistics interval high-water mark (HWM) of allocated storage for thread copies in the cache storage pool above the 2 GB bar (DB2 field name: QW0225H2).

Thread Copies of Cached SQL above In Use (MB) Identifies the amount of storage used for thread copies in the cache storage pool above the 2 GB bar (DB2 field name: QW0225L2).

Thread Copies of Cached SQL Date at HWM Identifies the timestamp at high-water storage (DB2 field name: QW0225HT).

Thread Copies of Cached SQL in Use (MB) Identifies the amount of storage used for thread copies in the local cache storage pool (DB2 field name: QW0225LS). This is a subset of the total allocated storage for thread copies QW0225SC.

Thread Copies of Cached SQL Statement Count Identifies the number of statements in the local cache storage pool (DB2 field name: QW0225LC).

Thread Copies of Cached SQL Statement Count at HWM Identifies the number of statements in the local cache storage pool at high storage time (DB2 field name: QW0225HC).

Thread Copies of Static SQL (MB) Identifies the amount of storage allocated below the bar for executable code sequences of static SQL statements (DB2 field name: QW0225SX).

Total Storage Below (MB) Identifies total DBM1 storage (DB2 field name: SW0225DB). This includes:

- Fixed length storage use
- Getmained storage
- Save areas
- Variables

Variable Storage (MB) Identifies the total storage used by all variable pools (DB2 field name: QW0225VR). This includes storage used by:

- System agents
- Local agents
- RID pool
- Pipe manager subpool
- Local dynamic statement cache control blocks
- Local dynamic statement cache statement pool
- Buffer and data manager trace tables

Variable Storage above (MB) Identifies the amount of variable storage available above the 2 GB bar (DB2 field name: QW0225VA).

QW0225AV Identifies the total amount of storage available for storage manager pools (DB2 field name: QW0225AV).

QW0225CR Identifies the storage reserved for operation that must complete before DB2 is allowed to stop (DB2 field name: QW0225CR).

QW0225F1 This field is for IBM service (DB2 field name: QW0225F1).

QW0225F2 This field is for IBM service (DB2 field name: QW0225F2).

QW0225MV Identifies the amount of storage available for operating system activity (DB2 field name: QW0225MV).

QW0225SO Identifies the amount of free storage, in megabytes, available in the DBM1 data space (DB2 field name: QW0225SO).

Coupling Facility Connections Workspace

The Coupling Facility Connections workspace displays connection status information for all connections to a coupling facility structure.

Use the Coupling Facility Connections workspace to:

- View the status of all connections to a structure

- Identify the operating system name, the associated coupling facility name and job name

To investigate a non-active connection, review the information provided in Accessing an OMEGAMON Host Session.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Connection Attributes

Use the Group Buffer Pool (GBP) Connection attributes to create situations that monitor connections to DB2 coupling facilities.

Connection Status The status of the connection between a DB2 coupling facility member (IRLM subsystem) and group.

Valid values are:

Value	Description
ACTIVE	Active member connection
CONNECT	Member connected but not active
DISCONN	Member disconnected
FAILED	Member failed to connect
FAIL_PER	Member persistently fails to connect

Coupling Facility Name The name of a DB2 coupling facility. It is an alphanumeric text string with a maximum of 16 characters; for example, DB2_D411.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Data Sharing Group Element The name of an element of within the data sharing group.

DB2 ID The name of a DB2 subsystem.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Job Name The job name connected to a coupling facility structure. It is an alphanumeric text string with a maximum of 8 characters; for example, IRLM.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Structure Name The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Coupling Facility Structures Workspaces

The Coupling Facility Structures workspace provides a global view of LOCK1 and SCA coupling facility structures for a specific data sharing group.

Use the workspace to:

- Monitor activity rates within a structure
- Track structure utilization over a period of time
- View structure data for a true coupling facility situation

- View comprehensive global and false contention data

Analyzing Coupling Facility Connections

You can analyze a specific coupling facility structure to view the connection status of all connections to the structure.

From the Coupling Facility Structure table view, right-click a structure name and then click **Link to --> Coupling Facility Connections**. The Coupling Facility Connections workspace is displayed. This view shows the connection status details for your coupling facility structure.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Group Coupling Facility Attributes

Use the DB2 Group Coupling Facility attributes to create situations that determine the excess usage and reduced availability of group coupling facility structures.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 Change Requests The number of change requests for P-locks. Valid value is an integer in the range 0 - 99999999.

DB2 False Contention Provides a global view of false contentions for all DB2 systems in a data sharing group. The formula is the number of false contentions divided by the total number of global contentions, multiplied by 100. Valid value is an integer in the range 0 - 99999999.

DB2 False Suspends The number of suspends because of MVS XES (Cross-system Extended Services) false contention. Valid value is an integer in the range 0 - 99999999.

DB2 Global Contention Provides a global view of global contentions for all DB2 systems in a data sharing group. The formula is the total number of suspends because global contention divided by the total number of XES requests, multiplied by 100. Valid value is an integer in the range 0 - 99999999.

DB2 IRLM Suspends The number of suspends because of IRLM global resource contentions. This occurs when IRLM states are in conflict and require inter-system communication for resolution. Valid value is an integer in the range 0 - 99999999.

DB2 Lock Requests The number of lock requests for P-locks. Valid value is an integer in the range 0 - 99999999.

DB2 Unlock Requests The number of unlock requests for P-locks. Valid value is an integer in the range 0 - 99999999.

DB2 XES Suspends The number of suspends because MVS XES global resource contentions that are not IRLM-level contention. This occurs when XES lock states are in conflict but the IRLM lock states are not in conflict. Valid value is an integer in the range 0 - 99999999.

False Contention The number of contentions that the IRLM thought were competing for the same database resource. Valid value is an integer in the range 0 - 99999999.

Usage: An IRLM subsystem identifies a contention but grants a lock to a contending IRLM subsystem because the contending IRLM is requesting access to a different segment in the database.

False Contention Rate The number of false contentions divided by the number of seconds during the collection interval. Valid value is an integer in the range 0 - 99999999.

Global Contention The total number of contentions competing for the same database resource. Valid value is an integer in the range 0 - 99999999.

Global Contention Rate The number of contentions divided by the number of seconds during the collection interval. Valid value is an integer in the range 0 - 99999999.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

List Entries Allocated The total number of list entries that a DB2 system has allocated for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

List Entries Percent The number of list entries that IRLM is currently using divided by the number of list entries that DB2 has allocated. Valid value is an integer in the range 0 - 100.

List Entries Used The total number of list entries IRLM is currently using for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

Lock Entries Allocated The total number of lock entries that a DB2 system has allocated for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

Lock Entries Percent The number of lock entries that IRLM is currently using divided by the number of lock entries DB2 has allocated. Valid value is an integer in the range 0 - 100.

Lock Entries Used The total number of lock entries IRLM is currently using for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

Number of Indexes Identifies the number of indexes.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Structure Connect Count The number of active connections to a structure. Valid value is an integer in the range 0 - 16.

Structure Name The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

Structure Size The size, in kilobytes, of a DB2 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

Structure Status The current status of the coupling facility structure.

Valid values are:

Value	Description
ACTIVE	The structure is active
INACTIVE	The structure is inactive

For duplexed group buffer pool structures, additional valid values are:

Value	Description
REB_NEW	Rebuild on new (secondary GBP)
REB_OLD	Rebuild on old (primary) GBP
REB_TRAN	Structure is in transition
REB_HOLD	Structure is in holding state
REB_ERR	Error during the structure rebuild

Structure Type The type of DB2 coupling facility structure.

Valid values are:

Value	Description
CACHE	Cache data of interest to several DB2 systems in data sharing group
LIST	Shared Communications Area (SCA) for data sharing group members
LOCK	Controls locking

Structure Used The number of kilobytes that DB2 uses within a structure type. Valid value is an integer in the range 0 - 99999999.

Structure Used Percent The percent of the total available kilobytes that DB2 is currently using within a structure type. Valid value is an integer in the range 0 - 100.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Critical DB2 Messages by Message ID Workspace

The Critical DB2 Messages by Message ID workspace displays critical DB2 messages sorted by message identification number.

This workspace is comprised of the following views:

Critical DB2 Messages by Message ID (table view)
Reports information about critical messages, including when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspace from the Critical DB2 Messages by Message ID workspace:

- DB2 Messages

DB2 Message Attributes

Use the DB2 Message attributes to identify problems with your DB2 system.

DB2ID The name of a DB2 subsystem.

DB2 Version The version of the DB2 system.

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Long Message Action Code The long message action code.

Message ID The system identification number for the message. It is an alphanumeric text string with a maximum of eight characters.

Message Text A description of the message. It is an alphanumeric text string with a maximum of 2500 characters.

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Note: By default DB2 messages are not collected. If you want to collect DB2 messages, use the Configuration Tool and select: **Monitoring Profile configuration –> Additional configuration settings**. If you configure it to YES, the DB2 message subtask is started during DB2 instance initialization.

To start or stop DB2 message collection manually specify the following:

```
F <cccccccc>,F PESERVER,F<db2>,DB2MSGMON=<p>
```

where:

cccccccc
Identifies the OMEGAMON Collector started task name.

db2
Identifies the DB2 name.

p
Select Y to start or N to stop the message subtask.

If you do not see any DB2 messages, check if DB2 message subtask is started from the OMEGAMON Collector started task.

Data Sharing Thread Activity Workspace

The Data Sharing Thread Activity workspace provides a global view of thread activity for an entire data sharing group. A consolidated list of DB2 threads displays on the table view in alphabetical order by plan name. Your table view may sort differently if you have changed the sort field or sort order.

This workspace is comprised of the following views:

- Threads Using CP CPU (bar chart)
- Threads that have Wait Times (bar chart)
- Data Sharing Threads (table view)

Use the Data Sharing Threads table view to:

- Identify all active threads.
- Track thread activity for application threads over a period of time.
- Analyze thread data when a thread evaluates to true.

Monitoring Thread Activity

You can use the Data Sharing Threads table view to identify all active application threads and track thread activity over a period of time. You can use the thread data to:

- Monitor critical application threads.
- Evaluate the thread elapsed and wait times for critical threads.
- Observe thread activity for threads within the same system, group, and member.

Analyzing Thread Statistics

You can analyze a specific application thread on the Data Sharing Threads table view and review statistical information.

1. Right-click a row on the Data Sharing Threads table view.
2. Click **Link to --> Thread Statistics**.

The Thread Statistics workspace displaying statistical information for your thread is displayed.

Investigating Excessive Thread Elapsed Time

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session. You can then review further information that will assist you in investigating a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Data Sharing Thread Detail Attributes

Use Data Sharing Thread Detail attributes to create situations that monitor thread activity for an entire data sharing group.

Ace Address The DB2 thread ACE address for internal use.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Begin Time Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

Cancel Command The command string needed to cancel a thread. You can use Take Action with this attribute to cancel a thread: The format is "src CANCEL THREAD(nnnnnn)", where src is the subsystem recognition character and nnnnnn is the thread token.

Collection ID The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters

Collection ID (Unicode) The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Data Sharing Thread Detail Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Detail Attributes (Data Sharing) The type of DB2 connection.

Valid values are:

Value	Description
BATCH	Batch job.
CICS	CICS attach
DB2CAF	DB2 call attach
DLIBATCH	DL/I batch
Distributed or DBAccess	Distributed thread
IMS BMP	IMS attach BMP
IMS CTL	IMS control region
IMS MPP	IMS attach MPP
IMS TBMP	IMS transaction BMP
IMS	IMS thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 utility

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

CP CPU Time The central processor CPU time.

DB2 ID The name of a DB2 subsystem.

Display CPU Time The total amount of CPU time that DB2 has accumulated for a thread.

Valid format is HH:MM:SS:mmm, where: HH = Hour, MM = Minute, SS = Second, mmm = Millisecond. If the time goes over 24 hours, the format is DD-HH:MM where: DD = Day, HH = Hour, MM = Minute. For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

Display Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on.

Display Wait Time The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

In DB2 Elapsed Time The elapsed time accumulated in DB2.

LUWID The logical unit name (LUNAME) of the connection to the remote DB2 system.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package DBRM name.

Package Name Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

Parent Ace The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. Valid format is alphanumeric, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Thread Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0 - 99999999 seconds.

Thread Group Member Name The name of the member within a data sharing group for a thread.

Thread Group Name The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Thread Status The current status of a thread.

Valid values are:

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Stored Procedure Name The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.

Thread Token The thread token uniquely identifies a specific thread.

Data Sharing Thread Detail Attributes The type of thread.

It can be:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Thread Wait Time The total amount of thread wait time. Valid format is an integer in the range 09 - 99999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Data Sharing Thread Statistics Workspace

The Data Sharing Thread Statistics workspace displays thread statistics for a specific application thread. If the application thread is a parallel thread, the table view displays thread statistics for all the associated parallel threads.

Viewing Additional Thread Information

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session to investigate a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Data Sharing Thread Statistics Attributes

Use Data Sharing Thread Statistics attributes to create situations that determine the usage of parallel threads.

Asynchronous Page Reads The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

Dynamic Prefetch The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

Get Page Requests The number of thread getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. Valid value is an integer in the range 0 - 2147483647.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Immediate Write I/O The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

List Prefetch The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of SETW The number of set write requests to write a page out to DASD. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Sequential Prefetch The number of sequential prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Synchronous Read I/O The number of synchronous read I/O requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

DB2 Thread Exceptions Indicates the type of parallel thread.

Valid values are:

Value	Description
Normal	Not a parallel thread
Parent	Parallel thread is a parent
Child	Parallel thread is a child
Autonomous SP	Originating thread who invoked autonomous stored procedures

Unsuccessful Get Page Operation The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

DB2 Connect Server Workspace

The DB2 Connect Server workspace provides key information about all active and inactive DB2 Connect gateways.

This workspace is comprised of the following views:

DB2 Connect Server - Key Events (bar chart)
Shows the key events of all active DB2 Connect gateways.

DB2 Connect Server (table view)
Shows key data on all active and inactive DB2 Connect gateways.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Package Statistics Workspace

The Package Statistics workspace provides information about the size of the data exchanged between the DB2 Connect gateway and the host database and about the network time required.

It enables you to measure the throughput between the host database and the DB2 Connect gateway and gives you a better idea of the database activity and network traffic at the application level.

This workspace is comprised of the following views:

Thread/Application ID (table view)
Identifies the thread and the Database Connection Services (DCS) application.

Outbound Data (table view)
Shows the number of bytes exchanged between the host database and the DB2 Connect gateway during the processing of statements.

Network Time (table view)
Shows how many statements required which network time. The network time is the difference between the host response time and the elapsed execution time for a statement.

Data Sent (table view)
Shows how many packages of a certain size were sent from the DB2 Connect gateway to the host database.

Data Received (table view)
Shows many packages of a certain size were sent from the host database to the DB2 Connect gateway.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect/Gateway Statistics Workspace

The DB2 Connect/Gateway Statistics workspace provides statistics about the selected DB2 Connect gateway, including details about the number of agents and pooled agents, the connections waiting for the host to reply, and the connections waiting for the client to send a request.

This workspace is comprised of the following views:

DB2 Connect Server - Key Events (bar chart)
Shows the key events of the selected DB2 Connect gateway.

DB2 Connect Server - High Water Mark (bar chart)
Shows key high water marks with regard to agents.

DB2 Connect Information (table view)
Shows key data on the selected DB2 Connect gateway.

DB2 Connect Agents (table view)
Provides information about the agents.

Connections (table view)
Provides information about the connections.

Sorts/Memory (table view)
Shows the total number of allocated pages of sort heap space for all sorts at the level chosen and at the time the snapshot was taken.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect Server Package Statistics Workspace

The Package Statistics workspace provides statistics about the packages that were received at the selected DB2 Connect gateway.

This workspace is comprised of the following views:

DB2 Connect Server - Package Network Time (bar chart)
Shows the network time and the average network time required for processing a sample SQL statement. The network time is the difference between the host response time and the elapsed execution time for a statement.

DB2 Connect Information (table view)
Shows key information about the selected DB2 Connect gateway.

Package Statistics (table view)
Provides details on the packages received at the DB2 Connect gateway.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect Server Package Attributes

Use DB2 Connect Server Package attributes to create situations that to will alert you when the package network time is too high.

Average Network Time The result of the value for the Network time counter divided by the number of SQL chains being transferred.

Average Request Size Outbound The number of bytes sent by the DB2 Connect gateway to the host database, excluding communication protocol overhead, divided by the number of SQL chains being transferred.

Average Response Size Outbound The number of bytes received by the DB2 Connect gateway from the host database, excluding communication protocol overhead, divided by the number of SQL chains being transferred.

DB2 Subsystem Identifier The DB2 subsystem ID.

Gateway Snapshot Time The date and time at which the database system monitor information was collected.

IP Address The current IP address.

MVSID The MVS system identifier.

Name The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

Node Name The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

This information can be useful if you are saving your monitor output in a file or database for later analysis and you need to differentiate the data from different database server nodes. This node name is determined based on the NNAME configuration parameter.

Node Number The number assigned to the node in the file with filename db2nodes and file type cfg. (db2nodes.cfg).

Network Time The difference between the value for the Times for sample SQL statement - Total statement time counter and the value of the Times for sample SQL statement - Time on DB2 host counter. Both counters are on the Performance page.

Originating System ID The managed system name of the agent. It is alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Parent Database Name The name of the remote database to which the remote application is connected.

Server Instance Name The name of the database manager instance for which the snapshot was taken.

If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

Server Product Version ID The product and version that is running on the server in the form pppvvrrm.

In this case, *pppvvrrm* represents:

- *ppp* stands for SQL
- *vv* identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- *rr* identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- *m* identifies a 1-digit modification level

Server Status Shows whether the server is active or inactive.

Server Version The version of the server returning the information.

Statement Group The number of statements with outbound bytes.

Time Stamp The start time of this interval.

Time Zone Displacement The umber of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

DB2 Connect Server at Thread Level Workspace

The DB2 Connect Server at Thread Level workspace provides summary information about the Database Connection Services (DCS) application related to this thread.

This workspace is comprised of the following views:

Application Time (bar chart)
Shows the elapsed execution time of the unit of work that was completed most recently. It indicates the time that it takes for units of work to complete.

Thread/Application ID (table view)
Identifies the thread and the DCS application.

DB2 Connect Server Information (table view)
Shows key data on the DCS application.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect Server at Thread Level Overview Attributes

Use the DB2 Connect Server at Thread Level attributes to create situations to monitor connected gateways of a DB2 subsystem.

Ace Address The DB2 thread ACE address for internal use.

Application Agent ID The system-wide unique ID for the application. On a single-partitioned database, this ID consists of a 16-bit counter. On a multi-partitioned database, it consists of the coordinating partition number concatenated with a 16-bit counter. In addition, it is the same on every partition where the application might make a secondary connection.

Application ID The ID that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database.

It is known at both the client and the server, so you can use it to correlate the client and server parts of the application. For DDCS applications, you will also need to use the **Outbound Application ID** to correlate the client and server parts of the application. This ID is unique across the network. There are different formats for the application ID, which are dependent on the communication protocol between the client and the server machine on which the database manager, the DDCS, or both, are running. Each of the formats consists of three parts separated by periods.

Protocol	Format	Example	Details
APPC	Network.Logical Unit Name.Application instance	CAIBMTOR.OSFDBX0.930131194520	This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which create a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.
TCP/IP	IPAddr.Port.Application instance	A12CF9E8.3F0A.930131214645	A TCP/IP-generated application ID is made up by concatenating the IP

Protocol	Format	Example	Details
			address in hexadecimal characters, the port number (4 hexadecimal characters), and a unique ID for the instance of this application. The IP address is a 32-bit number displayed as a maximum of 8 hexadecimal characters.
IPX/SPX	Netid.nodeid.Application instance	C11A8E5C.400011528250. 0131214645	An IPX/SPX-generated application ID is made up by concatenating a character network ID (8 hexadecimal characters), a node ID (12 hexadecimal characters), and a unique ID for the instance of the application. The application instance corresponds to a 10-decimal-character timestamp of the form *mmddhhmmss*, where: M = Month, D = Day, H = Hour, M = Minute, S = Second.
NetBIOS	*NETBIOS.nname. Application instance	*NETBIOS.SBOIVIN. 930131214645	For nonpartitioned database systems, a NetBIOS application ID is made up by concatenating the string *NETBIOS, the NNAME defined in the database configuration file for the client, and a unique ID for the instance of this application. For partitioned database systems, a NetBIOS application ID is made up by concatenating the string N xxx.etc where *xxx* is the partition the application is attached to.
Local applications	*LOCAL.DB2 instance.Application instance	*LOCAL.DB2INST1. 930131235945	The application ID generated for a local application is made up by concatenating the string *LOCAL, the name of the DB2 instance, and a unique ID for the instance of this application.

Application Idle Time The number of seconds since an application issued any requests to the server. This includes applications that have not terminated a transaction, for example, not issued a commit or rollback. You can use this information to implement applications that force users that have been idle for a specified number of seconds.

Application Name The name of the application running at the client as known to the database manager or DB2 Connect. Together with the **Application ID** counter, it can be used to relate data items with your application.

Application Status Change Time The date and time the application entered its current status. This counter allows you to determine how long an application has been in its current status. If it has been in the same status for a long period of time, this can indicate a problem.

Authorization ID Shows the authorization ID of the user who invoked the application that is being monitored. On a DB2 Connect gateway node, this is the authorization ID of the user on the host.

Authorization ID The authorization ID.

Authid (Unicode) The authorization ID.

Client Communication Protocol The communication protocol that the client application is using to communicate with the server. You can use this counter for problem determination on remote applications.

Valid values for this counter are:

- API Constant Communication Protocol
- SQLM_PROT_UNKNOWN (Note 1)
- SQLM_PROT_LOCAL none (Note 2)
- SQLM_PROT_APPC APPC
- SQLM_PROT_TCPIP TCP/IP
- SQLM_PROT_IPXSPX IPX/SPX
- SQLM_PROT_NETBIOS NETBIOS

Note: The client is communicating using an unknown protocol. This value is only returned if future clients connect with a down-level server. The client is running on the same node as the server and no communications protocol is in use.

Client Operating Platform The operating system on which the client application is running. You can use this counter for problem determination on remote applications.

Client Process ID The process ID of the client application that made the connection to the database. You can use this counter to correlate monitor information such as CPU and I/O time to your client application. In the case of a DRDA-AS connection, this counter is set to 0.

Client Product Version ID The product and version that is running on the client.

You can use this counter to identify the product and code version of the database client. It is in the form *pppvvrrm*, where:

- *ppp* stands for SQL
- *vv* identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- *rr* identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- *m* identifies a 1-digit modification level

Code Page Used by Application The code page ID. For snapshot monitor data, this is the code page at the partition where the monitored application started. This ID can be used for problem determination for remote applications. You can use this information to ensure that data conversion is supported between the application code page and the database code page or, for DRDA host databases, the host coded character set ID (CCSID). For event monitor data, this is the code page of the database for which event data is collected. You can use this counter to determine whether your event monitor application is running under a different code page from that used by the database. Data written by the event monitor uses the database code page. If your event monitor application uses a different code page, you might need to perform some character conversion to make the data readable.

Commit Statements Attempted The total number of SQL COMMIT statements that have been attempted.

A small change rate in this counter during the monitor period can indicate that applications do not commit frequently, which can lead to problems with logging and data concurrency. You can also use this counter to calculate the total number of units of work by calculating the sum of the following:

```
(Commit statements attempted) + (Internal commits) + (Rollback statements attempted) +
(Internal rollbacks)
```

Configuration Name of Client The NNAME in the database manager configuration file at the client node. You can use this counter to identify the client node that is running the application.

DB2 Connect Server at Thread Level Overview Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Corrid The correlation ID.

Database Alias at the Gateway The alias used at the DB2 Connect gateway to connect to the host database. Use this counter for problem determination on DCS applications.

DB2 Connect First Connect The date and time at which the first connection to the host database was initiated from the DB2 Connect gateway. Use this counter for problem determination on DCS applications.

DB2 ID The DB2 subsystem ID.

DCS Application Status The current status of the application. It can help you diagnose potential application problems.

DCS Database Name The name of the remote database as cataloged in the DCS directory. Use this counter for problem determination on DCS applications.

Elapsed Time DB2CONN Execution Shows the time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement. Use this counter to determine what portion of the overall processing time is due to DB2 Connect gateway processing.

Failed Statement Percentage The number of statements that were attempted, but failed.

Failed Statements Operations The number of SQL statements that were attempted, but failed.

You can use this counter to calculate the total number of successful SQL statements at the database or application level:

```
(Dynamic SQL statements attempted) + (Static SQL statements attempted) - (Failed statement
operations) = throughput during monitoring period
```

This count includes all SQL statements that received a negative SQLCODE. This counter might also help you determine the reasons for poor performance because failed statements mean time wasted by the database manager and, as a result, lower throughput for the database.

Gateway Snapshot Time The date and time at which the database system monitor information was collected.

Host Coded Character Set ID The coded character set ID (CCSID) of the host database. Use this counter for problem determination on DCS applications.

Host Database Name The real name of the host database for which information is being collected or to which the application is connected. This is the name that was given to the database when it was created. Use this counter for problem determination on DCS applications.

Host Product Version ID The product and version that is running on the server.

This counter is used to identify the product and code version of the DRDA host database product. It is in the form *pppvvrrm*, where:

- *ppp* identifies the host DRDA product:
  - ARI for DB2 for VSE & VM
  - DSN for DB2 for OS/390 and z/OS
  - QSQ for DB2 UDB for AS/400
  - SQL for other DB2 products
- *vv* identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- *rr* identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- *m* identifies a 1-digit modification level

Inbound Bytes Received The number of bytes received (measured in 1000-byte increments) by the DB2 Connect gateway from the client, excluding communication protocol overhead (for example, TCP/IP or SNA headers). Use this counter to measure the throughput from the client to the DB2 Connect gateway.

Inbound Communication Address The communication address of the client. For example, it could be an SNA net ID and Logical Unit partner name, or an IP address and port number for TCP/IP. Use this counter for problem determination on DCS applications.

IP Address The current IP address.

Last Reset Timestamp The date and time that the monitor counters were reset for the application issuing the GET SNAPSHOT. You can use this counter to determine the scope of information returned by the database system monitor. If the database manager counters have never been reset, the value for this counter is zero. The database manager counters is only reset if you reset all active databases.

Most Recent Unit of Work Elapsed Time The elapsed execution time of the most recently completed unit of work. It indicates time that it takes for units of work to complete.

MVSID The MVS system identifier.

Name The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

Number of Open Cursors The number of cursors currently open for an application. Use this counter to assess how much memory is being allocated. The amount of memory allocated by the DB2 client, DB2 Connect, or the database agent on the target database is related to the number of cursors that are currently open. Knowing this information can help with capacity planning. For example, each open cursor that is blocking has a buffer size as specified by the RQRIOBLK database manager configuration parameter. If DEFERRED_PREPARE is enabled, two buffers are allocated.

Number of SQL Statements Attempted The number of SQL statements that have been attempted since the latter of: application startup, database activation, or last reset. For a data transmission, this is the number of SQL statements that have been attempted against this DCS database or in this DCS application since the database was activated, the connection to it was established by the application, or RESET MONITOR was issued against the database, and that used this number of data transmissions between the DB2 Connect gateway and the host during statement processing. Use this counter to measure the database activity for a database or application. To calculate the SQL statement throughput for a given period, you can divide this counter by the elapsed time between two snapshots. For a data transmission, use this counter to get statistics on how many statements used two, three, four, etc. data transmissions during their processing. At least two data transmissions are necessary to process a statement: a send and a receive. These statistics can give you a better idea of the database or application activity and network traffic for a database or an application.

Number of Transmissions The number of data transmissions between the DB2 Connect gateway and the host that was used to process this DCS statement. (One data transmission consists of one send or one receive.)

Use this counter to get a better understanding of the reasons why a particular statement took longer to execute. For example, a query returning a large result set might need many data transmissions to complete.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Outbound Application ID This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway.

You can use this counter in conjunction with the **Application ID** counter to correlate the client and server parts of the application information. This ID is unique across the network.

Format	Example	Details
Network.Logical Unit Name.Application instance	CAIBMTOR.OSFDBM0.930131194520	This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made

Format	Example	Details
		up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which creates a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.

Outbound Application ID Internal The interval for the Outbound Application ID.

Outbound Communication Address The communication address of the target database. For example, it could be an SNA net ID and Logical Unit partner name, or an IP address and port number for TCP/IP. Use this counter for problem determination on DCS applications.

Outbound Communication Protocol The communication protocol used between the DB2 Connect gateway and the host. Use this counter for problem determination on DCS applications.

Valid values are:

- SQLM_PROT_APPC
- SQLM_PROT_TCPIP

Outbound Sequence Number Reserved for future use. In this release, its value will is always 0001. It can contain different values in future releases of the product.

Previous Unit of Work Completion Timestamp The time when the previous unit of work was completed.

You can use this counter with the **Overall transaction data - Unit of work stop timestamp** counter to calculate the total elapsed time between COMMIT or ROLLBACK points, and with the **Overall transaction data - Unit of work start timestamp** counter to calculate the time spent in the application between units of work:

- For applications currently within a unit of work, this is the time at which the latest unit of work completed.
- For applications not currently within a unit of work (the application has completed a unit of work, but not yet started a new one), this is the stop time of the last unit of work that completed prior to the one that just completed. The stop time of the one just completed is indicated by the **Overall transaction data - Unit of work stop timestamp** counter.
- For applications within their first unit of work, this is the database connection request completion time.

Plan The plan name.

Rollback Statements Attempted The total number of SQL ROLLBACK statements that have been attempted.

A ROLLBACK can result from an application request, a DEADLOCK, or an error situation. This counter only includes the number of ROLLBACK statements issued from applications. For an application, this counter can help you determine the level of database activity for the application and the amount of conflict with other applications. For a database, it can help you determine the amount of activity in the database and the amount of conflict between applications running on the database.

Note: Try to minimize the number of rollbacks because higher rollback activity results in lower throughput for the database.

You can also use this counter to calculate the total number of units of work, by calculating the sum of the following:

```
(Commit statements attempted) + (Internal commits) + (Rollback statements attempted) +
(Internal rollbacks)
```

Row Selected The number of rows that have been selected and returned to the application.

You can use this counter to gain insight into the current level of activity within the database. This counter does not include a count of rows read for actions, such as COUNT(*) or joins. For a federated system you can calculate the average time to return a row to the federated server from the data source:

```
average time = rows returned / aggregate query response time
```

You can use these results to modify CPU speed or communication speed parameters in =SYSCAT.SERVERS. Modifying these parameters can impact whether the optimizer does or does not send requests to the data source.

Sequence Number Is incremented whenever a unit of work ends, that is, when a COMMIT or ROLLBACK terminates a unit of work.

Together with the **Application ID** counter, this counter uniquely identifies a transaction.

Server Instance Name The name of the database manager instance for which the snapshot was taken. If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

Time Stamp The start time of this interval.

Transaction ID The unique transaction ID across all databases generated by a transaction manager in a two-phase commit transaction.

You can use this ID to correlate the transaction generated by the transaction manager with the transactions executed against multiple databases. In addition, it can help you diagnose transaction manager problems by tying database transactions that involve a two-phase commit protocol with the transactions that are originated by the transaction manager.

Total Inbound Bytes Sent The number of bytes (measured in 1000-byte increments) sent by the DB2 Connect gateway to the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the DB2 Connect gateway to the client.

Total Host Response Time For a DCS statement, this is the elapsed time between the time that the statement was sent from the DB2 Connect gateway to the host for processing and the time when the result was received from the host.

For a DCS database or DCS application, it is the sum of the elapsed times for all the statements that were executed for a particular database or application. For a data transmission, this is the sum of host response times for all the statements that used this many data transmissions. Use this counter with the **Overall transaction data - Total outbound bytes sent** and **Overall transaction data - Total out bytes received** counters to calculate the outbound response time (transfer rate):

```
((Total outbound bytes sent) + (Total out bytes received)) / Total host response time
```

Total Outbound Bytes Received The number of bytes (measured in 1000-byte increments) received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes received by the DB2 Connect gateway from the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the host databases to the DB2 Connect gateway.

Total Outbound Bytes Sent The number of bytes sent (measured in 1000-byte increments) by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes sent by the DB2 Connect gateway to the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the DB2 Connect gateway to the host database.

Total Statement Execution Elapsed Time For a DCS statement, this is the elapsed time spent processing an SQL request on a host database server. This value is reported by this server. In contrast to the **Overall**

transaction data - Total host response time counter, this counter does not include the network elapsed time between DB2 Connect and the host database server. At other levels, this value represents the sum of the host execution times for all the statements that were executed for a particular database or application, or for those statements that used a given number of data transmissions. Use this counter, along with other elapsed time monitor elements, to evaluate the processing of SQL requests by the database server and to help isolate performance issues. Subtract the value for this counter from the value for the **Overall transaction data - Total host response time** counter to calculate the network elapsed time between DB2 Connect and the host database server.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Unit of Work Completion Status The status of the unit of work and how it stopped.

You can use this counter to determine if the unit of work ended due to a DEADLOCK or abnormal termination. It can be:

- Committed due to a commit statement
- Rolled back due to a rollback statement
- Rolled back due to a deadlock
- Rolled back due to an abnormal termination
- Committed at normal application termination
- Unknown as a result of a FLUSH EVENT MONITOR command for which units of work were in progress

Note: API users should refer to the sqlmon.h header file containing definitions of database system monitor constants.

Unit of Work Start Timestamp The date and time at which the unit of work first required database resources.

This resource requirement occurs at the first SQL statement execution of that unit of work:

- For the first unit of work, it is the time of the first database request (SQL statement execution) after the date and time that a connection request was granted.
- For subsequent units of work, it is the time of the first database request (SQL statement execution) after the previous COMMIT or ROLLBACK.

The database system monitor excludes the time spent between the COMMIT/ROLLBACK and the next SQL statement from its definition of a unit of work. This measurement method reflects the time spent by the database manager in processing database requests, separate from the time spent in the application before the first SQL statement of that unit of work. The unit-of-work elapsed time does include the time spent running the application between SQL statements within the unit of work. You can use this counter with the **Overall transaction data - Unit of work stop timestamp** counter to calculate the total elapsed time of the unit of work and with the **Overall transaction data - Previous Unit of Work completion timestamp** counter to calculate the time spent in the application between units of work. You can use the **Overall transaction data - Unit of work stop timestamp** and **Overall transaction data - Previous Unit of Work completion timestamp** counters to calculate the elapsed time for a unit of work.

Unit of Work Stop Timestamp The date and time at which the most recent unit of work completed, which occurs when database changes are committed or rolled back.

You can use this counter with the **Overall transaction data - Previous Unit of Work completion timestamp** counter to calculate the total elapsed time between COMMIT or ROLLBACK points, and with the **Overall transaction data - Unit of work start timestamp** counter to calculate the elapsed time of the latest unit of work. The timestamp contents are set as follows:

- When the application has completed a unit of work and has not yet started a new one (as defined by the **Overall transaction data - Unit of work start timestamp** counter). this counter is a valid, nonzero timestamp
- When the application is currently executing a unit of work, this counter contains zeros

- When the application first connects to the database, this counter is set to the connection completion time.

As a new unit of work is started, the contents of this counter are moved to the **Overall transaction data - Previous Unit of Work completion timestamp** counter.

User Login ID Shows the ID that the user specified when logging in to the operating system. This ID differs from authorization ID, which the user specifies when connecting to the database. You can use this counter to determine the operating system user ID of the individual running the application that you are monitoring.

DB2 Messages Workspace

The DB2 Messages workspace displays messages that can help you identify problems with your DB2 system.

This workspace is comprised of the following views:

Critical DB2 Messages (table view)
Displays all critical DB2 messages and warning DB2 messages. Critical messages are highlighted in red and warning messages are highlighted in yellow.

Last 10 DB2 Messages (table view)
Displays the ten most recent DB2 messages. Critical messages are highlighted in red and warning messages are highlighted in yellow.

Note: Not all messages are written to the message log. DISPLAY commands, for example, are filtered out and are not shown in the log.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Note: By default DB2 messages are not collected. If you want to collect DB2 messages, use the Configuration Tool and select: **Monitoring Profile configuration –> Additional configuration settings**. If you configure it to YES, the DB2 message subtask is started during DB2 instance initialization.

To start or stop DB2 message collection manually, specify the following:

```
F <cccccccc>,F PESERVER,F<db2>,DB2MSGMON=<p>
```

where:

cccccccc
Identifies the OMEGAMON Collector started task name.

db2
Identifies the DB2 name.

p
Enter Y to start or N to stop the message subtask.

If you do not see any DB2 messages, check if the DB2 message subtask is started from the OMEGAMON Collector started task.

You can link to the following workspaces from the DB2 Messages workspace:

- Critical DB2 Messages by Message ID
- DB2 Messages by Time Interval
- DB2 Messages by Message ID

DB2 Messages by Message ID Workspace

The DB2 Messages by Message ID workspace displays DB2 messages sorted by message identification number.

This workspace is comprised of the following views:

DB2 Messages by Message ID (table view)
Reports when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspaces from the DB2 Messages by Message ID workspace:

- DB2 Messages
- DB2 Messages by Time Interval

DB2 Messages by Time Interval Workspace

The DB2 Messages by Time Interval workspace displays DB2 messages sorted by time. The most recent messages are at the top of the list.

This workspace is comprised of the following views:

DB2 Messages by Time Interval (table view)
Reports when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspaces from the DB2 Messages by Time Interval workspace:

- DB2 Messages
- DB2 Messages by Message ID

DBAT End-to-End SQL Monitoring Workspace

The DBAT End-to-End SQL Monitoring workspace provides summarized performance information about DDF (Distributed Data Facility) thread activity. From here you can launch to the **Extended Insight Analysis Dashboard**, which collects the various SQL statement executions and shows them in an aggregated view.

This workspace is comprised of the following views:

DDF DB Access Thread CPU% (bar chart)
Shows the percentage of CPU that is used by distributed database access threads, which are server threads responding to SQL requests from a remote DB2 location.

DDF DB Access Thread In-DB2 CP CPU Time (bar chart)
Shows the class 2 CPU time (in DB2) that is used by distributed database access threads.

Distributed Database Access Thread Connection Summary (table view)
Provides the distributed database access threads connection summary. Click the **End-to-End SQL Monitoring** link to launch to the **Extended Insight Analysis Dashboard**.

Distributed Database Access Thread Summary (table view)
Provides key data to identify which distributed database access threads use resources excessively.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252

- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

DB2 SRM Subsystem Attributes

Use the DB2 SRM Subsystem attributes to create situations to monitor workload related information associated with a DB2 subsystem.

Abends EOM Rate The number of abends per second because an End of Memory (EOM) condition was detected over the last sampling period.

Abends EOT Rate The number of abends per second because an End of Task (EOT) condition was detected over the last sampling period.

Abort Rate The number of abort requests per second over the last sampling period.

Background Limit The system limit on background connections.

Background Utilization The percentage of available threads being used for background connections. Valid entry ranges from 0.0 to 100.0.

CONDBAT The maximum number of concurrent remote connections of Database Access Threads (DBATs) defined in DSNZPARM (Field name: QWP1CDB). When this limit is reached, any new connection request is rejected. Valid entry is an integer.

Commit Rate The number of commits per second over the last sampling period.

Create Thread Wait Rate The number of Create Thread requests per second that had to wait over the last sampling period.

Create Threads Rate The number of threads created per second over the last sampling period.

CTHREAD HWM The highest number of batch CICS, IMS, and TSO tasks.

Current Background The current number of background connections.

Current DBAT The current number of active DBATs.

Current Foreground The current number of foreground connections.

Current Threads The current number of active threads; Database Access threads are not included.

DBAT Conn HWM The number of high water mark remote connections (Field name: QDSTHWDT).

DBAT Conn Utilization The percentage of remote connections (CONDBAT) (derived field: SDBATCUT). The value is calculated as follows: `DBAT connection * 100 / QWP1CDB`

DBAT Connection The current number of remote connections for both, active and inactive connections (derived field: SDBATCON).

The value of active connections is calculated as follows: `QDSTCNAT - QDSTNADS (active DBATs - disconnected DBATs)`

The value of inactive connections is calculated as follows: `QDSTQCIT + QDSTCIN2 (type1 inactive DBATs + type2 inactive DBATs)`

DBAT Utilization The number of Database Access Threads (DBATs) in use is approaching the maximum number of DBATs defined by the MAXDBAT parameter in DSNZPARM.

Delta Abends EOM The number of abends detected because an End of Memory during the last sampling period.

Delta Abends EOT The number of abends detected because End of Task during the last sampling period.

Delta Aborts The number of abort requests during the last sampling period.

Delta Commits The number of commits during the last sampling period.

Delta Create Thread Wait The number of times a Create Thread operation had to wait during the last sampling period.

Delta Create Threads The number of threads created during the last sampling period.

Delta Identify The number of Identify requests during the last sampling period.

Delta In Doubt The number of Unit of Recovery threads that went in doubt during the last sampling period.

Delta In Doubt Resolve The number of Unit of Recovery threads that were in doubt and resolved during the last sampling period.

Delta Phase1 Commits The number of phase 1 commits during the last sampling period.

Delta Phase2 Commits The number of phase 2 commits during the last sampling period.

Delta Read Only Commits The number of Read Only commits during the last sampling period.

Delta Sign-on The number of sign-on requests during the last sampling period.

Delta Single Phase Commits The number of single phase commits during the last sampling period.

Delta Terminate Thread The number of threads terminated during the last sampling period.

Foreground Limit The system limit on foreground connections.

Foreground Utilization The percentage of available threads being used for foreground connections. Valid entry ranges from 0.0 to 100.0.

IDBACK HWM The maximum number of connections from batch or TSO background tasks.

Identify Rate The number of identify requests per second over the last sampling period.

IDFORE HWM The maximum number of connections from TSO foreground tasks.

In Doubt Rate The number of Unit of Recovery threads per second that went in doubt over the last sampling period.

In Doubt Resolve Rate The number of Unit of Recovery threads that were in doubt and resolved per second over the last sampling period.

Interval Time The number of seconds since last sample.

Location The DB2 location name.

MAXDBAT The number of maximum DBATs defined in DSNZPARM.

MAXDBAT HWM The maximum number of active and disconnected (pooled) DBATs that existed (field name: QDSTHWAT). This value is a high-water mark for QDSTCNAT.

Max Threads Allowed The total number of concurrent threads allowed.

OPM IP ADDR The host name or IP address of the IBM Optim Performance manager Web console.

OPM Port The port number of the IBM Optim Performance Web console.

OPM HTTP The HTTP or HTTPS for internal use only.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Phase1 Commit Rate The number of phase 1 commits per second over the last sampling period.

Phase2 Commit Rate The number of phase 2 commits per second over the last sampling period.

Read Only Commit Rate The number of read only commits per second over the last sampling period.

Sign-on Rate The number of sign-on requests per second over the last sampling period.

Single Phase Commit Rate The number of single phase commits per second over the last sampling period.

Terminate Thread Rate The number of Terminate Thread requests per second over the last sampling period.

Thread Utilization The percentage of available threads being used; this percentage is calculated as Current Threads/CTHREAD parameter in DSNZPARM *100; Database Access threads are not included. Valid entry ranges from 0.0 to 100.0.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Total Abends EOM The total number of abends detected because End of Memory.

Total Abends EOT The total number of abends detected because End of Task.

Total Aborts The total number of abort requests.

Total Commits The total number of commit requests.

Total Create Thread Wait The total number of times a Create Thread operation has to wait.

Total Create Threads The total number of threads created.

Total Identify The total number of Identify requests.

Total In Doubt The total number of Unit of Recovery threads that went in doubt.

Total In Doubt Resolve The total number of Unit of Recovery threads that were in doubt that were resolved.

Total Phase1 Commits The total number of phase 1 commits.

Total Phase2 Commits The total number of phase 2 commits.

Total Read Only Commits The total number of read only commits.

Total Sign-on The total number of sign-on requests.

Total Single Phase Commits The total number of single phase commits.

Total Terminate Thread The total number of thread terminations.

DDF Conversations Workspace

The DDF Conversations workspace presents conversation (connection between two transaction programs) information.

This workspace is comprised of the following view:

DDF Conversations (table view)
Lists conversation details, including IDs, counts, and maximums.

Note: This workspace is available only when the DB2 system is configured to use the distributed data facility.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 DDF CONV Attributes

Use the DB2 DDF CONV attributes to create situations to monitor conversation (connection between two transaction programs) information.

Conversation LOGMODE The conversation ID (LOGMODE Name). It is an alphanumeric text string, with a maximum length of eight characters.

Conversation LUNAME The conversation ID (LUNAME Name). It is an alphanumeric text string, with a maximum length of eight characters.

Conversation Utilization The percentage of maximum conversations that is currently in use. Valid entry ranges from 0.0 to 100.0.

Conversation Waits The count of processes waiting because the conversation limit has been reached.

Conversations In Use The current count of conversations.

Conversations Max The maximum number of concurrent conversations allowed as derived from CNOS.

Conversations Other Limit The maximum number of concurrent conversations defined in CDB.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

DDF Statistics Workspace

The DDF Statistics workspace monitors Distributed Database Facility (DDF) statistics, including send and receive counts.

This workspace is comprised of the following views:

Send/Receive Counts (bar chart)
Shows "at a glance" counts of SQL calls, messages, and transactions (received and sent).

Distributed Thread Statistics (table view)
Lists activity data associated with the DDF.

Note: This workspace is available for any thread defined as an allied-distributed thread.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 DDF STAT Attributes

Use the DB2 DDF STAT attributes to create situations to monitor Distributed Database Facility statistics.

Aborts Received The number of aborts received from remote location.

Aborts Sent The number of aborts sent to remote location.

Agent Elapsed Time The elapsed time at the local site spent processing for the remote site (in units that represent tenths of seconds).

Block Mode Switches The count of block mode switches performed.

Blocks Received The blocks received from remote location.

Blocks Sent The blocks sent to remote location.

Commits Received The number of commits received from remote location.

Commits Sent The number of commits sent to remote location.

Conversations Initiated Local The number of conversations initiated by local side of connection.

Conversations Initiated Remote The number of conversations initiated by remote side of connection.

Conversations Allocated The conversations allocated.

Conversations Deallocated The conversations deallocated.

Conversations Queued The number of conversations queued.

Coordinator Backouts Received The number of backout requests received from coordinator (2-phase commit only).

Coordinator Backouts Sent The number of backout requests sent to the coordinator (2-phase commit only).

Coordinator Commits Received The number of commit requests received from coordinator (2-phase commit only).

Coordinator Commits Sent The number of commit requests sent to the coordinator (2-phase commit only).

Coordinator Forgets Sent The number of forget response requests sent to the coordinator (2-phase commit only).

Data Bytes Received The number of data bytes received from the remote location.

Data Bytes Sent The number of data bytes sent to the remote location.

Data Rows Received The number of data rows received from the remote location.

Data Rows Sent The number of data rows sent to the remote location.

DB Access CPU Time The database access agent CPU time at the remote site (in units that represent milliseconds).

Directed Access The type of directed access.

Elapsed DB Access The elapsed database access agent time at the remote site (in units that represent tenths of seconds).

Interval Time The number of seconds since last sample (in units that represent seconds).

Last Agent Request Received The number of last agent requests received from initiator (2-phase commit only).

Last Agent Request Sent The number of last agent requests sent to coordinator (2-phase commit only).

Local Elapsed Time The elapsed time, in tenths of a second, for local thread (in units that represent tenths of seconds).

Maximum Conversations The maximum conversations allowed.

Message Buffer Rows The message buffer rows.

Messages Received The number of messages received from remote location.

Messages Sent The number of messages sent to remote location.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Participant Backouts Received The number of backout requests received from participant (2-phase commit only).

Participant Backouts Sent The number of backout requests sent to the participant (2-phase commit only).

Participant Commits Received The number of commit requests received from participant (2-phase commit only).

Participant Commits Sent The number of commit requests sent to the participant (2-phase commit only).

Participant Forgets Received The number of forget requests received from participant (2-phase commit only).

Prepare Requests Received The number of prepare requests received from participant (2-phase commit only).

Prepare Requests Sent The number of prepare requests sent to participant (2-phase commit only).

Protocol Used The protocol used for this conversation. It is an alphanumeric text string, with a maximum length of 12 characters.

Remote Binds The binds from remote access.

Remote Commit Operations The number of commit operations performed with the remote location as COORD.

Remote CPU Time The CPU time for remote system in milliseconds (in units that represent milliseconds).

Remote Elapsed Time The elapsed time for remote thread in tenths of a second (in units that represent tenths of seconds).

Remote In Doubt Threads The number of threads that went in doubt with the remote location as COORD.

Remote Location Name The name of the remote system to which this thread is connected. It is an alphanumeric text string, with a maximum length of 12 characters.

Remote Logical Unit Name The LUNAME of the connection to the remote DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

Remote Product ID The remote product ID. It is an alphanumeric text string, with a maximum length of eight characters.

Remote Rollback Operations The number of rollback operations performed with the remote location as COORD.

SQL Calls Received The number of SQL calls received from the remote location.

SQL Calls Sent The number of SQL calls made to the remote location.

Thread Token The attribute that ties this entry to the owning thread by using the thread token as a foreign key.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Transactions Received The number of Transactions received from remote location.

Transactions Sent The number of transactions sent to remote location.

Detailed Thread Exception Workspace

The Detailed Thread Exception workspace provides a detailed view of threads and thread exceptions connected to DB2.

This workspace is comprised of the following views:

Locks owned (bar chart)
Provides information about the number of locks owned by an individual thread.

Detailed Thread Exceptions (table view)
Lists "status" data for the activity of individual threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299

- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

DB2 Thread Exceptions Attributes

Use the DB2 Thread Exceptions attributes to create situations to monitor thread-related performance.

Ace Address The DB2 thread ACE address for internal use.

Archive Tape Wait True if waiting for a tape for an archive operation. It is an alphanumeric text string, with a maximum length of one character.

Asynchronous Page Reads The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

Authorization ID The authorization ID of the thread. It is an alphanumeric text string, with a maximum length of eight characters.

Authorization ID (Unicode) The authorization ID of the thread. It is an alphanumeric text string, with a maximum length of eight characters.

Begin Time Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

Cancel Command The command string needed to cancel a thread. It is an alphanumeric text string, with a maximum length of eight characters.

CICS MVS ID The MVS identifier used for CICS dynamic workspace linking.

Collection ID The collection ID.

Collection ID (Unicode) The collection ID.

Commit Count The number of times the thread successfully completed commit processing. DB2 resets the commit count at Create Thread and Signon. If Signon is not driven, the count is cumulative.

Commit Ratio The ratio of total system page updates to total commits.

Connection ID Identifies the connection of an application to a DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

Connection Type The type of thread connection.

Valid values are:

Value	Description
Application_Directed	Application directed access
CICS	CICS attach
DB2_CALL_ATTACH	DB2 call attach
DLIBATCH	DL/I batch
DISTRIBUTED	Distributed thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region

Value	Description
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
IMS	IMS thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Correlation ID The correlation ID for this thread. It is an alphanumeric text string, with a maximum length of 12 characters.

CPU Utilization The rate of CPU consumption during last interval.

CP CPU Time The total amount of central processor CPU time that DB2 has accumulated for a thread.

CP DB2 CPU Used The CP CPU time accumulated in DB2 when the SQL statement exit from DB2.

DB2 Elapsed Time The elapsed time accumulated in DB2 when the SQL statement exit from DB2.

DB2 ID The name of the DB2 system on which this thread is running. It is an alphanumeric text string, with a maximum length of four characters.

Display CPU Time The total amount of CPU time that DB2 has accumulated for a thread.

Display Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on.

Display Wait Time The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

Distributed Bytes Received The amount of data received by distributed threads from remote DB2.

Distributed Bytes Received 64 The amount of data received by distributed threads from remote DB2. It has a length of 64 bit to resolve overflow problems.

Distributed Bytes Sent The amount of data sent by distributed threads to remote DB2.

Distributed Bytes Sent 64 The amount of data sent by distributed threads to remote DB2. It has a length of 64 bit to resolve overflow problems.

Distributed CPU Seconds The amount of CPU time being used by a distributed DB access thread (in units that represent milliseconds).

Dynamic Prefetch The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

Elapsed Time The elapsed time for a DB2 thread (in units that represent seconds).

Getpage Count The number of get page operations for this thread during the last interval.

Getpage Ratio The number of Get pages divided by the Read I/O count.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Immediate Write I/O The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

In-DB2 IIP CPU Time The IIP CPU time consumed when executing in DB2.

In Doubt If True, the thread is in an INDOUBT status. It is an alphanumeric text string, with a maximum length of one character.

Interval Time The amount of time this thread has existed during the last sampling period (in units that represent seconds).

Job Name The job name connected to a coupling facility structure. It is an alphanumeric text string with a maximum of 8 characters; for example, IRLM.

List Prefetch The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Lock Percentage The number of locks owned divided by the maximum allowed locks for a thread.

Locks Max The maximum number of locks allowed for a single thread.

Locks Owned The number of locks this thread currently owns.

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

```
luw-id=token
```

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the **Luwid** field displays data such as the following:

```
USCACO01.O2D22A.A1FE8E04B9D4=8
```

Misc Flag Miscellaneous flag. It is an alphanumeric text string, with a maximum length of one character.

MVS System The name of the MVS image where the DB2 system identified by the DB2ID field is running. It is an alphanumeric text string, with a maximum length of four characters.

Name The name of the DB2 thread. It is an alphanumeric text string, with a maximum length of four characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package DBRM name.

Package Name The name of the package to which this thread belongs.

Page Update Rate The number of page update requests per second made by a thread.

Plan Name The ID of the plan this thread is executing. It is an alphanumeric text string, with a maximum length of eight characters.

Parent Ace The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

Prefetch Count The number of sequential, prefetch operations during the interval.

Prefetch Rate The read sequential, prefetch rate.

Read Count The number of read operations during the interval.

Read I/O Rate The thread synchronous read I/O rate.

Resource Count The total resource count.

Resource Limit The limit on number of resources allowed.

Resource Limit Percent The resource usage divided by resource limit.

Sync Read Count The number of synchronous reads during last interval.

Thread Connection Type The type of thread connection.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Thread Create Wait The application waiting for thread creation. It is an alphanumeric text string, with a maximum length of one character.

Thread Group Member Name The name of the member within a data sharing group for a thread.

Thread Group Name The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Thread Status The description of the current thread status. It is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Stored Procedure Name The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.

Thread Token The thread token used as foreign key to DDF, also used for the cancel thread command.

Thread Type The type of thread. It can be:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Thread Wait Time The total amount of thread wait time. It is an integer in the range 09 - 99999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Type Indicator Indicates the type of parallel thread.

Valid values are:

Value	Description
Normal	Not a parallel thread
Parent	Parallel thread is a parent
Child	Parallel thread is a child
Autonomous SP	Originating thread which invoked autonomous stored procedures

Unsuccessful Get Page Operation The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

Update Count The number of update operations during last interval.

Wait Resource The resource being waited on. It is an alphanumeric text string, with a maximum length of six characters.

Wait Time Total class3 wait time for a thread.

Wait Time Distributed Query The time distributed allied thread has been waiting for response - remote SQL (in units that represent milliseconds).

Wait Time Drain Claims The time thread waiting for drain of claims.

Wait Time Drain Lock The time thread waiting for acquisition of drain lock.

Wait Time Global Lock The time thread waiting because of global contention.

Wait Time Log Queue The time thread waiting for ARCHIVE LOG MODE(QUIESCE).

Wait Time Procedure The time thread waiting for a TCB to schedule a stored procedure.

Wait Time Resource The time thread waiting for a resource.

Wait Time Service The time thread waiting for DB2 Service (in units that represent milliseconds).

Distributed Allied Thread Summary Workspace

The Distributed Allied Thread Summary workspace provides summarized performance information about DDF (Distributed Data Facility) thread activity.

This workspace is comprised of the following views:

DDF Allied Thread-Remote Elap Time (bar chart)
Shows the remote elapsed time for the distributed allied threads that are used to issue SQL requests to a remote DB2 location.

DDF Allied Thread-Remote CPU (bar chart)
Shows the remote CPU for distributed allied threads.

Distributed Allied Thread Summary (table view)
Provides key data to identify which distributed allied threads use resources excessively.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200

- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

Distributed Thread Detail Workspace

The Distributed Thread Detail workspace provides information about the VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

This workspace is comprised of the following views:

Thread ID (table view)
Identifies the thread.

Distributed VTAM APPC Conversations (table view)
Shows the VTAM APPC conversations data of the thread if the thread is connected through VTAM APPC.

Distributed TCP/IP Data (table view)
Shows the TCP/IP data of the thread if the thread is connected through TCP/IP.

Distributed Remote Location Summary (table view)
Each row provides a SQL statistics summary for each remote DB2 location with which the thread has communicated, as a requester or a server.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Distributed Thread Detail Attributes

Use the Distributed Thread Detail attributes to create situations that monitor VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

Aborts Received The number of rollback requests received from the requesting location (single-phase commit operators only). This value is maintained at the server location.

Aborts Sent The number of rollback requests sent to the server location (single-phase commit operations only). This value is maintained at the requesting location.

Ace Address The ace address.

Agent Address The agent address.

AGNT ASID The address space ID (ASID) of the agent.

Agent TCB Address The Agent TCB address.

Allocations Received The number of create database access thread (DBAT) requests received by the server DBAT from the requester allied agent. This value is maintained by the server DBAT and is always 1.

Allocations Sent The number of successful conversation allocations. All allocation attempts, whether successful or not, are counted in QLACCNVS. The difference between QLACCNVS and QLACCNVA can be used to identify a session resource on resource constraint problem.

Application Directed Access If using application directed access, this is on.

Authorization ID The authorization ID.

Authorization ID (Unicode) The authorization ID.

Backouts Received The number of backout requests received from the coordinator (two-phase commit operations only).

Backouts Received from Coordinator The number of backout responses received from the participant (two-phase commit operations only). This indicates that the participant voted no to the prepare request.

Backouts Sent The number of backout requests sent to the participant (two-phase commit operations only).

Backouts Sent to Coordinator The number of backout responses sent to the coordinator (two-phase commit operations only). This indicates that the participant voted no to the prepare request.

Binds The number of static SQL statements that were bound for remote access (DB2 private protocol only). This value is maintained at the requester location.

Block Mode Switch Count The number of times a switch was made from continuous block mode to limited block mode (DB2 private protocol only).

Blocks Received The number of blocks received using block fetch. This value is maintained at the requester location.

Blocks Sent The number of blocks transmitted using block fetch. This value is maintained at the server location.

Bytes Received The number of bytes of data received from the server location. More bytes of data might be sent from the server location than are received by the requester because of the way SQL statements are processed internally.

Bytes Sent The number of bytes of data sent to the requester location. This value is maintained at the server location.

Collection The package collection ID.

Collection (Unicode) The package collection ID.

Commits Performed The number of commit operations performed with the remote location as the coordinator (two-phase commit operations only).

Commits Received The number of commit requests received from the requester location (single-phase commit operations only). This value is maintained as the server location.

Commits Received Phase 2 The number of commit requests received from the coordinator (two-phase commit operations only).

Commits Sent The number of commit requests sent to the server location (single-phase commit operations only). This value is maintained at the requester location.

Commits Sent Phase 2 The number of commit requests sent to the participant (two-phase commit operations only).

Distributed Thread Detail Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Distributed Thread Detail Attributes The type of connection associated with the thread.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach

Value	Description
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Conversation ID The conversation ID.

Conversations Allocated The number of successful conversation allocations.

Conversations Deallocated The number of conversations terminated.

Conversations Initiated Location The number of conversations that were initiated from the requester to the server location. This value is updated as the server location.

Conversations Initiated Thread The number of conversations that were initiated from the requester location. This value is maintained at the requester.

Conversations Queued The number of conversation requests queued by DDF that are waiting for allocation. This value is maintained at the requestor location. If the value is a large number, you might want to increase the limit for the number of conversations. See SE for the number of conversations.

Conversation Status The conversation status.

Correlation ID The correlation ID.

DBAT CPU The database access agent CPU time at the serving location.

DBAT Elapsed The elapsed time at the requester. It includes the total of DB2 and network time (DB2 field name: ADDSELRQ).

DB2 ID The DB2 subsystem ID.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

Forgets Received The number of forget responses received from the participant (two-phase commit operations only). This indicates that the participant was read only.

Forgets Sent The number of forget responses sent to the coordinator (two-phase commit operations only). This indicates that the participant was read only.

From Location The location from.

Host Name The host name.

Interval Start The start time of this interval.

IP Address The TCP/IP address (prior to DB2 9).

Last Agents Received The number of last agent requests received from the initiator (two-phase commit operations only). This counter is incremented when the DB2 server is receiving a last agent request from its upstream partner.

Last Agents Sent The number of last agent requests sent to the coordinator (two-phase commit operations only).

Last Appc Request The conversation last appc request issued.

Last Appc Qualifier Used The conversation last appc qual issued.

Location The requesting location.

Location (Unicode) The requesting location.

Logical Unit Name The conversation Logical Unit name.

Maximum Conversations The largest number of conversations open at any time.

Message Buffer Rows The number of rows transmitted in message buffers using block fetch. This field is maintained at both the requester and the server locations.

Messages Received The number of messages received from the location. More messages might be sent from the server location than are received by the requester because of the way SQL statements are processed internally. This value is maintained internally.

Messages Sent The number or messages sent to the location. A message, as defined by VTAM, is a group of characters and control IT sequences transferred as an entity. This value is maintained at the location where the messages originated.

MVS ID The MVS system identifer.

Number In Doubt The number of threads that became INDOUBTz with the remote location as the coordinator (two-phase commit operations only). This indicates that communication with the coordinator was lost.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM The package DBRM name.

Package DBRM (Unicode) The package DBRM name.

Plan The plan name.

Port The TCP/IP port number.

Prepares Received The number of prepare requests received from the coordinator (two-phase commit operations only).

Prepares Sent The number of prepare requests sent to the participant (two-phase commit operations only).

Product Name Shows the ACCRDB PRID parameter of the DDM command, where "ACCRDB" is the product specific ID of the "access relational database" and "PRID" is the product ID of the requester. The value is zero if the record is written at the application requester location.

Protocol Used The protocol used.

Remote Elapsed Time The remote elapsed time.

Remote Wait Time The time spent waiting for remote response.

Request Commits Received The number of request commit responses received from te participant (two-phase commit operations only).

Request Commits Sent The number of request commit responses sent to the coordinator (two-phase commit operations only).

Rollbacks Remote The number of rollback operations performed with the remote location as the coordinator (two-phase commit operations only).

Row Count The row counter.

Rows Received The number of rows of data retrieved from the server location (the count does not include either the SQLDA or SQLCA if they are transmitted). This value is maintained at the requester location.

Rows Send The number of rows of data sent to the requester location (includes SQLDA). This value is maintained at the server location.

Service Name The EXSCAT SRVNAM parameter.

Session ID The session ID.

Srvclsnm The EXSCAT SRVNAM parameter.

SQL Calls Received The number of SQL statements received from the requester.

SQL Calls Sent The number of SQL statements sent to the server. This value is maintained at the requester location.

System Access System access.

Thread Type The thread type is DBACCESS/ALLIED.

Time Since Last VTAM Request The time since the last VTAM request was issued.

Transaction ID The transaction ID at the workstation.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

VTAM Logmode The VTAM log mode entry name in use by the session.

VTAM Luname The location Logical Unit name.

Workstation ID The workstation ID.

Distributed Thread SQL Statistics Workspace

The Distributed Thread SQL Statistics workspace provides distributed SQL statistics for a remote DB2 location with which the distributed (DDF) thread has communicated, as a requester or a server.

This workspace is comprised of the following views:

Thread ID (table view)
Identifies the thread.

Distributed VTAM APPC Conversations (table view)
Shows the VTAM APPC conversations data of the thread if the thread is connected through VTAM APPC.

Distributed TCP/IP Data (table view)
Shows the TCP/IP data of the thread if the thread is connected through TCP/IP.

Distributed SQL Statistics (table view)
Shows SQL-related statistics for the selected remote DB2 location with which the thread has communicated, as a requester or a server.

Send & Receive (table view)
Shows send and receive data for the selected remote DB2 location with which the thread has communicated, as either a requester or a server.

2-Phase Commit: Send & Receive (table view)
Shows two-phase-commit-related send and receive data for the selected remote DB2 location with which the thread has communicated, as either a requester or a server.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Application Parameters Workspace

The DSG DSNZPARM Application Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect the default settings of the DB2 application.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPF - Application Default 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

DSNTIP4 - Application Default 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

DSNTIP4 - Application Default 3 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Parameters Attributes

Use the Db2 Parameters attributes to view ZPARM fields to see how your DB2 subsystem is configured. This information also applies if DB2 is a member of a data sharing group.

Data Sharing Group The name of the Db2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.

Data Sharing Member The name of the Db2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

DB2 Subsystem The name of the Db2 subsystem.

Field Name The name of the Db2 field. It is an alphanumeric text string with a maximum of 8 characters.

Field Description The description of the Db2 field. It is an alphanumeric text string with a maximum of 44 characters.

The field descriptions of the Db2 parameters are listed in alphabetical order:

DB2 parameter	Description
3990-3 SEQ CACHE (SEQCACH)	
ACCEL STARTUP (ACCEL)	Specifies the accelerator. servers to be used
ACCESS CONTROL (ACCESS CNTL MODULE)	

DB2 parameter	Description
ACTIVATE I/O SCHEDULING (SPRMIOP)	The enablement of the. index I/O parallelism ZPARM
ACTIVE LOGS - NUMBER OF COPIES (TWOACTV)	
ACTIVE LOGS ARE OFFLOADED ONLINE	Shows whether the. offload process is initiated online
ADMIN SCHEDULER (ADMTPROC)	
AGGREGATION FIELDS (ACCUMUID)	
ALLOCATION UNITS (ALCUNIT)	
ALLOW AUTOBIND OPERATION (ABIND)	
ALLOW EXPLAIN AT AUTOBIND (ABEXP)	
ALLOW TRACKMOD FOR IMPLICIT TSS (IMPTKMOD)	
AMOUNT OF SPACE ABOVE MVS	The amount of space above MVS
APPL COMPAT LEVEL (APPL COMPAT)	The application. compatibility level
APPL REGISTRATION TABLE (RGFNMPRT)	
APPLICATION ENCODING DEFAULT (APPENSCH)	
ARCHIVE COPY 1 MASS STORAGE GROUP (MSGVP)	The mass storage system. volume group name of the first storage group
ARCHIVE COPY 2 MASS STORAGE GROUP (MSGVP2)	The mass storage system. volume group name of the second storage group
ARCHIVE LOG BLOCK SIZE BYTES (BLKSIZE)	
ARCHIVE LOG RACF PROTECTION (PROTECT)	
ARCHIVE LOGS - COPY 1 PREFIX (ARCPFX1)	The prefix for copy 1 of. This prefix is appended the archive data setto the high-level qualifier. ZPARM ARCPFX1 in DSN6ARVP.

DB2 parameter		Description
	ARCHIVE LOGS - COPY 2 PREFIX (ARCPFX2)	The prefix for copy 2 of. This prefix is appended the archive data setto the high-level qualifier. ZPARM: ARCPFX2 in DSN6ARVP.
	ART/ORT ESCAPE CHAR (RGFESCP)	
	ASCII GRAPHIC CCSID (AGCCSID)	
	ASCII MIXED CCSID (AMCCSID)	
	ASCII SINGLE-BYTE CCSID (ASCCSID)	
	ASSEMBLY DATE	The date on which this. module was assembled
	AUTH EXIT CHECK (AUTHEXIT CHECK)	The AUTH subsystem. parameter controls whether DB2 is to check authorizations
	AUTH EXIT LIMIT (AEXITLIM)	The AEXITLIM. subsystem parameter controls the number of abends of the DB2 access control authorization exit routine that are to be tolerated before it is shut down
	AUTHEXIT CACHEREFRESH	The authorization exit. cache refresh
	AUTO START (IRLMAUT)	
	AUTO STARTED DATABASE/TBLSPACE	Database or table space. is automatically started
	AUTOMATICALLY REOPTIMIZE DYN SQL (REOPTEXT)	Indicates that the access. path of the dynamic SQL statement was automatically reoptimized
	BACKOUT DURATION (BACKODUR)	
	BIF COMPATIBILITY	
	BIND NEW PACKAGE (BINDNV)	
	CACHE DYNAMIC SQL STATEMENTS (CACHEDYN)	
	CATALOG DATA (CATALOG)	

DB2 parameter		Description
	CHARACTER SET (DECPCHAR)	The character set.
	CHECK FASTREPLICATION	
	CHK FREQ RECORDS (LOGLOAD)	The LOGLOAD value. specifies the number of log records that DB2 writes between checkpoints
	COMPACT DATA (COMPACT)	
	COMPATIBILITY OPTION (COMPAT)	
	COMPRESS SMF RECORDS (SMFCOMP)	
	COMPRESS SPT01	COMPRESS SPT01 in. Valid values are YES and macro DSN6SPRMNO. In a data sharing specifies whether theenvironment, all members SPT01 table space is toshould use the same be compressedsetting for the COMPRESS SPT01 parameter. The default value is NO, which means that the SPT01 table space is not compressed.
	CONN QUEUE MAX DEPTH (MAXCONQN)	
	CONN QUEUE MAX WAIT (MAXCONQW)	
	CONTRACT THREAD STORAGE (CONTSTOR)	
	CONTROL ALL APPLICATIONS (RGFDEDPL)	
	CONTROL PACKAGE HASH TABLES	The size of the control. package hash table
	COPY (FLASHCOPY COPY)	
	CORRELATION ID MONITOR (SPRMOZCI)	
	CURRENT DEGREE (CDSSRDEF)	
	CURRENT MAINTAINED TABLE TYPE (MAINTYPE)	
	CURRENT QUERY ACCEL (QUERY ACCELERATION)	

DB2 parameter		Description
	CURRENT REFRESH AGE (REFSHAGE)	
	DATA COMPRESS FOR IMPLICIT TS (IMPTSCMP)	Shows whether data. Install parameter USE compression in tableDATA COMPRESSION on spaces in implicitlypanel DSNTIP7 or ZPARM defined databases isIMPTSCMP in DSN6SYSP. used
	DATA DEF TIMEOUT (DDLTOX)	
	DATA SHARING ENABLED (DSHARE)	
	DATABASE PROTOCOL (DBPROTCL)	
	DATASET STATS TIME (DSSTIME)	
	DATE FORMAT (DATE)	
	DB2-SUPPLIED DECP	
	DBADM CREATE AUTH (DBACRVW)	
	DDF COMPATIBILITY	The DDF compatibility.
	DDF START OPTION (DDF)	
	DDF THREADS (CMTSTAT)	
	DDF/RRSAF ACCUMULATION (ACCUMACC)	
	DEADLOCK CYCLES (DEADLOK)	
	DEADLOCK TIME (DEADLOK)	
	DECIMAL ARITHMETIC (DECARTH)	
	DECIMAL POINT IS (DECIMAL)	
	DEF DECFLOAT ROUND MODE	
	DEFAULT 16KB BP FOR USER DATA (TBSBP16K)	
	DEFAULT 32KB BP FOR USER DATA (TBSBP32K)	

DB2 parameter		Description
	DEFAULT 4KB BP FOR USER DATA (TBSBPOOL)	The name of the 4 KB. Install parameter buffer pool for user tableDEFAULT BUFFER POOL spacesFOR USER DATA on installation panel DSNTIP1, or ZPARM TBSBPOOL in DSN6SYSP.
	DEFAULT 8KB BP FOR USER DATA (TBSBP8K)	
	DEFAULT BP FOR INDEXES (IDXBPOOL)	The name of the 4 KB. Install parameter buffer pool used forDEFAULT BUFFER POOL indexes on user dataFOR USER INDEXES on installation panel DSNTIP1, or ZPARM IDXBPOOL in DSN6SYSP.
	DEFAULT BUFFER POOL FOR USER LOB (TBSBPLOB)	
	DEFAULT BUFFER POOL FOR USER XML (TBSBPXML)	
	DEFAULT ENCODING SCHEME (ENSCHEME)	
	DEFAULT PARTITION SEGSIZE (DPSEGSZ)	The default segment size. This field corresponds to to be used for afield DEFAULT PARTITION partitioned table spaceSEGSIZE on installation when the CREATEpanel DSNTIP7. The TABLESPACE statementZPARM name is DPSEGSZ does not include theIN DSN6SYSP. SEGSIZE parameter
	DEFAULT TEMPLATE (FCCOPYDDN)	
	DEFINE DATA SET FOR IMPLICIT TS (IMPDSDEF)	Defines the underlying. Install parameter data sets when a tableDEFINE DATA SETS on space (TS) that ispanel DSNTIP7 or ZPARM contained in an implicitlyIMPDSDEF in DSN6SYSP. created database is created
	DEL CFSTRUCTS ON RESTART	
	DESCRIBE FOR STATIC SQL (DESCSTAT)	
	DEVICE TYPE 1 (UNIT)	The UNIT subsystem. Acceptable values are parameter specifies thethe device type or unit device type or unit namename. The default value is that is to be used forTAPE. storing archive log data sets
	DEVICE TYPE 2 (UNIT2)	

DB2 parameter		Description
	Disable EDMRTS (DISABLE EDMRTS)	
	DISALLOW DEFAULT COLLID	
	DISTRIBUTED SQL STRING DELM (DSQLDELI)	
	DO NOT SET SQLWARN1 4 AND 5 (DISABSCM)	Do not set SQLWARN1, 4. and 5
	DRDA ALIAS RES (DRDA RESOLVE ALIAS)	
	DSNHDECP MODULE DSNNAME	The DSN name of the. It is used to run the DB2 DSNHDECP module thatprecompiler. is supplied by DB2
	DSNZPARM MODULE	The name of the. DSNZPARM module specified for DB2 startup and the date on which this module was assembled
	DUAL ARCHIVE COPIES (TWOARCH)	
	DUAL BSDS MODE (TWOBSDS)	
	DUMP CLASS NAME (UTILS DUMP CLASS NAME)	
	EBCDIC GRAPIC CCSID (GCCSID)	
	EBCDIC MIXED CCSID (MCCSID)	
	EBCDIC SINGLE-BYTE CCSID (SCCSID)	
	EDM ABOVE 2GB (EDM ABOVE 2GB)	EDM above 2 GB.
	EDM BEST FIT (EDMBFIT)	
	EDM LIMIT BELOW THE BAR (EDMPOOL)	
	EDM POOL DBD CACHE SIZE (EDMDBDC)	
	EDM POOL STATEMENT CACHE SIZE (EDMSTMTC)	
	EDM SKELETON POOL SIZE (EDM SKELETON POOL)	

DB2 parameter	Description
ENABLE CHANGE DATA CAPTURE (CHGDC)	
ENABLE DB CHECKING (SPRMDBC)	Enable database. checking
ENABLE OPT I/O WEIGHTING (OPTIOWGT)	
Enable Pair-wiseJoin (EN PJSJ)	
ENABLE SQL INTERRUPT (SQLINTRP)	Enable SQL interrupt.
ENFORCE DPROP SUPPORT (EDPROP)	
EVALUATE UNCOMMITTED (EVALUNC)	
EXTENDED DATESTAMP INDICATOR	The indicator of the. extended date stamp
EXTENDED OPTION FOR TCPALVER	
EXTENDED SECURITY (EXTSEC)	
EXTRA BLOCKS REQ (EXTRAREQ)	
EXTRA BLOCKS SERVED (EXTRASRV)	
FACILITY ENTRIES	Facility entries.
FACILITY NAME	The name of the DDF. facility
FAST RESTORE (REC FASTREPLICATION)	
FIELD PROCS DESCRIBE TABLE BLOCK (SPRMFDP)	The number of field. procedures for the DESCRIBE TABLE block
FLASHCOPY (FLASHCOPY)	FLASHCOPY
FLASHCOPY PPRC	
FREE LOCAL CACHE STM (CACHEDYN FREELOCAL)	
GET ACCEL ARCHIVE	
GROUP NAME (GRPNAME)	
HONOR KEEPDICTIONARY	

DB2 parameter		Description
	HOP SITE AUTHORIZATION (SPRMHOP) (HOPAUTH)	
	ICF CATALOG ALIAS (CATALOG)	
	IDENTIFY/AUTH (IDAUTH MODULE)	
	IDLE THREAD TIMEOUT (IDTHTOIN)	
	IGNORE SORTNUM STATEMENT (IGNSORTN)	
	IMMEDIATE WRITE (IMMEDWRI)	
	IMPLICIT TIMEZONE (IMPLICIT TIMEZONE)	
	IMS BMP TIMEOUT (BMPTOUT)	
	IMS DLI TIMEOUT (DLITOUT)	
	INCLUDE DEPENDENT PRIVILEGE ON REVOKE	Allows revoking of. dependent privileges to be controlled at the SQL level
	INDEX CLEANUP THREADS	The index cleanup. threads
	INDEX I/O PARALLELISM (INDEX IO PARALLELISM)	The enablement of the. index I/O parallelism ZPARM
	INDEX SPACE ALLOCATION IN KB (IXQTY)	Shows the amount of. 0 indicates that DB2 space in KB for primaryuses standard defaults. and secondary spaceInstall parameter INDEX allocation for DB2-SPACE ALLOCATION on defined data sets forpanel DSNTIP7, or ZPARM index spaces createdIXQTY in DSN6SYSP. without the USING clause
	INITIAL MODULE	The name of the initial. DSNZPARM load module
	INSTALL DD CONTROL SUPT (RGFINSTL)	
	IRLM INITIALIZATION INQUIRY TIME	

DB2 parameter		Description
	IRLM MAXIMUM CSA ALLOWED	The maximum common. service area (CSA) allowed for internal resource lock manager (IRLM)
	IRLM SUBSYSTEM (IRLMSID)	
	IX TB PART CONV EXCLUDE	
	LANGUAGE DEFAULT (DEFLANG)	
	LEVELID UPDATE FREQ (DLDFREQ)	
	LIKE BLANK INSIGNIFICANT	
	LIMIT BACKOUT (LBACKOUT)	
	LOAD (FLASHCOPY LOAD)	
	LOB INLINE LEN (LOB INLINE LENGTH)	The default inline length. The valid values are from for any new storing large0 to 32680 inclusive (in object (LOB) column in abytes). The default value Universal Table Space onfor this ZPARM is 0, which the DB2 subsystemindicates that no inline attribute is required for any LOB column (BLOB, CLOB or DBCLOB) created on this subsystem.
	LOCAL DATE LENGTH (DATELEN)	
	LOCAL TIME LENGTH (TIMELEN)	
	LOCALE LC CTYPE (LC CTYPE)	The LC TYPE DECP value. A locale is the part of specifies the systemyour system environment LOCALE LC CTYPEthat depends on language and cultural conventions. An LC CTYPE is a subset of a locale that applies to character functions. A valid locale can consist of 0 to 50 characters.
	LOCKS PER TABLE (SPACE) (NUMLKTS)	
	LOCKS PER USER (NUMLKUS)	
	LOG CHECKPOINT TYPE (CHKTYPE)	

DB2 parameter		Description
	MANAGE REAL STORAGE (REALSTORAGE MANAGEMENT)	
	MANAGE THREAD STORAGE (MINSTOR)	
	Max 31-bit IRLM Private Storage	The maximum 31-bit. IRLM private storage
	Max 64-bit IRLM Private Storage	The maximum 64-bit. IRLM private storage
	MAX ABEND COUNT (STORMXAB)	
	MAX BATCH CONNECTIONS (IDBACK)	
	MAX CONCURRENT PKG OPS	
	MAX CONCURRENT(CTHREAD)	
	MAX DATA CACHING MB (MXDTCACH)	
	MAX DBM1 STG FOR LOG	
	MAX DSSIZE FOR IMPLICIT TSS (IMPDSSIZE)	
	MAX INACTIVE DBATS (MAXTYPE1)	
	Max Numb in IN-List (INLISTP)	
	MAX NUMBER DS CONCURRENTLY IN USE (DSMAX)	
	MAX OPEN CURSORS (MAX_NUM_CUR)	
	MAX OPEN FILE REFS (MAXOFILR)	
	MAX REMOTE ACTIVE (MAXDBAT)	
	MAX RID BLOCKS OF TEMP STRG (MAXTEMPS RID)	
	MAX RID POOL SIZE (MAXRBLK)	
	MAX STORED PROCS (MAX_ST_PROC)	

DB2 parameter		Description
	MAX TSO USERS (IDFORE)	
	MAX ZIVLEMPEL DICT ENTRY (SPRMMDE)	Hardware data. This technique requires compression uses theuse of a dictionary. Ziv-Lempel compression technique, which uses a fixed number of bits to replace a variable number of bytes
	MAXIMUM DEGREE PARALLELISM (PARAMDEG)	
	MAX DS OPEN STOP ASYNC DRAIN (SPRMMDD)	
	MAXIMUM EXTEND SERVICE TASKS (SPRMEST)	Maximum number of. extended service tasks
	MAXIMUM KEPT DYNAMIC STATEMENTS (MAXKEEPD)	Shows the total number. 0 means that prepared of prepared dynamic SQLdynamic SQL statements statements that areare not saved past saved past a commitcommit points. Install pointparameter MAX KEPT DYN STMTS on panel DSNTIPE, or ZPARM MAXKEEPD in DSN6SPRM.
	MAXIMUM LE TOKENS (LEMAX)	
	MAXIMUM NOT FOUND HASH RECORDS (SPRMKFC)	The maximum number of. NOT FOUND hash records
	MAXIMUM NUMBER OF DS IN BSDS (MAXARCH)	
	MAXIMUM READ TAPE UNITS (MAXRTU)	
	MAXIMUM REMOTE CONNECT (CONDBAT)	The maximum allowed. When this limit is number of concurrentreached, any new remote connectionsconnection request is rejected. Install parameter MAX REMOTE CONNECTED on panel DSNTIPE, or ZPARM CONDBAT in DSN6SYSP.
	MAXIMUM TAPE UNITS (RESTORE TAPEUNITS)	

DB2 parameter		Description
	MAXIMUM TEMP STG/ AGNT IN MB (MAXTEMPS)	The maximum amount of. storage in the Workfile Database that can be used by each agent (derived from ZPARM MAXTEMPS)
	MAXSORT IN MEMORY	The maximum number of. This is a high-water mark in-memory work filescount. created by the SORT component that were active at any point in time since DB2 start
	MEASURED USAGE PRICING	Detailed measured usage. price tracking
	MEMBER NAME (MEMBNAME)	
	MIN SCALE DECIMAL DIVIDE (MINDVSCL)	The minimum scale for. The values for this the result of a decimalparameter are none (the divisiondefault), 3, or 6. If 3 or 6 is specified, this parameter overrides the DECDIV3 parameter.
	MINIMUM DIVIDE SCALE (DECDIV3)	
	MINS BETWEEN CHECKPOINT (CHKMINS)	
	MINUTES/CHECKPOINT (CHKFREQ)	
	MIXED DATA (MIXED)	
	MONITOR SIZE (MONSIZE)	The default number of. Install parameter bytes allocated for theMONITOR SIZE on panel monitor trace bufferDSNTIPN, or ZPARM MONSIZE in DSN6SYSP.
	MONITOR TRACE (MON)	
	MVS ENVIRONMENT	The type of MVS. environment in which DB2 is running
	NEW FUNCTION MODE (NEWFUN)	
	NPAGES THRESHOLD OPTIMIZER (SPRMNPAG)	
	OBJECT CREATE FORMAT	The format of OBJECT. CREATE
	OBJECT REGISTRATION TABLE NAME (RGFNMORT)	

DB2 parameter		Description
	ONLINE ZPARM TYPE	The type of DB2 system. parameter changed by the last SET SYSPARM statement
	OPT1 ROWB LOCK SORT	
	OPTIMIZATION HINTS ALLOWED (OPTHINTS)	
	OPTIMIZE EXTENT SIZING (MGEXTSZ)	Indicates whether DB2. Install parameter uses sliding secondaryOPTIMIZE EXTENT quantity for DB2SIZING on panel managed data sets toDSNTIP7, or ZPARM optimize extent sizingMGEXTSZ in DSN6SYSP.
	OUTER JOIN PERFORM ENHANCEMENT (OJPERFEH)	
	OUTPUT BUFFER (OUTBUFF)	
	PACKAGE AUTH CACHE SIZE (CACHEPAC)	
	PAD INDEXES BY DEFAULT (PADIX)	
	PAD NULL TERMINATED STRING (PADNTSTR)	
	PARALLEL ACCOUNTING ROLLUP (PTASKROL)	
	PARALLEL ASSIST (ASSIST)	
	PARALLEL COORDINATOR (COORDNTR)	
	PARALLISM EFFICIENCY FACTOR (PARA EFF)	
	PARAMDEG DPSI	The maximum degree of. parallelism that is to be allowed for a data-partitioned secondary index (DPSI)
	PARAMDEG UTIL	The maximum degree of. parallelism that is to be allowed for a utility
	PC SPECIFIED	This IRLM process flag. indicates whether PC Yes was specified
	PCTFREE UPD	The update of the. PCTFREE parameter

DB2 parameter		Description
	PENDING HASH ENTRIES	The number of z/OS lock. table hash entries pending
	PKGREL COMMIT (PKGREL COMMIT)	If the MODIFY DDF. PKGREL(COMMIT) command has been issued at the server, the value of the bind option has no effect on packages that are executed on a DB2 server through a DRDA connection with the client system
	PLAN AUTH CACHE (AUTHCACH)	
	PLAN MGMT SCOPE (PLANMGMTSCOPE)	
	POOL THREAD TIMEOUT (POOLINAC)	
	PREVIOUS MODULE	The name of the previous. DSNZPARM load module
	PRIMARY QUANTITY (PRIQTY)	
	PRIVATE PROTOCOL	
	PROC NAME (IRLMPRC)	
	PROJECT Z INSERT THRESHOLD (SPRMZTN)	The Project Z insertion. threshold
	QUERY ACCEL OPTIONS	
	QUIESCE PERIOD SECONDS (QUIESCE)	
	RANDOMIZE GROUP ATTACHMENT (RANDOMATT)	
	READ COPY2 ARCHIVES FIRST (ARC2FRST)	
	REAL TIME STATS (STATSINT)	
	REALSTORAGE MAX	The maximum amount of. real storage
	REBIND PLAN MGMT DEFAULT	
	REBUILD INDEX (FLASHCOPY REBUILD INDEX)	

DB2 parameter		Description
	RECALL DATABASE (RECALL)	
	RECALL DELAY (RECALLD)	
	RECORDS BETWEEN CHECKPOINT (CHKLOGR)	
	RECORDS/CHECKPOINT (CHKFREQ)	
	REGISTRATION DATABASE (RGFDBNAM)	
	REGISTRATION TABLE OWNER (RGFCOLID)	
	RELEASE CURSOR HOLD LOCKS (RELCURHL)	
	REORDERED ROW FORMAT (RRF)	
	REORG DROP PBG PARTS	REORG DROP partition-. by-growth (PBG) parts
	REORG IGNORE FREE SPACE	
	REORG INDEX (FLASHCOPY REORG INDEX)	
	REORG LIST PROCESSING	
	REORG MAPPING DATABASE	REORG mapping. database
	REORG PART SORT NPSI	
	REORG TABLESPACE (FLASHCOPY REORG TS)	
	REQUIRE FULL NAMES (RGFFULLQ)	
	RESIDENT TRACE TBL SIZE (TRACTBL)	
	RESOURCE AUTHID (RLFAUTH)	
	RESOURCE LIMIT AUTO START (RLF)	Shows whether the. Install parameter RLF resource limit facilityAUTO START on panel (governor) isDSNTIPO, or ZPARM RLF automatically startedin DSN6SYSP. when DB2 is started
	RESOURCE TIMEOUT (IRLMRWT)	
	RESTART OR DEFER (RESTART)	

DB2 parameter		Description
	RESTORE RECOVER FROMDUMP	
	RESTRICT ALT COL FOR DCC	
	RESYNC INTERVAL (RESYNC)	
	RETAINED LOCK TIMEOUT (RETLWAIT)	
	RETENTION PERIOD (ARCRETN)	
	REVOKE DEP PRIV (REVOKE_DEP_PRIVILEGES)	
	RLF ERROR PARAMETER	
	RLST ACCESS ERROR (RLFERR)	
	RLST ACCESS ERROR (RLFERRD)	
	RLST NAME SUFFIX (RLFTBL)	The default resource limit. This suffix is used when specification table (RLST)the resource limit facility suffix(governor) is automatically started or when the governor is started without specifying a suffix. Install parameter RLST NAME SUFFIX on panel DSNTIPO, or ZPARM RLFTBL in DSN6SYSP.
	RO SWITCH CHKPTS (PCLOSEN)	
	RO SWITCH TIME (PCLOSET)	
	ROUTINE AUTH CACHE (CACHERAC)	
	SEC ADMIN 1 TYPE (SECADM1 TYPE)	
	SEC ADMIN 2 TYPE (SECADM2 TYPE)	
	SECONDARY QUANTITY (SECQTY)	
	SECURITY ADMIN 1 (SECADM1)	
	SECURITY ADMIN 2 (SECADM2)	

DB2 parameter		Description
	SECURITY ADMIN1 TYPE	
	SECURITY ADMIN2 TYPE	
	SEPARATE SECURITY DUTIES (SEPARATE_SECURITY)	
	SET CHECK PENDING (CHECK SETCHKP)	
	SIGNON (SIGNON MODULE)	
	SINGLE VOLUME (SVOLARC)	
	SITE TYPE (SITETYP)	
	SIZE OF LOCAL TRACE TABLES (TRACLOC)	The size of the local trace. tables in multiples of 4 KB
	SKIP UNCOMMITTED INSERTS (SKIPUNCI)	
	SMS Data Class (CATDDACL)	
	SMS DATACLASS NAME FOR DATA TS (SMSDCFL)	
	SMS DATACLASS NAME FOR INDEX TS (SMSDCIX)	
	SMS IX Data Class (CATXDACL)	
	SMS IX Management Class (CATXMGCL)	
	SMS IX STO Class (CATXSTCL)	
	SMS Mgmt Class (CATDMGCL)	
	SMS Storage Class (CATDSTCL)	
	SORT POOL SIZE (SRTPOOL)	
	SPT01 INLINE LENGTH	
	SQL STRING DELIMETER (SQLDELI)	
	STANDARD SQL LANGUAGE (STDSQL)	
	STAR JOIN MAX POOL	
	STAR JOIN QUERIES (STARJOIN)	

DB2 parameter		Description
	STAR JOIN THRESHOLD (SJTABLES)	
	START AUDIT TRACE (AUDITST)	Shows whether the audit. When YES, the audit trace is startedtrace is started for the automatically when DB2default class (class 1) is startedwhenever DB2 is started. When ALL, an audit trace is automatically started for all classes. Install parameter AUDIT TRACE on panel DSNTIPN, or ZPARM AUDITST in DSN6SYSP.
	START GLOBAL TRACE (TRACSTR)	
	START SMF ACCOUNTING (SMFACCT)	
	START SMF STATISTICS (SMFSTAT)	
	STATFDBK SCOPE	STATFDBK scope.
	STATISTICS CLUSTERING (STATCLUS)	
	STATISTICS HISTORY (STATHIST)	
	STATISTICS ROLLUP DEFAULT (STATROLL)	
	STATISTICS SYNC (SYNCVAL)	
	STATISTICS TIME INTERVAL (STATIME)	The time interval, in. Statistics records are minutes, betweenwritten approximately at statistics collectionsthe end of this interval. Install parameter STATISTICS TIME on panel DSNTIPN, or ZPARM STATIME in DSN6SYSP.
	STRING DELIMETER (DELIM)	
	SU CONVERSION FACTOR	
	SUBQ MIDX	
	SUBSYSTEM DEFAULT (SSID)	
	SUPPRESS LOGREC SOFT RECORD (SUPERRS)	
	SYSTEM ADMIN 1 (SYSADM)	

DB2 parameter		Description
	SYSTEM ADMIN 2 (SYSADM2)	
	SYSTEM LEVEL BACKUP (SYSTEM LEVEL BACKUPS)	
	SYSTEM LOB VALUE STORAGE (LOBVALS)	Specifies an integer that. establishes an upper limit for the amount of storage per system that can have for storing lob values (in MB)
	SYSTEM OPERATOR 1 (SYSOPR1)	
	SYSTEM OPERATOR 2 (SYSOPR2)	
	SYSTEM XML VALUE STORAGE (XMLVALS)	The maximum amount of. This is ZPARM XMLVALS memory for each systemin DSN6SYSP. for storing XML values
	TABLE SPACE ALLOCATION IN KB (TSQTY)	Specifies the amount of. 0 indicates that DB2 space in KB for primaryuses standard defaults. and secondary spaceInstall parameter TABLE allocation for DB2-SPACE ALLOCATION on defined data sets forpanel DSNTIP7, or ZPARM table spaces createdTSQTY in DSN6SYSP. without the USING clause
	TAPE UNIT DEALLOCATION PERIOD (DEALLCT)	
	TCP/IP ALREADY VERIFIED (TCPALVER)	
	TCP/IP KEEPALIVE (TCPKPALV)	
	TEMP DS UNIT NAME (VOLTDEVT)	
	TEMPLATE TIME	The template time.
	TEMPORARY UNIT NAME	
	THE LIMIT IN SUS	The limit in service units. (SUS)
	TIME FORMAT (TIME)	
	TIME OF LAST CHANGE	Time of the last online. change made to DB2 system settings
	TIME TO AUTOSTART (IRLMSWT)	

DB2 parameter		Description
	TIMEOUT INTERVAL	
	TIMEOUT VALUE (STORTIME)	
	TIMESTAMP IN NAME (TSTAMP)	Determines whether the. You can specify YES or time stamp is to beNO. This field is a placed in the name of anconstant for QWP3FLG1. archive log data set
	TRACKER SITE (TRKRSITE)	
	U LOCK FOR RR OR RS (RRULOCK)	
	UNICODE GRAPHIC CCSID (UGCCSID)	
	UNICODE IFCIDS (UIFCIDS)	
	UNICODE MIXED CCSID (UMCCSID)	
	UNICODE SINGLE-BYTE CCSID (USCCSID)	
	UNION COLNAME 7	The UNION COLNAME 7.
	UNKNOWN AUTHID (DEFLTID)	
	UNREGISTERED DDL DEFAULT (RGFDEFLT)	
	UPDATE PART KEY COLUMNS (PARTKEYU)	
	UR CHECKPOINT FREQ (URCHKTH)	
	UR LOG WRITE CHECK (URLGWTH)	
	UR WARNING THRESHOLD MINUTES (LRDRTHLD)	Shows the number of. Valid values are 0 minutes that a read claim(default) through 1439. can be held by an agentInstall parameter LONG- before DB2 reports it as aRUNNING READER on long-running readerinstallation panel DSNTIPE, or ZPARM LRDRTHLD in DSN6SYSP.
	USE FOR DYNAMIC RULES (DYNRULS)	
	USE PROTECTION (AUTH)	
	USER ID MONITOR (SPRMOZUS)	The user ID that made. the last online change to DB2 system settings

DB2 parameter		Description
	USER LOB VALUE STORAGE (LOBVALA)	Specifies an integer that. establishes an upper limit for the amount of storage each user can be used for storing lob values (in KB)
	USER XML VALUE STORAGE (XMLVALA)	The maximum amount of. This is ZPARM XMLVALA memory for each user forin DSN6SYSP. storing XML values
	UT DB2 SORT USE (DB2SORT)	
	UT SORT DATA SET ALLOCATION (UTSORTAL)	
	UTILITY CACHE OPTION (SEQPRES)	
	UTILITY OBJECT CONVERSION	The conversion of. UTILITY OBJECT
	UTILITY TIMEOUT FACTOR (UTIMOUT)	
	VALUE FOR TRIGGER DRAIN (SPRMTDD)	
	VARCHAR INDEX (RETVLCFK)	
	VARY DS CONTROL INTERVAL (DSVCI)	Specifies whether DB2. It shows if DB2- optimizes VSAMmanaged data sets CONTROL INTERVAL tocreated by CREATE page size for data setTABLESPACE have allocationvariable VSAM control intervals (VARY DS CONTROL INTERVAL). Install parameter VARY DS CONTROL INTERVAL on panel DSNTIP7, or ZPARM DSVCI in DSN6SYSP.
	WFSTGUSE AGENT THRESHOLD	
	WFSTGUSE SYSTEM THRESHOLD	
	WLM ENVIRONMENT (WLMENV)	
	WTO ROUTING CODES (ROUTCDE)	
	WTOR BEFORE MOUNT FOR ARCHIVE (ARCWTOR)	

DB2 parameter	Description
X LOCK FOR SEARCHED U/D (XLKUPDLT)	
XML RANDOMIZE DOCID	
Z/OS CRITICAL RESERVED SPACE MUST COMPLETE	The amount of space. reserved for z/OS critical work that must be completed
Z/OS LOCK TABLE HASH ENTRIES	The number of z/OS lock. table hash entries
Z/OS LOCK TABLE LIST ENTRIES	The number of z/OS lock. table list entries
Z/OS METRICS (ZOSMETRICS)	YES indicates that. ZPARM ZOSMETRICS in gathering of z/OS metricsDSN6SPRM. using the RMF interface is enabled
Z/OS RESERVED SPACE	The z/OS reserved space.

Field Value The value of the DB2 field. It is an alphanumeric text string with a maximum of 44 characters.

Interval Start The start time of this interval.

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string with a maximum of 32 characters; for example, DB91:SYS1:DB2.

DSG DB2 Parameters

Use DSG DB2 Parameters attributes to view DB2 parameters for data sharing groups.

DB2 ID The DB2 subsystem ID.

Data Sharing Group The name of the Data Sharing Group.

Data Sharing Member The name of the Data Sharing Group Member.

Field Description The description of the data field.

Field Name The name of the data field.

Field Value The data value.

Interval Start The start time of this interval.

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Sequence Number The sequence number of the data field.

DSG DSNZPARM Archiving Parameters Workspace

The DSG DSNZPARM Archiving Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 archiving.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPA - Archive Log Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the characteristics of archive log data sets.

DSNTIPH - System Resource (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries specify the names of bootstrap data sets, active logs, and archive logs. These entries also specify the number of copies (1 for single logging or 2 for dual logging) for the active and archive logs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Authorization, RLF, and DDF Parameters Workspace

The DSG DSNZPARM Authorization, RLF, and DDF Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 access and security.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPO - Operator Functions (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect various operator functions. These functions include write-to-operator route codes, automatic recall, and the maximum amount of CPU time that is to be allocated for a dynamic SQL statement.

DSNTIPP - Protection 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define security information.

DSNTIPP - Protection 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define security information.

DSNTIPR - DDF 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

DSNTIPR - DDF 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Buffer Pool Parameters Workspace

The DSG DSNZPARM Buffer Pool Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 buffer pool default settings.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP1 - Buffer Pools (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries specify the size of your virtual buffer pools.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Data Parameters Workspace

The DSG DSNZPARM Data Parameters workspace for data sharing groups (DSG) shows information about the data that affects the default settings of the DB2 application.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPA2 - Data (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the name of the ICF catalog for DB2 VSAM data sets and indicate whether to create the specified catalog. The entries also define z/OS Storage Management Subsystem (SMS) classes that are to be used when defining data sets for the DB2 catalog and directory.

DSNTIPO3 - Default Startup (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the default member names of certain modules that are to be loaded at DB2 startup. These modules are the system parameter module, the application default module, and the exit modules.

DSNTIPM - MVS Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the specifications for the DSNTIJMV job, which defines DB2 to z/OS and updates several PARMLIB members.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Data Sharing Parameters Workspace

The DSG DSNZPARM Data Sharing Parameters workspace for data sharing groups (DSG) shows information about the data sharing installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPK - Data Sharing Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data sharing function (GROUP, MEMBER, or ENABLE).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Data Set and Database Parameters Workspace

The DSG DSNZPARM Data Set Parameters workspace for data sharing groups (DSG) shows information about the data set and database-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP7 - SQL Object Defaults 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

DSNTIP71 - SQL Object Defaults 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

DSNTIP9 - Workfile Database (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the 4 KB and 32 KB page size table spaces in the DB2 Workfile Database.

DSNTIPS - Auto Start DB/TS (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the databases, table spaces, and index spaces to restart automatically when you start DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM DDCS Parameters Workspace

The DSG DSNZPARM Data Definition Control Support (DDCS) Parameters workspace for data sharing groups (DSG) shows information about the DDCS installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPZ - Data Definition Control (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data definition control support.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM IRLM Parameters Workspace

The DSG DSNZPARM Internal Resource Lock Manager (IRLM) Parameters workspace for data sharing groups (DSG) shows information about the IRLM with which DB2 communicates.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPI - IRLM 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

DSNTIPI - IRLM 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

DSNTIPI - IRLM Processing Parms (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the IRLM processing parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Logging Parameters Workspace
The DSG DSNZPARM Logging Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 logging.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPL - Active Log Parms (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics of active log data sets.

DSNTIPL1 - Checkpoint Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics for log checkpoints.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Other System Parameters Workspace
The DSG DSNZPARM Other System Parameters workspace for data sharing groups (DSG) shows information about the other system parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

From DSN6SYSP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SYSP macro.

From DSN6SPRM1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6SPRM2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6LOGP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6LOGP macro.

From DSN6ARVP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6ARVP macro.

From DSN6FAC (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the data-only subsystem parameters that are provided with the DSN6FAC macro.

From DSNHDECP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the parameters of the application default load module DSNHDECP which is generated as part of the DB2 installation or migration.

Others (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the other system parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Performance and Optimization Parameters Workspace

The DSG DSNZPARM Performance and Optimization Parameters workspace for data sharing groups (DSG) shows information about the installation parameters for performance and optimization invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP8 - Performance and Optimization 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

DSNTIP81 - Performance and Optimization 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

DSNTIP82 - Query Accelerator Ref (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the performance and optimization parameters for query accelerators.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Storage and Size Parameters Workspace

The DSG DSNZPARM Storage and Size Parameters workspace for data sharing groups (DSG) shows virtual storage allocations for the DB2 buffer pools and the Environmental Descriptor Manager (EDM) pool.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPC - Storage Sizes (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the messages that the installation CLIST issues to indicate calculated storage sizes.

DSNTIPD - Sizes (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the size of the DB2 catalog, directory, and log data sets. They also define the amount of storage that can be used for storing large object (LOB) values.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Stored Procedures Parameters Workspace

The DSG DSNZPARM Stored Procedures Parameters workspace for data sharing groups (DSG) shows information about the installation parameters in the DSNZPARM module for stored procedures invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPX - Routine Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries are used to start the stored procedures address space so that it can run stored procedures or user-defined functions.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Thread Parameters Workspace

The DSG DSNZPARM Thread Parameters workspace for data sharing groups (DSG) shows information about the DB2 system-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPE - Thread Management 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

DSNTIPE1 - Thread Management 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Trace Parameters Workspace

The DSG DSNZPARM Trace Parameters workspace for data sharing groups (DSG) shows information about the automatic startup of traces in DB2.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPN - Trace Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the audit, global, accounting, and monitor traces and the checkpoint frequency.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Utility Parameters Workspace

The DSG DSNZPARM Utility Parameters workspace for data sharing groups (DSG) shows information about the utility parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP6 - Utility Parms 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

DSNTIP6 - Utility Parms 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

DSNTIP6 - Utility Parms 3 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Application Parameters Workspace

The DSNZPARM Application Parameters workspace shows information about the parameters that affect the default settings of the DB2 application.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPF - Application Default 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

DSNTIP4 - Application Default 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

DSNTIP4 - Application Default 3 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Archiving Parameters Workspace
The DSNZPARM Archiving Parameters workspace shows information about the parameters that affect DB2 archiving.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPA - Archive Log Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the characteristics of archive log data sets.

DSNTIPH - System Resource (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries specify the names of bootstrap data sets, active logs, and archive logs. These entries also specify the number of copies (1 for single logging or 2 for dual logging) for the active and archive logs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Authorization, RLF, and DDF Parameters Workspace
The DSNZPARM Authorization, RLF, and DDF Parameters workspace shows information about the parameters that affect DB2 access and security.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPO - Operator Functions (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect various operator functions. These functions include write-to-operator route codes, automatic recall, and the maximum amount of CPU time that is to be allocated for a dynamic SQL statement.

DSNTIPP - Protection 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define security information.

DSNTIPP - Protection 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define security information.

DSNTIPR - DDF 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

DSNTIPR - DDF 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Buffer Pool Parameters Workspace

The DSNZPARM Buffer Pool Parameters workspace shows information about the parameters that affect DB2 buffer pool default settings.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP1 - Buffer Pools (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries specify the size of your virtual buffer pools.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Data Sharing Parameters Workspace

The DSNZPARM Data Sharing Parameters workspace shows information about the data sharing installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPK - Data Sharing Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data sharing function (GROUP, MEMBER, or ENABLE).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Data Set and Database Parameters Workspace

The DSNZPARM Data Set Parameters workspace shows information about the data set and database-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP7 - SQL Object Defaults 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

DSNTIP71 - SQL Object Defaults 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

DSNTIP9 - Workfile Database (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the 4 KB and 32 KB page size table spaces in the DB2 Workfile Database.

DSNTIPS - Auto Start DB/TS (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the databases, table spaces, and index spaces to restart automatically when you start DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM DDCS Parameters Workspace

The DSNZPARM Data Definition Control Support (DDCS) Parameters workspace shows information about the DDCS installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPZ - Data Definition Control (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data definition control support.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM IRLM Parameters Workspace

The DSNZPARM Internal Resource Lock Manager (IRLM) Parameters workspace shows information about the IRLM with which DB2 communicates.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPI - IRLM 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

DSNTIPI - IRLM 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

DSNTIPI - IRLM Processing Parms (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the IRLM processing parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Logging Parameters Workspace
The DSNZPARM Logging Parameters workspace shows information about the parameters that affect DB2 logging.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPL - Active Log Parms (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics of active log data sets.

DSNTIPL1 - Checkpoint Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics for log checkpoints.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Other System Parameters Workspace
The DSNZPARM Other System Parameters workspace shows information about the other system parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

From DSN6SYSP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SYSP macro.

From DSN6SPRM1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6SPRM2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6LOGP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6LOGP macro.

From DSN6ARVP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6ARVP macro.

From DSN6FAC (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the data-only subsystem parameters that are provided with the DSN6FAC macro.

From DSNHDECP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the parameters of the application default load module DSNHDECP which is generated as part of the DB2 installation or migration.

Others (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the other system parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Performance and Optimization Parameters Workspace

The DSNZPARM Performance and Optimization Parameters workspace shows information about the installation parameters for performance and optimization invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP8 - Performance and Optimization 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

DSNTIP81 - Performance and Optimization 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

DSNTIP82 - Query Accelerator Ref (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the performance and optimization parameters for query accelerators.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Storage and Size Parameters Workspace

The DSNZPARM Storage and Size Parameters workspace shows virtual storage allocations for the DB2 buffer pools and the Environmental Descriptor Manager (EDM) pool.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPC - Storage Sizes (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the messages that the installation CLIST issues to indicate calculated storage sizes.

DSNTIPD - Sizes (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the size of the DB2 catalog, directory, and log data sets. They also define the amount of storage that can be used for storing large object (LOB) values.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Thread Parameters Workspace

The DSNZPARM Thread Parameters workspace shows information about the DB2 system-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPE - Thread Management 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

DSNTIPE1 - Thread Management 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Data Parameters Workspace

The DSNZPARM Data Parameters workspace shows information about the data that affects the default settings of the DB2 application.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPA2 - Data (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the name of the ICF catalog for DB2 VSAM data sets and indicate whether to create the specified catalog. The entries also define z/OS Storage Management Subsystem (SMS) classes that are to be used when defining data sets for the DB2 catalog and directory.

DSNTIPO3 - Default Startup (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the default member names of certain modules that are to be loaded at DB2 startup. These modules are the system parameter module, the application default module, and the exit modules.

DSNTIPM - MVS Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the specifications for the DSNTIJMV job, which defines DB2 to z/OS and updates several PARMLIB members.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Stored Procedures Parameters Workspace
The DSNZPARM Stored Procedures Parameters workspace shows information about the installation parameters in the DSNZPARM module for stored procedures invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPX - Routine Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries are used to start the stored procedures address space so that it can run stored procedures or user-defined functions.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Trace Parameters Workspace
The DSNZPARM Trace Parameters workspace shows information about the automatic startup of traces in DB2.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPN - Trace Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the audit, global, accounting, and monitor traces and the checkpoint frequency.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Utility Parameters Workspace
The DSNZPARM Utility Parameters workspace shows information about the utility parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP6 - Utility Parms 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

DSNTIP6 - Utility Parms 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

DSNTIP6 - Utility Parms 3 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

EDM Pool Workspace

The EDM Pool workspace provides an overview of the Environmental Descriptor Manager (EDM) pool activity connected with DB2. The workspace layout depends on the DB2 version installed.

The EDM Pool workspace prior to DB2 10 is comprised of the following views:

EDM Statistics (table view)
Lists total counts, counts during the last sample period, and the "per second" count for a variety of tasks associated with the EDM pool.

EDM Pool Load Activity Summary (bar chart view)
Provides activity details of the EDM pool, including the number of pages dedicated to a type of pool usage and the percentage of the EDM pool dedicated to that type of usage.

EDM Pool Utilization (bar chart view)
Shows the relative distribution of available pages, cursor table pages, database descriptor pages, and package table pages.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Note: If DB2 10 is installed, click the navigation link **EDM Pool (DB2 10)** in the **EDM Statistics** view to open the “EDM Pool (DB2 10) Workspace” on page 298.

EDM Pool Attributes

Use the EDM Pool, DB2 SRM EDM, and DB2 SRM EDM Statistics attributes to create situations to monitor the Environmental Descriptor Manager (EDM) pool activity that is connected with DB2. The attributes depend on the DB2 version installed.

Available Pages The total number of EDM pages that are currently available. It is zero for DB2 10 or later.

Available Percentage The percentage of EDM Pool that is currently available. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 9 or later.

Cursor Table Load Rate (CT Loads) The number of Cursor Table loads from DASD per second.

Cursor Table Pages The total number of EDM pages that are currently in use for Cursor Tables. It is zero for DB2 9 or later.

Cursor Table Percentage The percentage of EDM Pool that is currently in use for Cursor Tables. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

Cursor Table Request Rate (Cursor Table Reqs) The number of Cursor Table requests per second.

Dataspace Free Pages The number of free pages in EDM Pool Dataspace.

Dataspace Total Pages The total number of pages in EDM Pool Dataspace.

DB2 ID The name of a DB2 subsystem.

DB2 Version The version of the DB2 system.

DBD Free Pages The total number of DBD pages that are currently on free queue.

DBD Free Percentage The percentage of DBD that is currently on the free queue. Valid entry ranges from 0.0 to 100.0.

DBD Held Pct The percentage of DBD pages that are held.

DBD Load Rate (DBD Loads) The number of database descriptor loads from DASD per second.

DBD Pages The number of DBD pages that are in use.

DBD Pages Held The number of DBD pages that are held.

DBD Percentage The percentage of DBD pages that are in use; for DB2 10, this percentage is calculated as 100 - (((stealable+free)/total)*100).

DBD Request Rate (Database Descriptor Reqs) The number of database descriptor requests per second.

DBD Stealable Pages The current number of stealable pages used for database descriptors (DBDs).

DBD Total Pages The total number of pages that are assigned to DBD pool.

Dynamic SQL Cache The total number of EDM pages that are currently used for dynamic SQL cache.

Dynamic SQL Cache Loads (DSC Loads) The total number of dynamic SQL cache loads from DASD.

Dynamic SQL Cache Percentage The percentage of EDM Pool that is currently used for Dynamic SQL caching. Valid entry ranges from 0.0 to 100.0.

Dynamic SQL Cache Requests (Dynamic SQL Reqs) The total number of dynamic SQL requests.

EDM Free Pages The total number of free pages in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.

EDM Free Percentage The percentage of free pages in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). A valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

EDM In Use Pages The total number of pages that are currently in use in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.

EDM In Use Percentage The percentage of EDM pages (DB2 9 or below) or the percentage of DBD pages (DB2 10 or later) that is currently in use. A valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

EDM Total Pages The total number of pages that are assigned to the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.

Fails because of Dataspace Full The total number of fails because the EDM Pool Dataspace is full.

Fails because of DBD Pool Full The total number of fails because the DBD Pool is full.

Fails because of EDM Pool Full The total number of fails because the EDM Pool is full.

Fails because of RDS Pool Full The total number of fails because the RDS Pool (above) is full.

Fails because of SKEL Pool Full The total number of fails because the Skeleton (SKEL) Pool is full.

Fails because of STMT Pool Full The total number of fails because the Statement (STMT) Pool is full.

Fails because of RDS Pool (below) Full The total number of fails because the RDS Pool (below) is full.

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package Search Not Found Delete The number of not found record deleted from CACHE.

Package Search Not Found Insert The number of not found record added to CACHE.

Package Search Not Found Match The number of CACHED not found record located.

Package Table Load Rate (PT Loads) The number of Package Table loads from DASD per second.

Package Table Pages The total number of pages that are currently in use for Package Table. It is zero for DB2 10 or later.

Package Table Percentage The percentage of EDM Pool that is currently in use for Package Table. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

Package Table Request Rate (Package Table Reqs) The number of Package Table requests per second.

RDS Above CT Pages The number of pages in the RDS pool above the bar used for the cursor tables (CTs). This is a snapshot value. It is zero for DB2 10 or later.

RDS Above CT Percent The percentage of pages that are currently held for cursor table (CT) in the RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above Free Pages The number of free pages in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above Free Percent The percentage of free pages in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above In Use Pages The number of pages that are currently in use in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above In Use Percent The percentage of pages that are currently in use in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above PT Pages Held The number of pages that are currently held for package tables (PT) in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above PT Percentage The percentage of pages that are currently held for package tables (PT) in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above Total Pages The total number of pages that are assigned to RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Below Cursor Table Pages The number of pages that are currently held for cursor tables in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Cursor Table Percent The percentage of pages that are currently held for cursor tables in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Free Pages The number of free pages in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Free Percent The percentage of free pages in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below In Use Pages The number of pages that are currently in use in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below In Use Percent The percentage of pages that are currently in use in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Package Table Pages The number of pages that are currently held for package tables in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Package Table Percent The percentage of pages that are currently held for package tables in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Total Pages The total number of pages that are assigned to RDS Pool below the bar. It is zero for DB2 10 or later.

Skeleton Cursor Table Pages (SKCT Pages) The total number of EDM pages that are currently held for skeleton cursor tables (SKCT).

Skeleton Cursor Table Percentage (SKCT Percentage) The percentage of EDM that is currently held for skeleton cursor tables (SKCT). Valid entry ranges from 0.0 to 100.0.

SKEL Free Pages The number of free pages that are currently in the skeleton (SKEL) Pool.

SKEL Free Percent The percentage of free pages that are currently in the skeleton (SKEL) Pool.

SKEL In Use Pages The number of pages that are currently in use in the skeleton (SKEL) Pool.

SKEL In Use Percentage The percentage of pages that are currently in use in the skeleton (SKEL) Pool; for DB2 10, this percentage is calculated as 100 - (((stealable+free)/total)*100).

SKEL Pool Pages The current number of pages in the skeleton (SKEL) Pool above the bar.

SKPT Pages The total number of pages that are currently held for skeleton package tables (SKPT).

SKPT Percentage The percentage of pages that are currently held for skeleton package tables (SKPT). Valid entry ranges from 0.0 to 100.0.

SKPT Stealable Pages The total number of stealable pages used for skeleton package tables (SKPT) pages that can be reused.

Statement Free Pages The number of free pages that are currently in the Statement Pool.

Statement Free Percent The percentage of free pages that are currently in the Statement Pool.

Statement in Global Cache The number of statements in Global Cache.

Statement Held Percentage The percentage of pages that are currently held in the Statement Pool.

Statements Pages Held The number of pages that are currently held in the Statement Pool.

Statement Total Pages The current number of pages in the EDM Statement pool above the bar. This is a snapshot value.

EDM Pool (DB2 10) Workspace

The EDM Pool (DB2 10) workspace provides an overview of the Environmental Descriptor Manager (EDM) pool activity connected with DB2. You can view this information if DB2 10 is installed.

The EDM Pool (DB2 10) workspace is comprised of the following views:

EDM Statistics (table view)
Lists total counts, counts during the last sample period, and the "per second" count for a variety of tasks associated with the EDM pool.

EDM Pool Load Activity Summary (bar chart view)
Provides activity details of the EDM pool, including the number of pages dedicated to a type of pool usage and the percentage of the EDM pool dedicated to that type of usage.

EDM Pool Utilization (bar chart view)
Shows the relative distribution of available pages, cursor table pages, database descriptor pages, and package table pages.

DBD Pool (table view)
Lists information about database descriptors (DBDs).

DBD Pool Utilization (pie chart view)
Shows information about the utilization of the database descriptor (DBD) pool.

PKG Search / STMT in Global Cache (table view)
Lists information about package search and statement in global cache.

SKEL Pool (table view)
Lists information about the EDM skeleton pool.

Statement Pool (table view)
Lists information about the statements.

SKEL Pool Utilization (pie chart view)
Shows information about the EDM skeleton pool.

Statement Pool Utilization (pie chart view)
Shows information about the statements.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Enclave Thread Summary Workspace

The Enclave Thread Summary Workspace provides an overview of the activity of all threads that are connected to DB2 and are associated with an enclave token.

This workspace is comprised of the following views:

Enclave Thread CPU% (bar chart)
Shows the percentage of the CPU used by each thread that is associated with an enclave token.

Enclave Thread Enclave CPU Time (bar chart)
Shows the CPU time used by each thread that is associated with an enclave token.

Enclave Thread Summary (table view)
Provides an overview of the activity of all threads that are connected to DB2 and are associated with an enclave token.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

Thread Enclave Attributes

Use the Thread Enclave attributes to create situations that monitor the activity of threads that are connected to DB2 and are associated with an enclave token.

Accounting The account information.

Ace Address The ace address.

Agent Address The agent address.

AGNT ASID The address space ID (ASID) of the agent.

Agent TCB Address The Agent TCB Address.

Authorization ID The authorization ID.

Authorization ID (Unicode) The authorization ID.

Average Time Goal The average response time goal.

Class The transaction class.

Collection The package collection ID.

Collection (Unicode) The package collection ID.

Collection Name The subsystem collection name.

Thread Enclave Attributes Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Enclave Attributes The connection type.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

CPU Critical CPU critical (Y or N).

Correlation ID The correlation ID.

DB2 ID The DB2 subsystem ID.

Discretionary Goal The discretionary goal.

Duration Service Unit The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 1 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 2 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 3 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 4 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 5 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 6 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 7 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 8 The service class period duration in service units. The value is zero for the last period.

Enclave CPU Time The enclave CPU time.

Enclave Export Token The export token associated with the enclave, if any. A monitor can collect IWMRQRY answer areas from multiple systems and match RQAD for a particular multisystem enclave using the export token.

Enclave STOKEN The STOKEN of the address space that owns the enclave. If the enclave is foreign, this STOKEN refers to an address space on another system (not the local system).

Enclave Token The enclave token.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

Function Name The function name.

Goal Description The goal description.

Goal Description 1 The goal description one.

Goal Description 2 The goal description two.

Goal Description 3 The goal description three.

Goal Description 4 The goal description four.

Goal Description 5 The goal description five.

Goal Description 6 The goal description six.

Goal Description 7 The goal description seven.

Goal Description 8 The goal description eight.

Goal Mode The system WLM mode (G for Goal or C for Compatibility).

Goal Type The goal type indicator.

IIP Flag Indicates if the systems has a zIIP processor. Valid values are Y or N.

IIP Speed Indicates if the zIIP processor runs at a different speed than CP processor.

Importance Level The importance level. The range is one to five; One is the most important.

IMPORTANCE1 The importance level. The range is one to five; One is the most important.

IMPORTANCE2 The importance level. The range is one to five; One is the most important.

IMPORTANCE3 The importance level. The range is one to five; One is the most important.

IMPORTANCE4 The importance level. The range is one to five; One is the most important.

IMPORTANCE5 The importance level. The range is one to five; One is the most important.

IMPORTANCE6 The importance level. The range is one to five; One is the most important.

IMPORTANCE7 The importance level. The range is one to five; One is the most important.

IMPORTANCE8 The importance level. The range is one to five; One is the most important.

Information Flag The return information flag.

Interval Start The start time of this interval.

Location The requesting location.

Location (Unicode) The requesting location.

Logical Unit The logical unit name.

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

```
luw-id=token
```

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the **Luwid** field displays data such as the following:

```
USCACO01.O2D22A.A1FE8E04B9D4=8
```

MVS ID The MVS system identifier.

Network ID The network ID.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Owner Job Name The job name of the address space that owns the enclave. If the enclave is foreign, the job name refers to a job on another system (not the local system).

Owner System The name of the system where the owner of the enclave resides. If the enclave is foreign, this is the system where the original enclave is located. Otherwise it is the local system name.

Package DBRM The package DBRM name.

Package DBRM (Unicode) The package DBRM name.

Parm1 The first start parameters.

Parm2 The second start parameters.

Percentile The goal percentile value.

Percentile1 The goal percentile value.

Percentile2 The goal percentile value.

Percentile3 The goal percentile value.

Percentile4 The goal percentile value.

Percentile5 The goal percentile value.

Percentile6 The goal percentile value.

Percentile7 The goal percentile value.

Percentile8 The goal percentile value.

Percentile Time Goal The percentile response time goal.

Performance Index The performance index.

Performance Value The performance value.

Period Number The service class period number in goal mode. When in goal mode, if the address space is a server, this value is always one. When in compatibility mode, this is the performance group period number.

Plan The plan name.

Priority The subsystem priority.

Process Name The enclave process name.

Program Name The transaction program name.

Report Class The name of the report class associated with this address space. This is only valid in goal mode.

Report Class Description The report class description.

Resource Group The name of the resource group associated with this address space. This is only valid in goal mode.

Scheduling Environment The enclave scheduling environment.

Service Class The name of the service class associated with this address space. This is only valid in goal mode.

Service Class Description The service class description.

Service Class Resource Description The service class resource description.

Service Class Resource Group The service class resource group.

Service Class Workload The workload name.

Service Class Workload Description The description of the workload.

Service Periods The number of service class periods for this service class.

Storage Protection Storage protection (Y or N).

Stored Procedure Name The name of the stored procedure.

Subsystem The subsystem name.

Subsystem Type The subsystem type.

Subsystem Parameter The subsystem parameter.

System Goal The system goal.

Time Unit The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Time Unit1 The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Time Unit2 The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Time Unit3 The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Time Unit4 The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Time Unit5 The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Time Unit6 The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Time Unit7 The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Time Unit8 The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where: m = Millisecond, S = Second, M = Minute, H = Hour.

Total Delays The total number of delay samples used in the SRMS execution velocity calculation.

Total Usings This is a sum of the number of times the work for the service class period is allowed to use WLM managed resources.

Transaction The transaction ID at the workstation.

Type The enclave type. It can be:
The first column shows the value displayed and the second row shows the corresponding description.

Value	Enclave Type	Description
1	Original_Dependent	The enclave was created by IWMECREA and is a continuation of the transaction for the owning address space.
2	Original_Independent	The enclave was created by IWMECREA and is an independent transaction.
3	Foreign_Independent	The enclave was created by IWMIMPT and is a continuation of an independent enclave on another system.
4	Foreign_Dependent	The enclave was created by IWMIMPT and is a continuation of a dependent enclave on another system.
5	Inactive_Enclave	The enclave is currently on an inactive enclave queue because SRM did not find any work unit associated with the enclave. The enclave will move back to active queue once a work unit joins the enclave.
6	Currently_Promoted	The enclave is currently promoted because of a chronic resource contention.
7	Continuation_Independent	The enclave is a continuation of an independent enclave.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

User ID The user ID.

Velocity Goal The velocity goal.

Velocity or Response Time Goal The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 1 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 2 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 3 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 4 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 5 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 6 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 7 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 8 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Version The version.

WLM Descriptor The WLM environment description.

WLM Procedure The WLM environment procedure name.

WLM System Type The type of WLM application environment system.

Workload Manager The WLM (application) environment.

Workload Name The name of the workload associated with this address space. This is only valid in goal mode.

Workstation The workstation ID.

End-to-End SQL Monitoring Workspace

The End-to-End SQL Monitoring workspace launches to the **Extended Insight Analysis Dashboard** for the selected subsystem.

The **Extended Insight Analysis Dashboard** collects the various SQL statement executions and shows them in an aggregated view. This view is updated every 1 minute. It does not display real-time snapshots. These SQL statements may be grouped using the application server, the end-user ID, end-user transaction name, or end-user workstation name.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338

- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

Global Lock Conflicts Workspace

The Global Lock Conflicts workspace lets you view summary information about your enterprise.

This includes the number of:

- Lock conflicts, threads, and GBP connections
- Monitored databases for a data sharing group
- Monitored DB2 systems
- Object analysis databases

This workspace is comprised of the following views:

Lock Elapsed Time in Seconds (bar chart)
Shows the elapsed time in seconds.

Local Lock Conflict Table View
Shows more information about global locking conflicts.

Thread information is not available if the thread is owned by the other member of the data sharing group.

DB2 Lock Conflict Attributes

Use DB2 Lock Conflict Group attributes to create situations that monitor DB2 database lock conflicts.

Authorization ID The primary authorization ID from connection or sign-on, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Begin Time Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

DB2 Lock Conflict Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

DB2 Lock Conflict Attributes The type of connection associated with the thread.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP

Value	Description
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example, DLKEX212.

DB2 ID The name of a DB2 subsystem.

Display Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

Lock Elapsed Time The amount of time (in seconds) a waiter has been waiting for the resource.

Lock Level Identifies the lock resource usage.

Valid values are:

Value	Description
IS	Intent share
IX	Intent exclusive
NSU	Non-shared Update
S	Share
SIX	Share intent exclusive
U	Update
UNS	Unprotected shared
X	Exclusive

Lock Resource The resource a lock owner currently has locked or the resource that caused DB2 to suspend a lock request. It is an alphanumeric text string, with a maximum of 50 characters; for example, DB=TBLBLK2 PS=PAGELK2.

Lock Status The status of a job holding or waiting on a lock: If the status is OWN with a DB2 subsystem name, the lock is owned by another DB2 subsystem in the Data Sharing Group (DSG); for example, if lock status is OWN-DB2A, the lock is owned by DB2 subsystem DB2A.

Lock Token Lock Token.

Lock Type The lock type of the lock request.

Valid values are:

Table 74. Lock types	
Lock type	**Description**
ACSC	The Accelerator Services commands (ACSC) lock.
ALBP	The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an **ALTER BUFFERPOOL** command.
BIND	The BIND lock indicates an autobind or remote bind lock.
BMBA	The Buffer manager SCA MBA (BMBA) L-lock. The Buffer Manager (BM) gets this lock when it needs to read, insert, or update a multiple buffer pool (MBA) record in a Shared Communications Area (SCA). (BMC_MBAO or BMC_MBAR)
BPPS	The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock: • BP = buffer pool ID • DB = database name • PS = pageset name
CCAT	The CATMAINT convert catalog (CCAT) lock is acquired when catalog conversion is performed.
CDBL	The Compress dictionary build (CDBL) lock.
CDIR	The CATMAINT convert directory (CDIR) lock is acquired when directory conversion is performed.
CDRN	The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object: • DB = database name • PS = pageset name • PT = partition
CMDS	The DB2 Command Serialization (CMDS) lock.
CMIG	The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed.
COLL	The Collection (COLL) lock
DBDL	The DBD load (DBDL) lock is the database descriptor load lock.
DBEX	The Database exception (DBEX) lock indicates a lock on a "Logical page list" (LPL) or "Group buffer pool recovery pending" (GRECP) database exception status. This lock is only used in a data sharing environment.
DBXU	The DB exception update lock is used for updating the database exception status.
DGTT	The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock.

Table 74. Lock types (continued)	
Lock type	**Description**
DPAG	The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data. • DB = database name • PS = pageset name • PG = page
DSET	The partitioned lock. A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter. Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced. • DB = database name • PS = pageset name • PT = partition number
DTBS	The Database lock indicates a lock on the database. • DB = database name • PS = pageset name • PT = partition number
GRBP	The Group buffer pool (GRBP) start/stop lock. BP=buffer pool ID
HASH	The Hash anchor (HASH) lock. • DB = database name • PS = pageset name • PG = page
HPSP	The Header Page (HP) Bucket or Stored Procedure (SP) Command lock.
IEOF	The Index end of file (IEOF) lock is acquired at the index end of file. • DB = database name • PS = pageset name • PT = partition
IPAG	The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used. • DB = database name • PS = pageset name • PG = page
IXKY	The Index key (IXKY) lock.
LBLK	The Large object (LOB) lock.

Table 74. Lock types (continued)	
Lock type	**Description**
LPLR	The Logical page list recovery (LPLR) lock.
MDEL	The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace. It is used to prevent another user from reusing freed segments before a delete operation is committed. • DB = database name • PS = pageset name
PALK	The Partition lock. • DB = database name • PS = pageset name • PT = partition
PBPC	The Group BP level castout (PBPC) P-lock. A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD. This lock is only used in a data sharing environment.
PCDB	The DDF CDB P-lock. A Distributed Data Facility communication database physical lock. This lock is only used in a data sharing environment.
PDBD	The DBD P-lock is a database descriptor physical lock. This lock is only used in a data sharing environment.
PDSO	The Pageset or partitioned pageset open lock. If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace. • DB = database name • PS = pageset name
PITR	The Index manager tree (PITR) is a physical lock (P-lock). This lock is only used in a data sharing environment. • DB = database name • PS = pageset name • PT = partition
PPAG	The Page P-lock is a physical lock on a page. This lock is only used in a data sharing environment.
PPSC	The Pageset/partition level castout physical lock (P-lock). This lock is only used in a data sharing environment.

Table 74. Lock types (continued)	
Lock type	**Description**
PPSP	The Pageset/partition physical lock (P-lock). This lock is only used in a data sharing environment.
PRLF	The Resource Limit Facility (RLF) physical lock (P-lock). This lock is only used in a data sharing environment.
PSET	The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only. • DB = database name • PS = pageset name
PSPI	The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece.
RDBD	The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/ diagnose).
RDRN	The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object. • DB = database name • PS = pageset name • PT = partition
RGDA	The Retry Getpage During Abort (RGDA) lock.
ROW	The Row lock indicates a lock on a row.
RSTR	The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP)
SDBA	The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects. • DB = database name • PS = pageset name
SENV	The System environment (SYSENV) serialization lock.
SKCT	The Skeleton cursor table (SKCT) lock indicates a lock on the application plan. PLAN=plan name

Table 74. Lock types (continued)	
Lock type	**Description**
SKPT	The Skeleton package table (SKPT) lock indicates a lock on the application package. TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE.
SPRC	The System level point in time (PIT) recovery lock. SYS_PITR
SREC	The Log range lock. DB2 writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed. The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB2 writes to SYSLGRNG, the program acquires a lock on the tablespace with updates. • DB = database name • TS = tablespace name
TABL	The Table (TABL) lock on the table which resides in a segmented tablespace. • DBID = DBid • TABL = Tableid
UIDA	The Util I/O Damage Assessment lock.
UNDT	The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types. Resource ID (in hexadecimal).
UNKN	The Unknown (UNKN) lock indicates the resource does not exist.
UTEX	The Utility exclusive execution (UTEX) lock. UTEXEC
UTID	The Utility identifier (UTID) lock. UID=utility id
UTOB	The Utility object (UTOB) lock. • DB = database name • PS = pageset name • PT = partition
UTSE	The Utility serialization (UTSE) lock is required when running utility jobs. UTSERIAL
WDRN	The Write drain (WDRN) lock is acquired to drain all write access to an object. • DB = database name • PS = pageset name • PT = partition

Table 74. Lock types (continued)	
Lock type	**Description**
XMLK	The XML lock.

LUWID The logical unit of work ID (LUWID) for a thread.

MVS System An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string with a maximum of 8 characters. For example PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Resource Name 1 (Unicode) The resource name of type defined by type code.

Resource Name 2 (Unicode) The resource name of type defined by type code.

Resource Name 3 The resource name of type defined by type code.

Resource Name 4 The resource name of type defined by type code.

Resource Type 1 This value indicates what is contained in Resource Name 1.

Valid values are:

Value	**Description**
BP	Buffer Pool
CO	Collection name
DB Hash	Database
HC	Class
PL	Plan name
UT	Utility ID

Resource Type 2 This value indicates what is contained in Resource Name 2.

Valid values are:

Value	**Description**
PK	Package
PS	Page Set (Table space)

Resource Type 3 This value indicates what is contained in Resource Name 3.

Resource Type 4 This value indicates what is contained in Resource Name 4.

Valid values are:

Value	**Description**
PT	Partition

SUBSYS The IRLM subsystem name.

Thread Status The current status of a thread.

Valid values are:

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

DB2 Lock Conflict Attributes The type of thread.

It can be:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread

Value	Description
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value2 The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: the last 2 bytes of QWHSLUUV).

Group Buffer Pool Workspace

The DB2 Group Buffer Pool workspaces provide detailed coupling facility structure information about your group buffer pool (GBP) structures.

Using the Group Buffer Pool workspaces, you can:

- Monitor structure utilization over a period of time
- Verify the status of all connections to a structure

You must be running in a DB2 data sharing environment with the MVS/ESA Coupling Facility to take advantage of the DB2 Group Buffer Pools feature.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Attributes

Use Group Buffer Pool (GBP) attributes to create situations to determine the usage and availability of coupling facility structures relating to group buffer pools, the shared communication area, and the lock table.

Cross Invalidate Count The number of notifications that the DB2 buffer has modified. Valid value is an integer in the range 0 - 99999999.

Cross Invalidate Rate The rate of cross invalidations per second. Valid value is an integer in the range 0 - 99999999.

Data Pages The number of data pages that DB2 has allocated for the group buffer pool. Valid value is an integer in the range 0 - 99999999.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Directory Entries The total number of directory entries that a DB2 system has allocated for a coupling facility structure. Valid value is an integer in the range 0 - 99999999.

IDNAME An internal attribute used for navigation. It contains either the Data Sharing Group Name or the DB2ID.

Valid format is alphanumeric with a maximum of 8 characters; for example TDDB242G.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Read Count The total number of page read requests to a group buffer pool. Valid value is an integer in the range 0 - 99999999.

Read Hit Count The number of successful page read requests to a group buffer pool without causing a physical database read. Valid value is an integer in the range 0 - 99999999.

Read Hit Percent The percentage of successful page read requests in relation to the total page read requests for a group buffer pool. Valid value is an integer in the range 0 - 100.

Structure Connect Count The number of active connections to a structure. Valid value is an integer in the range 0 - 16.

Structure Name The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

Structure Size The size, in kilobytes, of a DB2 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

Structure Status The current status of the coupling facility structure.

Valid values are:

Value	Description
ACTIVE	The structure is active
INACTIVE	The structure is inactive

For duplexed group buffer pool structures, additional valid values are:

Value	Description
REB_NEW	Rebuild on new (secondary GBP)
REB_OLD	Rebuild on old (primary) GBP
REB_TRAN	Structure is in transition
REB_HOLD	Structure is in holding state
REB_ERR	Error during the structure rebuild

Structure Type The type of DB2 coupling facility structure.

Valid values are:

Value	Description
CACHE	Cache data of interest to several DB2 systems in data sharing group
LIST	Shared Communications Area (SCA) for data sharing group members
LOCK	Controls locking

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Group Buffer Pool Connections Workspace

The Group Buffer Pool (GBP) Connections workspace displays connection status information for all connections to a specific group buffer pool structure.

Use this workspace to:

- Review the status of all connections to a structure
- Identify the operating system, together with the associated coupling facility name and job name

To investigate a nonactive connection, review the information provided in Accessing an OMEGAMON Host Session.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Detailed Statistics Workspace

Use the Group Buffer Pool (GBP) Detailed Statistics workspace to display group buffer pool statistics for a specific group buffer pool structure.

You can use data to monitor:

- The dynamic rebuild of a group buffer pool
- Castout paging and I/O activity

You can use the Tivoli Enterprise Portal terminal emulator adapter feature to access an OMEGAMON host session and view additional group buffer pool information.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Statistics Workspace

The Data Sharing Group Buffer Pool (GBP) Statistics workspace displays detailed information about the activity in a DB2 group buffer pool during the collection interval.

Using this workspace, you can:

- Monitor structure utilization over a period of time
- Verify the status of all connections to a structure
- Review GBP statistics for a data sharing group and GBP structure

You must be running in a DB2 data-sharing environment with MVS/ESA Coupling Facility to take advantage of the Data Sharing Group Buffer Pools Statistics feature.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Statistics Detail Attributes

Use the Group Buffer Pool (GBP) Statistics Detail attributes to create situations to determine the usage of group buffer pools.

Castout Engine Not Available The number of times a castout engine was not available to write changed pages from a group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

Castout for Class Threshold The group buffer pool castout class threshold. Castout begins when the number of changed pages for a particular castout class exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

Castout for GBP Threshold The group buffer pool castout threshold. Castout begins when the number of changed pages in the group buffer pool exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

Changed Page Writes The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Clean Page Writes The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Cross Invalidate Reads No Data The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was not found in the group buffer pool and the member read the page from DASD. Valid value is an integer in the range 0 - 2147483647.

Cross Invalidate Reads With Data The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

GBP Reads No Data The number of reads to the group buffer pool where the data was not found.

Valid value is an integer in the range 0 - 2147483647.

GBP Reads With Data The number of reads to the group buffer pool where the data was found. Valid value is an integer in the range 0 - 2147483647.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. VIt is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

IXLCACHE Delete Name The number of times that DB2 issued a request to the group buffer pool to delete directory and data entries associated with a specific page set or partition. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Class The number of requests from the page set or partition castout owner or the group buffer pool owner to the group buffer pool to determine which pages are cached in the group buffer pool as changed pages that need to be cast out. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Stats The number of requests that the group buffer pool structure owner issues when the GBPOOLT threshold is reached to determine which castout classes have changed pages. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Directory Information The number of requests that the group buffer pool structure owner issues for group buffer pool checkpoints to read the directory entries of all changed pages in the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read STGSTATS The number of times DB2 requested statistical information from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Unlock Castout The number of times that DB2 issues an unlock request to the coupling facility for castout I/Os that have completed. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Checkpoints The number of times that DB2 writes the changed pages in the group buffer pool to the page set. Valid value is an integer in the range 0 - 2147483647.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of Pages Castout The number of data pages that a member has cast out of the group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

Number of Rebuilds The number of times that a member has participated in rebuilding a group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Prefetch Read No Data The number of reads to the group buffer pool for prefetch processing, where the data is not found and the member reads the page from DASD. Valid value is an integer in the range 0 - 2147483647.

Prefetch Read With Data The number of reads to the group buffer pool for prefetch processing, where the data is found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

Read Fails for Storage The number of group buffer pool read requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

Register Page List Request The number of register page list requests by prefetch. Valid value is an integer in the range 0 - 2147483647.

Register Page Request The number of times that DB2 requested interest to the group buffer pool for a single page. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Changed Pages The number of group buffer pool reads by prefetch to retrieve a changed page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Clean Pages The number of group buffer pool reads by prefetch to retrieve a clean page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

Structure Name The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Unregister Page Request The number of times that DB2 unregistered interest for a single page from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Write Engine Not Available The number of times a write engine was not available to write changed pages from a group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

Write Fails for Storage The number of group buffer pool write requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

Write System Changed Page The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Write System Clean Page The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Group Buffer Pool Statistics Attributes

Use Group Buffer Pool (GBP) Statistics attributes to create situations that monitor the utilization of critical group buffer pool resources.

Castout Engine Not Available The number of times a castout engine was not available to write changed pages from a group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

Castout for Class Threshold The group buffer pool castout class threshold. Castout begins when the number of changed pages for a particular castout class exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

Castout for GBP Threshold The group buffer pool castout threshold. Castout begins when the number of changed pages in the group buffer pool exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

Changed Page Writes The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Clean Page Writes The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Cross Invalidate Reads No Data The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was not found in the group buffer pool and the member read the page from DASD. Valid value is an integer in the range 0 - 2147483647.

Cross Invalidate Reads With Data The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

GBP Reads No Data The number of reads to the group buffer pool where the data was not found. Valid value is an integer in the range 0 - 2147483647.

GBP Reads With Data The number of reads to the group buffer pool where the data was found. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Delete Name The number of times that DB2 issued a request to the group buffer pool to delete directory and data entries associated with a specific page set or partition. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Class The number of requests from the pageset or partition castout owner or the group buffer pool owner to the group buffer pool to determine which pages are cached in the group buffer pool as changed pages that need to be cast out. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Stats The number of requests that the group buffer pool structure owner issues when the GBPOOLT threshold is reached to determine which castout classes have changed pages. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Directory Information The number of requests that the group buffer pool structure owner issues for group buffer pool checkpoints to read the directory entries of all changed pages in the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read STGSTATS The number of times DB2 requested statistical information from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Unlock Castout The number of times that DB2 issues an unlock request to the coupling facility for castout I/Os that have completed. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Checkpoints The number of times that DB2 writes the changed pages in the group buffer pool to the pageset. Valid value is an integer in the range 0 - 2147483647.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of Pages Castout The number of data pages that a member has cast out of the group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

Number of Rebuilds The number of times that a member has participated in rebuilding a group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Prefetch Read No Data The number of reads to the group buffer pool for prefetch processing, where the data is not found and the member reads the page from DASD. Valid value is an integer in the range 0 - 2147483647.

Prefetch Read With Data The number of reads to the group buffer pool for prefetch processing, where the data is found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

Read Fails for Storage The number of group buffer pool read requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

Register Page List Request The number of register page list requests by prefetch. Valid value is an integer in the range 0 - 2147483647.

Register Page Request The number of times that DB2 requested interest to the group buffer pool for a single page. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Changed Pages The number of group buffer pool reads by prefetch to retrieve a changed page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Clean Pages The number of group buffer pool reads by prefetch to retrieve a clean page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

Structure Name The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

For example, 07-16-12 14:58:29 indicates that data collection ended on July 16, 2012 at 14:58:29 PM.

Unregister Page Request The number of times that DB2 unregistered interest for a single page from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Write Engine Not Available The number of times a write engine was not available to perform a coupling facility write. Valid value is an integer in the range 0 - 2147483647.

Write Fails for Storage The number of group buffer pool write requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

Write System Changed Page The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Write System Clean Page The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Group Buffer Pool Structures Workspace

You can use the Group Buffer Pool (GBP) Structures workspace to verify that your group buffer pool structures are active and to track structure utilization over a period of time.

Use the structure data on the workspace to:

- Monitor the read hit percent and buffer invalidate rate for group buffer pool structures
- Identify the number of DB2 subsystems using a group buffer pool
- Monitor the ratio of directory entries to data pages allocated

Analyzing Group Buffer Pool Connections

You can analyze a specific group buffer pool structure to view the connection status of all connections to the structure.

1. Right-click a structure name.
2. Click **Link to --> GBP Connections.**

The GBP Connections workspace is displayed showing the connection status details for your group buffer pool structure.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Activity Database Workspace

The Group Object Activity Database workspace displays information so that you can do a high-level analysis of getpage and I/O activity for a DB2 database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Activity Summary Attributes

Use the Group Object Activity Summary attributes to create situations that monitor the I/O and getpage activity by database.

ASYNC Write Rate The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with 1 decimal place allowed, in the range 0.0 - 9999.9.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Database The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

DB2 ID The name of a DB2 subsystem.

Getpage Percent The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.5.

Getpage Rate The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.3.

Getpage RIO Ratio The ratio of getpage requests to read I/Os for the database.

The ratio is calculated by dividing the number of getpage requests by the sum of the following values:

- Number of synchronous reads
- Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.8.

ID Name An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of ASYNC Writes The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of Getpages The number of getpage reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Number of Other Writes The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

Number of Prefetch Reads The number of prefetch read I/Os for the database. Valid value is an integer in the range 0 - 2147483647.

Number of SYNC Reads The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Other Write Rate The number of immediate and format writes per second. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.6.

Percent of I/O The percentage of the total I/O activity that is applicable to the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

Prefetch Read Rate The number of prefetch read I/Os per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

Space Name The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

SYNC Read Rate The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Group Object Activity by Space Name

The Group Object Activity by Space Name workspace displays information about the getpage and I/O activity for spaces for a selected DB2 database.

The table view shows information about the spaces that have had getpage and I/O activity during the collection period.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Space Name Attributes

Use the Group Object Space Name attributes to create situations that monitor object, volume, and extent activity for all DB2 object spaces in a data sharing group.

Buffer Pool ID An ID for a buffer pool.

Valid values are:

- 0 - 49
- 32K
- 32K0 - 32K9

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Database Name The name of a DB2 database. it is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

DB2 ID The name of a DB2 subsystem.

Extents per Data Set Ratio The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Max Number of Extents per DSN The largest number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 219.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Number of Volumes The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

Object Space Name The name of a DB2 object space. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

Object Type The type of object space name.

Valid values are:

Value	Description
INDX	Index
PTIX	Partitioned index
PTTS	Partitioned table space
SEGM	Segmented table space
TBLS	Simple table space
UNDT	Undetermined

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Group Object Activity by Space Name Detail Workspace

The Group Object Activity by Space Name Detail workspace displays detailed information about the getpage and I/O activity for spaces for each DB2.

For example, for each space name, you can display:

- The DB2 ID
- Information about the DB2 operations, such as number of getpages and synchronous reads

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Workspace

The DB2 Group Object Analysis workspaces provide detailed object analysis information about DB2 databases.

Using the Group Object Analysis workspaces, you can:

- Monitor and evaluate object allocation data for DB2 databases
- Evaluate and analyze space name allocation data for a specific DB2 database

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Attributes

Use the Group Object Analysis (GOA) attributes to crate situations that monitor object volume and extent activity for all DB2 systems in a data sharing group.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Database Name The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

DB2 ID The name of a DB2 subsystem.

Extents per Data Set Ratio The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

Max Number of Exts per DSN The largest number of extents per data set of space name for a DB2 database. Valid value is an integer in the range 0 - 219.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Number of Indexes The number of index spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range 0 - 99999.

Number of Spaces The total number of index spaces and table spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range 0 - 99999.

Number of Table Spaces The number of table spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range - 10000.

Number of Volumes The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Group Object Analysis Thread Database Workspace

The Group Object Analysis (GOA) Thread Database workspace displays information so that you can analyze which threads are generating I/O activity for a selected database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Thread Activity Summary Attributes

Use the Group Object Analysis (GOA) Thread Activity summary attributes to create situations that monitor thread activity.

ASYNC Write Rate The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with one decimal place allowed.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

Database The name of a DB2 database. Valid format is alphanumeric with a maximum of 8 characters; for example, DSNDB06.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

Dynamic Prefetch Read Rate The number of dynamic prefetch read I/Os made per second by the thread. Valid format is a decimal number, with one decimal place allowed.

Getpage per Read I/O The ratio of getpage requests to read I/Os for the database.

The ratio is calculated by dividing the number of getpage requests by the sum of the following values:

- Number of synchronous reads
- Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed.

Getpage Percent The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.5.

Getpage Rate The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

List Prefetch Read Rate The number of list prefetch read I/Os made per second by the thread. Valid format is a decimal number, with one decimal place allowed.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of ASYNC Writes The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

Number of Dynamic Prefetch Reads The number of dynamic prefetch read I/Os made by the thread. Valid value is an integer in the range 0 - 2147483647.

Number of Getpage Reads The number of getpage reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Number of List Prefetch Reads The number of list prefetch I/Os made by the thread. Valid value is an integer in the range 0 - 2147483647.

Number of Other Writes The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

Number of Sequential Prefetch Reads The number of sequential prefetch reads for the thread. Valid value is an integer in the range 0 - 2147483647.

Number of SYNC Reads The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Number of Threads The total number of currently monitored threads. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Other Write Rate The number of immediate and format writes per second. Valid format is a decimal number, with one decimal place allowed.

Percent of I/O The percentage of the total I/O activity that is applicable to the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Sequential Prefetch Read Rate The number of sequential prefetch read I/Os per second made by the thread. Valid format is a decimal number, with one decimal place allowed.

Space Name The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

SYNC Read Rate The number of synchronous reads per second for the database or space name. Valid format is a decimal number, with one decimal place allowed.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Group Object Analysis Thread Space Name Workspace

The Group Object Analysis (GOA) Thread Space Name workspace displays information so that you can analyze which threads are generating I/O activity for the space name.

The workspace displays information for each thread that generated I/O activity to the space name during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Thread Volume Summary Attributes

Use the Group Object Analysis (GOA) Thread Volume Summary attributes to create situations that monitor the thread activity for volumes.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

DB2 Read I/O The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

DB2 Read I/O Rate The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

DB2 Write I/O The number of I/O writes. Valid value is an integer in the range 0 - 2147483647; for example, 20.

DB2 Write I/O Rate The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

Max DB2 I/O Rate The maximum DB2 I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

Max DB2 Read I/O Rate The maximum DB2 read I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

Max DB2 Write I/O Rate The maximum write I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.0.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Threads The total number of currently monitored threads. Valid value is an integer in the range 0 - 999999.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Percent Volume Use The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I//O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Total DB2 I/O The total DB2 I/O count. Valid value is an integer in the range 0 - 2147483647.

Total DB2 I/O Rate The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

Group Object Analysis Thread Space Name Detail Workspace

The Group Object Analysis (GOA) Thread Space Name Detail workspace displays detailed information about the threads that are generating I/O activity for the space name.

For example, for a space name, you can display the:

- Plan name
- Authorization ID
- Correlation ID
- DB2 ID

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Workspace

The Group Object Analysis (GOA) Volume workspace displays information about the performance of volumes that contain DB2 objects so that you can monitor the DASD performance by volume.

The workspace displays only the volumes that contain DB2 objects that are allocated and available for use by DB2.

Using this table view, you can:

- Display the number of DB2 systems for the volume
- Monitor for volumes with a high utilization rate
- Determine the number of data sets and extents that are allocated

To display the view:

1. Right-click a volume name.
2. Click **Link to** followed by a specific Data Sharing workspace from the pop-up menu.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Summary Attributes

Use the Group Object Analysis (GOA) Volume Summary attributes to create situations that monitor DASD performance by volume.

Data Sharing Group The name of a data sharing group.

It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

DB2 I/O Percent The percentage of total DB2 I/O that is attributable to the volume. It is calculated by dividing the volume DB2 I/O count by the total DB2 I/O count. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 24.

Extents per Data Set Ratio The ratio of total extents allocated to the total data set count.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Volume DB2 I/O The total number of I/Os for the volume originating from the DB2 subsystem being monitored. Valid value is an integer in the range 0 - 2147483647.

Volume DB2 I/O Rate The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

Volume DB2 I/O Rate Max The maximum I/O rate per second during the collection interval. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 2147483647.0; for example, 2.5.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

Volume Service Time The average service time for the volume since the beginning of the collection interval. This value is the sum of the average IOS pending time, the average IOS connect time, and the average IOS disconnected time for the volume. It does not include IOS queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

Volume Service Time Max The maximum service time for the volume since the beginning of the collection interval. The value is the sum of the IOS pending time, the IOS connect time, and the IOS disconnect time for the volume. It does not include IOS queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.5.

Volume Total I/O The total number of I/Os for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is an integer in the range 0 - 2147483647; for example, 19.

Volume Total I/O Rate The total number of I/Os per second for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for

the volume. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

Volume Use Percent The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I//O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

Volume Utilization The percentage of volume utilization and represents the percentage of time the volume is in use. Valid value is an integer in the range 0 - 100; for example, 22.

Group Object Analysis Volume Database Workspace

The Group Object Analysis (GOA) Volume Database workspace displays information you can use to analyze I/O activity for a single volume in a DB2 database.

The table view displays a row for each database that has I/O to the selected volume during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Database Summary Attributes

Use the Group Object Analysis (GOA) Volume Database Summary attributes to create situations that monitor I/O activity for a single volume in a DB2 database.

Database Name The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

DB2 Read I/O The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

DB2 Read I/O Rate The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

DB2 Read I/O Rate Max The maximum DB2 read I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

DB2 Write I/O The number of write I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 20.

DB2 Write I/O Rate The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.0.

DB2 Write I/O Rate Max The maximum write I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Space Name The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Total DB2 I/O The total DB2 I/O count. Valid value is an integer in the range 0 - 2147483647.

Total DB2 I/O Rate The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

Total DB2 I/O Rate Max The maximum I/O rate per second during the collection interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.5.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

Volume Use Percent The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I//O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

Group Object Analysis Volume Space Name Workspace

The Group Object Analysis (GOA) Volume Space Name workspace displays information that permits you to analyze I/O activity for a single volume for a DB2 database or space name.

The table view displays information for each space name in the selected database with I/O activity to the volume during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Space Name Detail Workspace

The Group Object Analysis (GOA) Volume Space Name workspace displays detailed information for a single volume for a DB2 database or space name.

For each space name, you can display:

- The DB2 ID
- Information about the DB2 operations (such as the number of I/O reads and I/O writes)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Thread Workspace

The Group Object Analysis (GOA) Volume Thread workspace displays information you can use to analyze which threads are generating I/O activity for a single volume in a DB2 database.

The view shows information for each thread that generated I/O activity to the selected database during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Thread Detail Workspace

The Group Object Analysis (GOA) Volume Thread Detail workspace displays detailed information about the DB2 threads that are generating I/O for the volume.

For each volume name, you can display the:

- Plan name
- Authorization ID

- Correlation ID
- DB2 ID

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

IMS Connections Workspace

The IMS Connections workspace provides an overview of DB2 thread activity originating from connected IMS subsystems.

It provides information on a connection level about all IMS subsystems identified to DB2. This workspace is comprised of the following views:

IMS Connections (table view), which
Lists the number of active threads, unconnected regions, dependent regions currently connected to this DB2 system, and dependent regions defined for this IMS connection.

IMS Region Counts (bar chart)
Shows this information in a "graphic" form.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 IMS Connections Attributes

Use the DB2 IMS Connections attributes to create situations to monitor DB2 thread activity originating from connected IMS subsystems.

Active Threads The count of threads currently active for this IMS region.

Connected Dependent Regions The count of dependent regions currently connected to this DB2 system.

Defined Dependent Regions The count of defined dependent regions for this IMS connection.

IMS Name The ID for this IMS connection. It is an alphanumeric text string, with a maximum length of four characters.

IMS Version The version of the IMS system. It is an alphanumeric text string, with a maximum length of four characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Unconnected Regions The number of regions not connected.

IMS Region Information Workspace

The IMS Region Information workspace provides detailed status information for a specific IMS dependent region.

This workspace is comprised of the following view:

IMS Region Information (table view)
Lists region identification data and region status.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 IMS Regions Attributes

Use the DB2 IMS Regions attributes to create situations to monitor IMS dependent regions.

Application Name The PSB name active in the IMS dependent region. This field applies only to dependent regions (not to the control region). It is an alphanumeric text string, with a maximum length of eight characters.

Command Recognition Character The command recognition character used to pass commands to the external subsystem. It is an alphanumeric text string, with a maximum length of four characters.

Connection Status The region connection status.

Error Option Specification The type of error option specification in use.

Value	Description
R	The appropriate return code is sent to the application, and the SQL code is returned.
Q	The application is abended. This is a PSTOP transaction type. The input transaction is re-queued for processing and new transactions are queued.
A	The application is abended. This is a STOP transaction type. The input transaction is discarded and new transactions are not queued.

It is an alphanumeric text string, with a maximum length of four characters.

IMS Name The ID for this IMS connection. Valid entry is an alphanumeric text string, with a maximum length of four characters.

IMS Version The version of the IMS system. Valid entry is an alphanumeric text string, with a maximum length of four characters.

Interface Control Module The name of the interface control module. It is an alphanumeric text string, with a maximum length of eight characters.

Language Token Interface The name of the language interface token. It is an alphanumeric text string, with a maximum length of four characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Region Name The region started task name. It is an alphanumeric text string, with a maximum length of eight characters.

Region Type The type of IMS region.

Resource Translation Table The name of the resource translation table. This table maps the IMS application names into DB2 plan names. If this entry is omitted, the DB2 plan name is the IMS application program name. It is an alphanumeric text string, with a maximum length of eight characters.

Status The current DB2 status of the thread. Valid entry is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

IMS Thread Summary Workspace

The IMS Thread Summary workspace provides an overview for threads originating from connected IMS subsystems.

This workspace is comprised of the following views:

IMS Thread Summary (table view)
Shows summary information for the IMS threads.

In-DB2 CPU Time (bar chart)
Shows the class 2 CPU time (in DB2) for IMS threads.

In-DB2 Time (bar chart)
Shows the class 2 elapsed time (in DB2) for IMS threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391

- “Utility Jobs Workspace” on page 414

Installation Parameters

The Installation Parameters navigator item opens the DSNZPARM Thread Parameters workspace.

Select the Installation Parameters workspace to view information about DB2 parameters for a:

- Single DB2 subsystem
- Data sharing group (DSG)

Lock Conflicts Workspace

The Lock Conflicts workspace provides an overview of the DB2 database lock conflicts.

This workspace is comprised of the following views:

Lock Elapsed Time in Seconds (bar chart)
Shows the elapsed time in seconds.

Local Lock Conflicts (table view)
Shows more information about local locking conflicts.

Thread information is not available if the thread is owned by the other member of the data sharing group.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
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- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

Local DB2 Lock Conflict Attributes

Use Local DB2 Lock Conflict Group attributes to create situations that monitor DB2 database lock conflicts.

Authorization ID The primary authorization ID from connection or signon, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Authorization ID (Unicode) The primary authorization ID from connection or signon, that identifies the execution privileges an application has to a DB2 object or service. Valid format is alphanumeric with a maximum of 8 characters; for example, TRAN5.

Begin Time Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message

regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

Local DB2 Lock Conflict Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Local DB2 Lock Conflict Attributes The type of connection associated with the thread.

It can be:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example, DLKEX212.

DB2 ID The name of a DB2 subsystem.

Display Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

Lock Elapsed Time The amount of time (in seconds) a waiter has been waiting for the resource.

Lock Level Identifies the lock resource usage.

Valid values are:

Value	Description
IS	Intent share
IX	Intent exclusive
NSU	Non-shared Update
S	Share
SIX	Share intent exclusive

Value	Description
U	Update
UNS	Unprotected shared
X	Exclusive

Lock Resource The resource a lock owner currently has locked or the resource that caused DB2 to suspend a lock request. It is an alphanumeric text string, with a maximum of 50 characters; for example, DB=TBLBLK2 PS=PAGELK2.

Lock Status The status of a job holding or waiting on a lock: If the status is OWN with a DB2 subsystem name, the lock is owned by another DB2 subsystem in the Data Sharing Group (DSG); for example, if lock status is OWN-DB2A, the lock is owned by DB2 subsystem DB2A.

Lock Token Lock Token.

Lock Type The lock type of the lock request.

Valid values are:

Table 75. Lock types

Lock type	Description
ACSC	The Accelerator Services commands (ACSC) lock.
ALBP	The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an **ALTER BUFFERPOOL** command.
BIND	The BIND lock indicates an autobind or remote bind lock.
BMBA	The Buffer manager SCA MBA (BMBA) L-lock. The Buffer Manager (BM) gets this lock when it needs to read, insert, or update a multiple buffer pool (MBA) record in a Shared Communications Area (SCA). (BMC_MBAO or BMC_MBAR)
BPPS	The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock: • BP = buffer pool ID • DB = database name • PS = pageset name
CCAT	The CATMAINT convert catalog (CCAT) lock is acquired when catalog conversion is performed.
CDBL	The Compress dictionary build (CDBL) lock.
CDIR	The CATMAINT convert directory (CDIR) lock is acquired when directory conversion is performed.
CDRN	The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object: • DB = database name • PS = pageset name • PT = partition
CMDS	The DB2 Command Serialization (CMDS) lock.
CMIG	The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed.

Table 75. Lock types (continued)	
Lock type	**Description**
COLL	The Collection (COLL) lock
DBDL	The DBD load (DBDL) lock is the database descriptor load lock.
DBEX	The Database exception (DBEX) lock indicates a lock on a "Logical page list" (LPL) or "Group buffer pool recovery pending" (GRECP) database exception status. This lock is only used in a data sharing environment.
DBXU	The DB exception update lock is used for updating the database exception status.
DGTT	The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock.
DPAG	The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data. • DB = database name • PS = pageset name • PG = page
DSET	The partitioned lock. A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter. Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced. • DB = database name • PS = pageset name • PT = partition number
DTBS	The Database lock indicates a lock on the database. • DB = database name • PS = pageset name • PT = partition number
GRBP	The Group buffer pool (GRBP) start/stop lock. BP=buffer pool ID
HASH	The Hash anchor (HASH) lock. • DB = database name • PS = pageset name • PG = page
HPSP	The Header Page (HP) Bucket or Stored Procedure (SP) Command lock.

Table 75. Lock types (continued)	
Lock type	**Description**
IEOF	The Index end of file (IEOF) lock is acquired at the index end of file. • DB = database name • PS = pageset name • PT = partition
IPAG	The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used. • DB = database name • PS = pageset name • PG = page
IXKY	The Index key (IXKY) lock.
LBLK	The Large object (LOB) lock.
LPLR	The Logical page list recovery (LPLR) lock.
MDEL	The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace. It is used to prevent another user from reusing freed segments before a delete operation is committed. • DB = database name • PS = pageset name
PALK	The Partition lock. • DB = database name • PS = pageset name • PT = partition
PBPC	The Group BP level castout (PBPC) P-lock. A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD. This lock is only used in a data sharing environment.
PCDB	The DDF CDB P-lock. A Distributed Data Facility communication database physical lock. This lock is only used in a data sharing environment.
PDBD	The DBD P-lock is a database descriptor physical lock. This lock is only used in a data sharing environment.

Table 75. Lock types (continued)

Lock type	Description
PDSO	The Pageset or partitioned pageset open lock. If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace. • DB = database name • PS = pageset name
PITR	The Index manager tree (PITR) is a physical lock (P-lock). This lock is only used in a data sharing environment. • DB = database name • PS = pageset name • PT = partition
PPAG	The Page P-lock is a physical lock on a page. This lock is only used in a data sharing environment.
PPSC	The Pageset/partition level castout physical lock (P-lock). This lock is only used in a data sharing environment.
PPSP	The Pageset/partition physical lock (P-lock). This lock is only used in a data sharing environment.
PRLF	The Resource Limit Facility (RLF) physical lock (P-lock). This lock is only used in a data sharing environment.
PSET	The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only. • DB = database name • PS = pageset name
PSPI	The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece.
RDBD	The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/ diagnose).

Table 75. Lock types (continued)	
Lock type	**Description**
RDRN	The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object. • DB = database name • PS = pageset name • PT = partition
RGDA	The Retry Getpage During Abort (RGDA) lock.
ROW	The Row lock indicates a lock on a row.
RSTR	The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP)
SDBA	The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects. • DB = database name • PS = pageset name
SENV	The System environment (SYSENV) serialization lock.
SKCT	The Skeleton cursor table (SKCT) lock indicates a lock on the application plan. PLAN=plan name
SKPT	The Skeleton package table (SKPT) lock indicates a lock on the application package. TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE.
SPRC	The System level point in time (PIT) recovery lock. SYS_PITR
SREC	The Log range lock. DB2 writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed. The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB2 writes to SYSLGRNG, the program acquires a lock on the tablespace with updates. • DB = database name • TS = tablespace name
TABL	The Table (TABL) lock on the table which resides in a segmented tablespace. • DBID = DBid • TABL = Tableid
UIDA	The Util I/O Damage Assessment lock.

Table 75. Lock types (continued)	
Lock type	**Description**
UNDT	The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types. Resource ID (in hexadecimal).
UNKN	The Unknown (UNKN) lock indicates the resource does not exist.
UTEX	The Utility exclusive execution (UTEX) lock. UTEXEC
UTID	The Utility identifier (UTID) lock. UID=utility id
UTOB	The Utility object (UTOB) lock. • DB = database name • PS = pageset name • PT = partition
UTSE	The Utility serialization (UTSE) lock is required when running utility jobs. UTSERIAL
WDRN	The Write drain (WDRN) lock is acquired to drain all write access to an object. • DB = database name • PS = pageset name • PT = partition
XMLK	The XML lock.

LUWID The logical unit of work ID (LUWID) for a thread.

MVS System An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string with a maximum of 8 characters. For example PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Resource Name 1 (Unicode) The resource name of type defined by type code.

Resource Name 2 (Unicode) The resource name of type defined by type code.

Resource Name 3 The resource name of type defined by type code.

Resource Name 4 The resource name of type defined by type code.

Resource Type 1 This value indicates what is contained in Resource Name 1.

Valid values are:

Value	**Description**
BP	Buffer Pool

Value	Description
CO	Collection name
DB Hash	Database
HC	Class
PL	Plan name
UT	Utility ID

Resource Type 2 This value indicates what is contained in Resource Name 2.

Valid values are:

Value	Description
PK	Package
PS	Page Set (Tablespace)

Resource Type 3 This value indicates what is contained in Resource Name 3.

Resource Type 4 This value indicates what is contained in Resource Name 4.

Valid values are:

Value	Description
PT	Partition

SUBSYS The IRLM subsystem name.

Thread Status The current status of a thread.

Valid values are:

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.

- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

Local DB2 Lock Conflict Attributes The type of thread.

It can be:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value2 The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: the last 2 bytes of QWHSLUUV).

Log Manager Workspace

The Log Manager workspace provides an overview of the DB2 log manager active logging and archiving activity.

This workspace is comprised of the following views:

Archive in Progress (table view)
Shows details associated with the log data sets of the current archiving activity.

Data Set Utilization (linear gauge chart view)
Indicates the percent of the current data set that is in use.

Log Manger Statistics (table view)
Lists total counts, counts during the last sample period, and the "per second" count for a variety of reads, writes, and allocations associated with DB2 SRM log management.

Log Manager Summary (table view)
Shows details associated with logging and archiving activity.

Primary Data Set (table view)
Shows details associated with the data sets of the primary log activity

Secondary Data Set (table view)
Shows details associated with the data sets of the secondary log activity.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 SRM Log Manager Attributes

Use the DB2 SRM Log Manager attributes to create situations to monitor the DB2 log manager activity.

Active Log CIs Rate The number of active log control intervals (CIs) created per second over the last sampling period.

Archive CIs Offloaded Rate The number of archive log write CIs offloads per second over the last sampling period.

Archive Read Allocation Rate The number of archive log read allocations per second over the last sampling period.

Archive Recording Mode The recording mode for the archive can be either dual or single. It is an alphanumeric text string, with a maximum length of one character.

Archive Write Allocation Rate The number of archive log write allocations per second over the last sampling period.

Begin RBA The lowest Relative Byte Address (RBA) in the log of the primary data set (DB2 11).

BSDS Access Rate The number of BSDS access requests per second over the last sampling period.

Checkpoint Frequency The number of bytes in the output buffer before a checkpoint is performed.

Current RBA The current Relative Byte Address (RBA) in the log of the primary data set (DB2 11).

It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.

Current Relative Byte Address The current Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.

Data Set Size The size of the current logging data set.

Data set Utilization The percentage of the current data that is in use. Valid entry ranges from 0.0 to 100.0.

Delta Active Log CIs The number of active log CIs created during the last sampling period.

Delta Archive CIs Offloaded The number of archive log CIs offloads during the last sampling period.

Delta Archive Read Allocation The number of archive log read allocations during the last sampling period.

Delta Archive Write Allocation The number of archive log write allocations during the last sampling period.

Delta BSDS Access The number of BSDS access requests during the last sampling period.

Delta LookAhead Tape Failed The number of look ahead tape mounts not satisfied during the last sampling period.

Delta LookAhead Tape Performed The number of look ahead tape mounts performed during the last sampling period.

Delta LookAhead Tape Requests The number of look ahead tape mounts attempted during the last sampling period.

Delta Reads Active Archive Log The number of reads from the active archive log during the last sampling period.

Delta Reads Active Log The number of reads from the active log during the last sampling period.

Delta Reads Delayed No Control Unit The number of reads delayed because no tape control unit during the last sampling period.

Delta Reads Delayed Contention The number of reads delayed as a result of the tape contention during the last sampling period.

Delta Reads Output Log Buffer The number of reads from the output log buffer during the last sampling period.

Delta Write Active Buffer The number of write active log buffer during the last sampling period.

Delta Write Delay No Buffer The number of write delays as a result of no buffers during the last sampling period.

Delta Write Force The number of write force requests during the last sampling period.

Delta Write Nowait The number of write NOWAIT requests during the last sampling period.

Delta Write Wait The number of write wait requests during the last sampling period.

End RBA The highest Relative Byte Address (RBA) in the log of the primary data set (DB2 11).

It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.

Filler A placeholder to keep fullword alignment.

High Relative Byte Address The highest Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.

Input Buffer Size The size of the log input buffer.

Interval Time The number of seconds since last sample.

Log Recording Mode The recording mode for the log, which can be either dual or single. It is an alphanumeric text string, with a maximum length of one character.

Logs Available The number of log data sets that are currently available.

Logs Defined The number of log data sets that have been defined.

Look Ahead Tape Failed Rate The number of look ahead tape mounts not satisfied per second over the last sampling period.

Look Ahead Tape Performed Rate The number of look ahead tape mounts performed per second over the last sampling period.

Look Ahead Tape Requests Rate The number of look ahead tape mount attempts per second over the last sampling period.

Low Relative Byte Address The lowest Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.

Next Checkpoint The number of bytes before next checkpoint is to be performed.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Output Buffersize The size of the log output buffer.

Percent Logs Available The percentage of active log data sets that are currently available.

Primary Data Set Name The current name of the log of the primary data set. It is an alphanumeric text string, with a maximum length of four characters.

Read Active Archive Log Rate The number of reads per second from the active archive log over the last sampling period.

Read Active Archive Log Rate The number of reads from the active log per second over the last sampling period.

Read Output Log Buffer Rate The number of reads from the output log buffer per second over the last sampling period.

Reads Delayed Contention Rate The number of reads delayed because the tape contention per second over the last sampling period.

Reads Delayed NoCU Rate The number of reads delayed as a result of no tape control unit per second over the last sampling period.

Secondary Data Set Name The current name of the log of the secondary data set. It is an alphanumeric text string, with a maximum length of four characters.

Time Stamp The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Total Active Log CIs The total number of active log CIs created.

Total Archive CIs Offloaded The total number archive log CIs offloads.

Total Archive Read Allocation The total number of archive log read allocations.

Total Archive Write Allocation The total number of archive log write allocations.

Total BSDS Access The total number of BSDS access requests.

Total Look Ahead Tape Failed The total number of look ahead tape mounts not satisfied.

Total Look Ahead Tape Performed The total number of look ahead tape mounts performed.

Total Look Ahead Tape Requests The total number of look ahead tape mounts attempted.

Total Reads Active Archive Log The total number of reads from the active archive log.

Total Reads Active Log The total number of reads from the active log.

Total Reads Delayed Contention The total number of reads delayed as a result of tape contention.

Total Reads Delayed No Control Unit The total number of reads delayed as a result of no tape control unit.

Total Reads Output Log Buffer The total number of reads from the output log buffer.

Total Write Active Buffer The total number of write active log buffers.

Total Write Delay No Buffer The total number of writes delayed as a result of no buffer.

Total Write Force The total number of write force requests.

Total Write Nowait The total number of write nowait requests.

Total Write Wait The total number of write wait requests.

Write Active Buffer Rate The number of write active log buffers per second over the last sampling period.

Write Delay No Buffer Rate The number of write delays per second as a result of no buffer over the last sampling period.

Write Force Rate The number of write force requests per second over the last sampling period.

Write Nowait Rate The number of write nowait requests per second over the last sampling period.

Write Threshold Write threshold.

Write Wait Rate The number of write wait requests per second over the last sampling period.

MVS Storage Above 2 GB Workspace

The MVS Storage Above 2 GB workspace provides an overview of MVS storage above the 2 GB bar. It shows information about storage allocation within the DBM1 address space. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:

- MVS Storage Above 2 GB (table view)
- MVS Storage Above 2 GB (bar chart view)
- DBM1 MVS Storage above 2 GB (table view)
- Real and Auxiliary Storage (table view)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the **MVS Storage Above 2 GB** view to open:

- "MVS Storage Below 2 GB Workspace" on page 354
- "Common Storage Workspace" on page 201

MVS Storage Below 2 GB Workspace

The MVS Storage Below 2 GB workspace provides an overview of MVS storage below the 2 GB bar. It shows information about storage allocation within the DBM1 address space. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:

- MVS Storage Below 2 GB (table view)
- MVS Storage Below 2 GB (bar chart view)
- MVS Storage (table view)
- DBM1 MVS Storage Below 2 GB (table view)
- System Storage Engines and Thread Information (table view)
- DB2 IRLM Storage (table view) shows the usage of IRLM storage (DB2 11 or later)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the **MVS Storage** view to open:

- "MVS Storage Above 2 GB Workspace" on page 354
- "Common Storage Workspace" on page 201

Object Analysis Database Workspace

The Object Analysis Database workspace provides a global view of object allocation data for a specific data sharing group.

A consolidated list of DB2 databases is displayed on the table in ascending order by database name. Your view may sort differently if you have changed the sort field or sort order.

Use this view to:

- Evaluate DB2 database object allocations

- Track object allocation data over a period of time
- Analyze space name allocation data for a specific DB2 database

The Object Analysis Database table view only displays databases that contain spaces currently allocated to the DB2 subsystems that are part of the data sharing group you are monitoring.

Note: The Event Manager for Object Analysis must be active to allow object analysis data to be collected.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Object Analysis Space Name Workspace

The Object Analysis Space Name workspace displays space name allocation data for a specific DB2 database.

Use this workspace to evaluate and analyze the space name allocation data that a specific DB2 database owns.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Object Analysis Space Name Detail Workspace

The Object Analysis Space Name Detail workspace displays detail object analysis data for each DB2 object space in a DB2 database.

Use this workspace to evaluate and analyze space name allocation data for each DB2 object space in a DB2 database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Overall Transaction Data Workspace

The Overall Transaction Data workspace provides information about the Database Connection Services (DCS) application at the transaction level.

This workspace is comprised of the following views:

Application - Network (bar chart)
Shows the number of data transmissions between the DB2 Connect gateway and the host database and the number of bytes sent between the client application, the DB2 Connect gateway, and the host database. This view enables you to measure the throughput between the client and the DB2 Connect gateway and between the DB2 Connect gateway and the host database.

Application - SQL Statement (bar chart)
Shows the number of SQL, SQL COMMIT, and SQL ROLLBACK statements that have been attempted and the number of SQL statements that have been attempted but have failed. This view enables you to measure the database activity for the DCS application.

Thread/Application ID (table view)
Identifies the thread and the DCS application.

Last Reset and Connect Timestamp (table view)
Shows when the monitor counters were reset for the application issuing the GET SNAPSHOT and when the first connection to the host database was initiated from the DB2 Connect gateway.

Network & Times (table view)
Provides details about the throughput, and the times for data transmissions, between the client application, the DB2 Connect gateway, and the host database.

Unit of Work (table view)
Provides details about the SQL statements and units of work performed.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Performance Workspace

The Performance workspace shows the information obtained by running a sample SQL statement between the DB2 Connect gateway and the host database. It enables you to detect any bottlenecks.

This workspace is comprised of the following views:

DB2 Connect Server - SQL Statement Time (pie chart)
Shows the distribution of the various amounts of time required to process the sample SQL statement.

DB2 Connect Information (table view)
Shows key information about the selected DB2 Connect gateway.

Time for Sample SQL Statement (table view)
Shows the various amount of time required to process the sample SQL statement.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

SQL Counts 1 Workspace

The SQL Counts 1 workspace provides information about SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements.

This workspace is comprised of the following views:

DML (table view)
Provides information on SQL DML (Data Manipulation Language) statements.

DCL (table view)
Provides information on DCL (Data Control Language) declarations.

DDL Create (table view)
Provides information on SQL DDL (Data Definition Language) statements for Create.

DDL Drop (table view)
Provides information on SQL DDL (Data Definition Language) statements for Drop.

DDL Alter / Rename (table view)
Provides information on SQL DDL (Data Definition Language) statements for Alter / Rename.

Note: Each table view provides the following information:

Information
Description

Total
The total counts since the last sample period.

Delta
The changes since the last sample period.

Rate
The number of requests per second over the last sampling interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

SQL Counts Attributes

Use the SQL Counts attributes to create situations to monitor the SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements, associated with a DB2 subsystem. They also show information for stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements. They provide information about multi-row processing and concentrate statements.

4K Used Instead 32K The number of times that space in a 4 KB page table space was used because space in a 32 KB page table space was preferred but not available (Field name: QISTWFP2).

32K Used Instead 4K The number of times that space in a 32 KB page table space was used because space in a 4 KB page table space was preferred but not available (Field name: QISTWFP1).

Agent Max Storage The maximum amount of storage that can be used for each agent (Field name: QISTWMXA).

Allocate Cursor The number of SQL ALLOCATE CURSOR statements executed (field name: QXALOCC).

Alter Database The number of ALTER DATABASE statements executed (Field name: QXALDAB).

Alter Function The number of ALTER FUNCTION statements executed (Field name: QXALUDF).

Alter Index The number of ALTER INDEX statements executed (Field name: QXALTIX).

Alter Procedure The number of ALTER PROCEDURE statements executed (Field name: QXALPRO).

Alter Stogroup The number of ALTER STOGROUP statements executed (field name: QXALTST).

Alter Table The number of ALTER TABLE statements executed (Field name: QXALTTA).

Alter Tablespace The number of ALTER TABLESPACE statements executed (Field name: QXALTTS).

Alter Trusted Context The number of alter trusted context statements executed (Field name QXALTCTX) - not supported prior to DB2 9.

Associate Locator The number of SQL ASSOCIATE LOCATORS statements executed (Field name: QXALOCL).

Close Cursor The number of CLOSE statements executed. This number at the server location might not match the user application because of DDF's internal processing (DB2 field name: QXCLOSE).

Comment On The number of COMMENT ON statements executed (Field name: QXCMTON).

Connect (Type 1) The number of CONNECT type 1 statements executed (Field name: QXCON1).

Connect (Type 2) The number of CONNECT type 2 statements executed (field name: QXCON2).

Create Alias The number of CREATE ALIAS statements executed (Field name: QXCRALS).

Create Database The number of CREATE DATABASE statements executed (Field name: QXCRDAB).

Create Distinct Type The number of CREATE DISTINCT TYPE statements executed (Field name: QXCDIST).

Create Function The number of CREATE FUNCTION statements executed (Field name: QXCRUDF).

Create Global Temp Table The number of CREATE GLOBAL TEMPORARY TABLE statements executed (Field name: QXCRGTT).

Create Index The number of CREATE INDEX statements executed (Field name: QXCRINX).

Create Procedure The number of CREATE PROCEDURE statements executed (Field name: QXCRPRO).

Create Role The number of CREATE ROLE statements executed (Field name QXCRROL) - not supported prior to DB2 9.

Create Stogroup The number of CREATE STOGROUP statements executed (Field name: QXCRSTG).

Create Synonym The number of CREATE SYNONYM statements executed (field name: QXCRSYN).

Create Table The number of CREATE TABLE statements executed (Field name: QXCRTAB).

Create Tablespace The number of CREATE TABLESPACE statements executed (Field name: QXCTABS).

Create Trigger The number of CREATE TRIGGER statements executed (field name: QXCTRIG).

Create Trusted Context The number of create trusted context statements executed (Field name QXCRCTX) - not supported prior to DB2 9.

Create View The number of CREATE VIEW statements executed (Field name: QXDEFVU).

Current Total Storage The total whole kilobytes of storage that are currently used in the workfile database (field name: QISTWCTO).

DB2 ID The DB2 subsystem ID.

Delete The number of DELETE statements executed (DB2 field name: QXDELET).

Delete Rows Accessed The number of rows accessed by READ transactions because of uncommitted DELETE operations (using currently committed semantic for FETCH) - (Field name: QISTRCCD).

Delta The changes since the last sample period.

Describe The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXDESC).

Describe Table The number of DESCRIBE TABLE statements executed (Field name: QXDSCRTB).

Description The description of the monitored activity.

Direct Row Revert to Index The number of times that direct row access failed and an index was used to find a record (Field name: QXROIIDX).

Direct Row Revert to TS Scan The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was not able to use a matching index scan (Field name: QXROITS).

Direct Row Successful The number of times that direct row access was successful (Field name: QXROIMAT).

Drop Alias The number of SQL DROP ALIAS statements executed (field name: QXDRPAL).

Drop Database The number of DROP DATABASE statements executed (Field name: QXDRPDB).

Drop Distinct Type The number of DROP DISTINCT TYPE statements executed (Field name: QXDDIST).

Drop Function The number of DROP FUNCTION statements executed (field name: QXDRPFN).

Drop Index The number of DROP INDEX statements executed (Field name: QXDRPIX).

Drop Package The number of SQL DROP PACKAGE statements executed (field name: QXDRPPKG).

Drop Procedure The number of DROP PROCEDURE statements executed (Field name: QXDRPPR).

Drop Role The number of DROP ROLE statements executed (Field name QXDRPROL) - not supported prior to DB2 9.

Drop Stogroup The number of DROP STOGROUP statements executed (Field name: QXDRPST).

Drop Synonym The number of DROP SYNONYM statements executed (Field name: QXDRPSY).

Drop Table The number of DROP TABLE statements executed (Field name: QXDRPTA).

Drop Tablespace The number of DROP TABLESPACE statements executed (Field name: QXDRPTS).

Drop Trigger The number of DROP TRIGGER statements executed (Field name: QXDRPTR).

Drop Trusted Context The number of drop trusted context statements executed (Field name QXDRPCTX) - not supported prior to DB2 9.

Drop View The number of DROP VIEW statements executed (Field name: QXDRPVU).

Fetch The number of FETCH statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXFETCH).

Grant The number of GRANT statements executed (Field name: QXGRANT).

Incremental Bind The number of incremental binds (excluding prepare) (field name: QXINCRB).

Insert The number of INSERT statements executed (Field name: QXINSRT).

Insert Rows Skipped The number of rows skipped by READ transactions because of uncommitted INSERT operations (using currently committed semantic for FETCH) - (Field name: QISTRCCI).

Interval Time The number of seconds since last sample.

Job Name The job name that is associated with a thread.

Label On The number of LABEL ON statements executed (Field name: QXLABON).

Literals Dups Created The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLD). The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

Literals Matches Found The number of times DB2 found a matching reusable copy of a dynamic statement in cache because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLM).

Literals Parsed The number of times DB2 parsed dynamic statements because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLP).

Literals Replaced The number of times DB2 replaced at least one literal in a dynamic statement because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLR).

Lock Table The number of LOCK TABLE statements executed (Field name: QXLOCK).

Max Nested SQL Trigger The maximum level of indirect SQL cascading (Field name: QXCASCDP). This includes cascading because of triggers, UDFs, or stored procedures.

Max Total Storage The maximum total amount of storage that is used in the workfile database (Field name QISTWMXU).

Merge The number of MERGE statements executed (DB2 field name QXMERGE) - not supported prior to DB2 9.

MVS ID The MVS system identifier.

Number of Max Exceeded The number of times the maximum amount of storage that an agent can use was exceeded (field name: QISTWFNE).

Open Cursor The number of OPEN statements executed (Field name: QXOPEN).

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Parallel Bypass DB2 (Buffers) The number of times the parallelism coordinator had to bypass a DB2 when distributing tasks because one or more DB2 members did not have enough buffer pool storage (Field name: QXXCSKIP). The number in this field is only incremented at the parallelism coordinator once per parallel group, even though more than one DB2 might have lacked buffer pool storage for that parallel group. It is also only incremented when the buffer pool is defined to allow for parallelism. For example, if VPXPSEQT=0 on an assistant, DB2 does not send parallel work there and the number in this field is not incremented.

Parallel Degree Executed The total number of parallel groups that executed in the planned parallel degree (DB2 field name: QXNORGRP). This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).

Parallel Degree Reduced (no buffer) 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 (Field name: QXREDGRP).

Parallel Failed (Cursor) The total number of parallel groups that fell back to sequential mode because of a cursor that can be used by UPDATE or DELETE (Field name: QXDEGCUR).

Parallel Failed (No Buffer) The total number of parallel groups that fell back to sequential mode because of a storage shortage or contention on the buffer pool (Field name: QXDEGBUF).

Parallel Failed (No ESA Sort) The total number of parallel groups that fell back to sequential mode because of a lack of ESA sort support (DB2 field name: QXDEGESA).

Parallel Failed (No Enclaves) The total number of parallel groups that executed in sequential mode because of the unavailability of MVS/ESA enclave services (Field name: QXDEGENC).

Parallel Grp Executed The total number of parallel groups that were executed (Field name: QXTOTGRP).

Parallel Maximum LOB Storage The maximum storage used for LOB values (DB2 field name: QXSTLOBV).

Parallel Single DB2 (Coord=NO) The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO (Field name: QXCOORNO). 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.

Parallel Single DB2 (Cursor) The total number of parallel groups executed on a single DB2 subsystem because of a repeatable-read or read-stability isolation (Field name: QXISORR).

Parallel Sysplex Intent The total number of parallel groups that DB2 intended to run across the data sharing group (Field name: QXXCBPNX). This number is only incremented at the parallelism coordinator at run time.

Prepare The number of PREPARE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXPREP).

Prepare Avoided KEEPDYN(YES) The number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache (Field name: QXSTNPRP). When an application plan or package is bound with KEEPDYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary. An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

Prepare Copied from Cache The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache (Field name: QXSTFND).

Prepare Discarded - MAXKEEPD 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 (Field name: QXSTDEXP).

Prepare Implicit KEEPDYN(YES) An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES (Field name: QXSTIPRP). If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

Prepare No Match The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement (Field name: QXSTNFND).

Prepare Purged - DROP/ALT/REV 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 (Field name: QXSTDINV).

Rate The number of requests per second over the last sampling interval.

Release The number of RELEASE statements executed (DB2 field name: QXREL).

Rename Index The number of RENAME INDEX statements executed (Field name QXRNIX) - not supported prior to DB2 9.

Rename Table The number of RENAME TABLE statements executed (Field name: QXRNTAB).

Revoke The number of REVOKE statements executed (Field name: QXREVOK).

RID HWM The highest number of RID blocks in use at any time since DB2 startup (Field name: QISTRHIG). This is a high-water mark.

RID In Use The number of RID blocks currently in use (snapshot value) (Field name: QISTRCUR).

RID Exceeded Pool The number of times the maximum RID pool storage was exceeded (Field name: QISTRMAX). The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is: (Number of concurrent RID processing activities) x (average number of RIDs) x 2 x (5 bytes per RID).

RID Exhausted Virtual The number of times RID pool processing was not used because DBM1 storage was exhausted (Field name: QISTRSTG).

RID Not Used (no storage) The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID pool process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXNSMIAP).

RID Not Used (Max Limit) 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) (DB2 field name: QXMRMIAP). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

RID Pool Used The number of times the RID (RECORD ID) pool has been processed (Field name: QXMIAP). During RID (RECORD ID) pool (also called RID list) processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

RID Terminated (> DM) The number of times a RID pool processing operation terminated because the number of RID entries was greater than the DM limit (Field name: QISTRPLM).

RID Terminated (> RDS) The number of times RID pool processing terminated because the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size). Beginning Db2 Version 12, the number of times processing was terminated is incremented by the DM as well as RDS. (Field name: QISTRLLM).

Row Triggers Executed The number of times a row trigger was activated (Field name: QXROWTRG).

Rows Deleted The number of rows that have been deleted because of SQL DELETE statements (Field name: QXRWSDELETD).

Rows Fetched The number of rows that have been fetched because of SQL FETCH statements (Field name: QXRWSFETCHD).

Rows Inserted The number of rows that have been inserted because of SQL INSERT statements (Field name: QXRWSINSRTD).

Rows Updated The number of rows that have been updated because of SQL UPDATE statements (Field name: QXRWSUPDTD).

Select The number of SQL SELECT statements executed (Field name: QXSELECT).

Set Connection The number of SET CONNECTION statements executed (Field name: QXSETCON).

Set Current Degree The number of SET CURRENT DEGREE statements executed (field name: QXSETCDG).

Set Current Path The number of SET CURRENT PATH statements executed (Field name: QXSETPTH).

Set Current Rules The number of SET CURRENT RULES statements executed (Field name: QXSETCRL).

Set Current SQLID The number of SET CURRENT SQLID statements executed (Field name: QXSETSQL).

Set Host Variable The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked (Field name: QXSETHV).

SP Abended The number of times a stored procedure terminated abnormally (Field name: QXCALLAB).

SP Call Statements The number of times the SQL CALL statements executed to invoke a stored procedure (SP).

SP Rejected The number of times an SQL CALL statement was rejected because of the procedure that is in the STOP ACTION(REJECT) state (Field name: QXCALLRJ).

SP Timed-Out The number of times an SQL CALL statement timed out when waiting to be scheduled (Field name: QXCALLTO).

SQL Error in Trigger The number of times an SQL error occurred during the execution of a triggered action (Field name: QXTRGERR). This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

Stmt Triggers Executed The number of times a statement trigger was activated (Field name: QXSTTRG).

Storage in 4K TS The total whole kilobytes of storage that were used for 4 KB table spaces (Field name: QISTW4K).

Storage in 32K TS The total whole kilobytes of storage that were used for 32 KB table spaces (Field name: QISTW32K).

Time Stamp The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Total The total count executed by the thread.

UDFs Abended The number of times a user-defined function (UDF) abended (Field name: QXCAUDAB).

UDFs Executed The number of user-defined functions (UDFs) executed (Field name: QXCAUD).

UDFs Rejected The number of times a user-defined function (UDF) was rejected (Field name: QXCAUDRJ).

UDFs Timed Out The number of times a user-defined function (UDF) timed out while waiting to be scheduled (Field name: QXCAUDTO).

Update The number of UPDATE statements executed (Field name: QXUPDTE).

Update Rows Accessed The number of rows accessed by READ transactions because of uncommitted UPDATE operations (using currently committed semantic for FETCH) - (Field name: QISTRCCU).

SQL Counts 2 Workspace

The SQL Counts 2 workspace provides information about stored procedures, User-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements.

This workspace is comprised of the following views:

- Stored Procedures
- User-defined functions
- Triggers
- Direct row access
- Parallelism
- RID Pool Access
- Prepare Statements.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

SQL Counts 3 Workspace

The SQL Counts 3 workspace provides information about currently committed rows, multi-row processing, workfile storage, and concentrate statements.

This workspace is comprised of the following views:

Use Currently Committed
Shows, for the selected thread, the number of rows for currently committed data that is skipped or accessed by read transactions when processing a DB2 application.

Multi-Row Processing
Enables you to track performance improvements such as multi-row fetch and multi-row insert.

Workfile Storage
Shows the statistics on the usage and storage of DB2 workfiles.

Concentrate Statements
Indicates if literal constants, which are referenced in dynamic SQL statements, are replaced with special markers so that these constants are not cached with the statement in the dynamic SQL statement cache.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Statement Information Workspace

The Statement Information workspace provides information about the SQL statement that was last performed by the Database Connection Services (DCS) application.

It enables you to measure the throughput between the client application, the DB2 Connect gateway, and the host database and to measure the times required for processing an SQL statement.

This workspace is comprised of the following views:

Application - Network (bar chart)
Shows the number of data transmissions between the DB2 Connect gateway and the host database and the number of bytes sent between the client, the DB2 Connect gateway, and the host database.

Thread/Application ID (table view)
Identifies the thread and the DCS application.

Statement Information (table view)
Provides information about the SQL statement that was last performed by the DCS application.

Time (table view)
Shows the times required for processing an SQL statement.

Network Statistics (table view)
Shows the number of bytes exchanged between the client application, the DB2 Connect gateway, and the host database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread DB2 Connect Statement Attributes

Use the DB2 Connect Statement attributes to create situations to identify any statement with long elapsed time.

Ace Address The DB2 thread ACE address for internal use.

Application Creator The authorization ID of the user who precompiled the application. You can use this counter to identify the SQL statement that is processing, in conjunction with the CREATOR column of the package section information in the catalogs.

Application ID The ID that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database.

It is known at both the client and the server, so you can use it to correlate the client and server parts of the application. For DDCS applications, you will also need to use the **Outbound Application ID** to correlate the client and server parts of the application. This ID is unique across the network. There are different formats for the application ID, which are dependent on the communication protocol between the client and the server machine on which the database manager, the DDCS, or both, are running. Each of the formats consists of three parts separated by periods.

Protocol	Format	Example	Details
APPC	Network.Logical Unit Name.Application instance	CAIBMTOR.OSFDBX0.930131194520	This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC

Protocol	Format	Example	Details
			conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which create a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.
TCP/IP	IPAddr.Port.Application instance	A12CF9E8.3F0A.930131214645	A TCP/IP-generated application ID is made up by concatenating the IP address in hexadecimal characters, the port number (4 hexadecimal characters), and a unique ID for the instance of this application. The IP address is a 32-bit number displayed as a maximum of 8 hexadecimal characters.
IPX/SPX	Netid.nodeid.Application instance	C11A8E5C.400011528250. 0131214645	An IPX/SPX-generated application ID is made up by concatenating a character network ID (8 hexadecimal characters), a node ID (12 hexadecimal characters), and a unique ID for the instance of the application. The application instance corresponds to a 10-decimal-character timestamp of the form *mmddhhmmss*, where: M = Month, D = Day, H = Hour, M = Minute, S = Second.
NetBIOS	*NETBIOS.nname. Application instance	*NETBIOS.SBOIVIN. 930131214645	For nonpartitioned database systems, a NetBIOS application ID is made up by concatenating the string *NETBIOS, the NNAME defined in the database configuration file for the client, and a unique ID for the instance of this application. For partitioned database systems, a NetBIOS application ID is made up by concatenating the string N xxx.etc where xxx is the partition the application is attached to.
Local applications	*LOCAL.DB2 instance.Application instance	*LOCAL.DB2INST1. 930131235945	The application ID generated for a local application is made up by concatenating the string *LOCAL, the name of the DB2 instance, and a unique ID for the instance of this application.

Application Name The name of the application running at the client as known to the database manager or DB2 Connect.

Together with the Application ID counter, it can be used to relate data items with your application.

Authorization ID The authorization ID.

Authid (Unicode) The authorization ID.

Blocking Cursor Indicates whether the statement being executed is using a blocking cursor. Using blocking for data transfer for a query can improve its performance. The SQL used for a query can affect the use of blocking and might require some modification.

Corrid The correlation ID.

Thread DB2 Connect Statement Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

DB2 ID The DB2 subsystem ID.

Gateway Snapshot Time The date and time at which the database system monitor information was collected.

Host Response Time For a DCS statement, this is the elapsed time between the time that the statement was sent from the DB2 Connect gateway to the host for processing and the time when the result was received from the host.

For a DCS database or a DCS application, it is the sum of the elapsed times for all the statements that were executed for a particular application or database. For a data transmission, this is the sum of host response times for all the statements that used this many data transmissions. Use this counter with the **Network statistic - Outbound number of bytes sent** and **Network statistic - Outbound bytes received** counters to calculate the outbound response time (transfer rate):

```
(outbound number of bytes sent + outbound bytes received) / host response time
```

Inbound Number of Bytes Received The number of bytes received by the DB2 Connect gateway from the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the client to the DB2 Connect gateway.

Inbound Number of Bytes Sent Shows the number of bytes sent by the DB2 Connect gateway to the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the DB2 Connect gateway to the client.

IP Address The current IP address.

Local: System CPU Time The total system CPU time, in seconds and microseconds, used by the statement that is currently executing.

Together with the other related CPU-time counters, it can help you understand the level of activity within an application and identify applications that could benefit from additional tuning. This counter includes time spent on SQL and non-SQL statements and on any fenced user-defined functions (UDF) or stored procedures executed by the application. System CPU represents the time spent in system calls. User CPU represents time spent executing database manager code.

Note: If this information is not available for your operating system, this counter is set to 0.

Local: User CPU Time The total user CPU time, in seconds and microseconds, used by the currently executing statement. Together with the other related CPU-time counters, it can help you understand the level of activity within an application and identify applications that could benefit from additional tuning. This counter includes time spent on SQL and non-SQL statements and on any fenced user-defined functions (UDF) or stored procedures executed by the application. System CPU represents the time spent in system calls. User CPU represents time spent executing database manager code.

Most Recent Statement Elapsed Time The elapsed execution time of the most recently completed statement. Use this counter as an indicator of the time that it takes for a statement to complete.

MVSID The MVS system identifier.

Name The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

Number of Successful Fetches For statement snapshot monitoring and the statement event type, this is the number of successful fetches performed on a specific cursor. For DCS statement snapshot monitoring, this is the number of attempted physical fetches during the execution of a statement regardless of how many rows were fetched by the application. That is, this counter shows the number of times the server needed to send a reply data back to the gateway while processing a statement. You can use this counter to gain insight into the current level of activity within the database manager.

Outbound Application ID (Internal) This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway. You can use this counter in conjunction with the **Application ID** counter to correlate the client and server parts of the application information. This ID is unique across the network.

Outbound Application ID This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway. You can use this counter in conjunction with the **Application ID** counter to correlate the client and server parts of the application information. This ID is unique across the network.

Outbound Blocking Cursor Indicates whether blocking is used for data transfer from the DRDA server to the DB2 Connect gateway for a particular query. Using blocking for data transfer for a query can improve its performance. The SQL used for a query can affect the use of blocking and might require some modification.

Outbound Bytes Received The number of bytes received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

For a data transmission, this is the number of bytes received by the DB2 Connect gateway from the host during the processing of all the statements that used this number of data transmissions.

Format	Example	Details
Network.Logical Unit Name.Application instance	CAIBMTOR.OSFDBM0.930131194520	This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which creates a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.

Outbound Number of Bytes Sent The number of bytes sent by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes sent by the DB2 Connect gateway to the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the DB2 Connect gateway to the host database. Use this counter to measure the throughput from the host databases to the DB2 Connect gateway.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package Name The name of the package that contains the SQL statement that is currently executing. You can use this counter to identify the application program and the SQL statement that is executing.

Plan The plan name.

Query Cost Estimate The estimated cost, in timerons, for a query, as determined by the SQL compiler. It allows correlation of actual run-time with the compile-time estimates.

In addition, it returns information for the following SQL statements when you are monitoring DB2 Connect.

- PREPARE represents the relative cost of the prepared SQL statement.
- FETCH contains the length of the row retrieved if the DRDA server is DB2 for OS/400.

If information is not collected for a DRDA server, this counter is set to zero.

Note: If the DRDA server is DB2 for OS/390 and z/OS, this estimate could be higher than 2**32 - 1 (the maximum integer number that can be expressed through an unsigned long variable). In that case, the value returned by the monitor for this counter is 2**32 - 1.

Query Number of Rows Estimate The estimated number of rows that is returned by a query.

This estimate by the SQL compiler can be compared with the run-time actuals. This counter also returns information for the following SQL statements when you are monitoring DB2 Connect.

- INSERT, UPDATE, and DELETE indicate the number of rows affected.
- PREPARE estimates the number of rows that are returned if the DRDA server is DB2 Universal Database, DB2 for VM and VSE, or DB2 for OS/400.
- FETCH sets to the number of rows fetched if the DRDA server is DB2 for OS/400.

If information is not collected for a DRDA server, this counter is set to zero.

Section Number The internal section number in the package for the SQL statement that is currently processing or has processed most recently.

For a static SQL, you can use this counter together with the creator, package version, and package name to query the SYSCAT.STATEMENTS system catalog table and obtain the static SQL statement text, using the sample query as follows:

```
SELECT SEQNO, SUBSTR(TEXT,1,120)
FROM SYSCAT.STATEMENTS
WHERE PKGNAME = 'package_name' AND
PKGSCHEMA = 'creator' AND
VERSION = 'package_version_id' AND
SECTNO = section_number
ORDER BY SEQNO
```

Note: This query can cause lock contentions. Therefore, try to use it only when there is little other activity against the database.

Server Instance Name The name of the database manager instance for which the snapshot was taken.

Statement Operation The statement operation that is currently being processed or has processed most recently (if none is currently running).

You can use this counter to determine the operation that is executing or recently finished. It can be one of the following.

- For SQL operations:
  - SELECT
  - PREPARE
  - EXECUTE
  - EXECUTE IMMEDIATE
  - OPEN

  - FETCH
  - CLOSE
  - DESCRIBE
  - STATIC COMMIT
  - STATIC ROLLBACK
  - FREE LOCATOR
  - PREP_COMMIT
  - CALL
  - PREP_OPEN
  - PREP_EXEC
  - COMPILE
- For non-SQL operations:
  - RUN STATISTICS
  - REORG
  - REBIND
  - REDISTRIBUTE
  - GET TABLE AUTHORIZATION
  - GET ADMINISTRATIVE AUTHORIZATION

Note: API users should refer to the sqlmon.h header file containing definitions of database system monitor constants.

Statement Start Timestamp The date and time at which the statement operation started executing. You can use this counter with the SQL statements - Statement operation counter to calculate the elapsed statement operation execution time.

Statement Stop Timestamp The date and time at which the statement operation stopped executing. You can use this counter with the SQL statements - Statement operation counter to calculate the elapsed statement operation execution time.

Elapsed Execution Time For a DCS statement, this is the elapsed time spent processing an SQL request on a host database server. This value is reported by this server. In contrast to the Times - Host response time counter, this counter does not include the network elapsed time between DB2 Connect and the host database server. At other levels, this value represents the sum of the host execution times for all the statements that were executed for a particular database or application, or for those statements that used a given number of data transmissions.

No. of Statements The number of SQL statements that have been attempted since the latter of: application startup, database activation, or last reset. For a data transmission, this is the number of SQL statements that have been attempted against this DCS database or in this DCS application since the database was activated, the connection to it was established by the application, or RESET MONITOR was issued against the database, and that used this number of data transmissions between the DB2 Connect gateway and the host during statement processing.

No. of Transmissions The number of data transmissions between the DB2 Connect gateway and the host that was used to process this DCS statement. One data transmission consists of one send or one receive.

Time Spent on Gateway Processing The time, in seconds and microseconds, at the DB2 Connect gateway to process an application request since the connection was established, or to process a single statement. Use this counter to determine what portion of the overall processing time is because of DB2 Connect gateway processing.

Time Stamp The start time of this interval.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Storage Consumption Workspace

The Storage Consumption workspace provides an overview of DB2 DBM1 virtual storage, MVS storage and real storage.

This workspace is comprised of the following views:

Key Indicators (table view)
Shows the average size of the thread footprint and the projected maximum number of threads that you can run with the current storage configuration.

DBM1 Storage below 2 GB with Cushion (table view)
Shows the amount of virtual storage below 2 GB that is used by the DBM1 address space.

DBM1 Storage below 2 GB with Cushion (bar chart)
Shows the amount of virtual storage below 2 GB that is used by the DBM1 address space.

MVS Storage (table view)
Shows the amount of storage used by MVS.

MVS Storage (bar chart)
Shows the amount of storage used by MVS.

Real Storage (table view)
Shows the amount of real storage used by the main storage device and by the auxiliary storage device.

Real Storage (bar chart view)
Shows the amount of real storage used by the main storage device and by the auxiliary storage device.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to one of the following workspaces from the DBM1 Storage Consumption workspace. In your workspace, you will only see the link that corresponds to the version of DB2 that you are monitoring.

- If DB2 10 is installed, click the navigation link **DB2 10 MVS Storage** in the **EDM Statistics** view to open the "MVS Storage Below 2 GB Workspace" on page 354 workspace.

DB2 Memory DBM1 or DIST Attributes

Use the attributes to view the DB2 memory for the database address space (DBM1 or DIST).

24 Bit High Private (MB) Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225HI). This storage is obtained from top downward, usually for authorized programs.

24 Bit Low Private (MB) Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225LO). This storage is obtained from bottom upward, usually for unauthorized programs.

31 Bit Extended High Private (MB) Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EH). This storage is obtained from top downward, usually for authorized programs.

31 Bit Extended Low Private (MB) Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EL). This storage is obtained from bottom upward, usually for unauthorized programs.

31 Bit Storage Reserved for MVS Identifies the amount of storage available for operating system activity (DB2 field name: QW0225MV).

64 Bit Thread and System Only Aux (MB) Shows the amount of auxiliary storage in use for 64-bit private pools. This does not include buffer pool storage (DB2 field name: QW0225PriStg_Aux). This field only

includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS 1.10 (and maintenance) or later.

64 Bit Thread and System Only Real (MB) Shows the number of real-storage frames (4K) in use for 64-bit private pools. This is a subset of QW0225HVPagesInReal and does not include buffer pool storage (DB2 field name: QW0225PriStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.

Address Space Name Shows the address space name (DBM1 or DIST) (DB2 field name: QW0225AN).

Aux 31 Bit in Use Shows the amount of auxiliary storage in use for 31-bit private pools. This value is available from z/OS V1.11.

Auxiliary Slots Used Shared Storage 64 Bit Shows the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

Auxiliary Storage in Use Shows the number of auxiliary slots that are in use. Each slot is 4 KB. This value is available from z/OS V1.11.

Auxiliary 4K Slot in Use 64 Bit Identifies the number of 4 KB auxiliary slots currently in use for 64-bit private storage. This value includes reserved auxiliary slots for pages that are paged in (DB2 field name: QW0225HVAUXSLOTS). This value is available from z/OS V1.11.

Available 31-Bit Storage Shows the total amount of storage available for storage manager pools (DB2 field name: QW0225AV).

Avg Thread Footprint (MB) Shows the current average memory usage of active user threads (allied threads and DBATs).

Average Thread Footprint private real Shows the current average real storage in use for private DBM1 storage of active user threads (allied threads + active and pooled DBATs).

Average Thread Mem Usage Type 2 Shows the current average memory usage of active allied threads and the maximum number of active DBATs that existed. The formula used for this value is suited for Enterprise Resource Planning (ERP) systems.

Castout Buffers (MB) Shows the total storage for buffers needed for all castout engines. It is calculated as follows: (castout engines) * 128 * 1024.

Current Private High Addr 24 Bit Identifies the current high address of the 24-bit private region (DB2 field name: QW0225TP). It indicates the highest value (upper limit) of the private area of the DB2 database address space and the private area of the distributed data address space.

Current Private High Addr 31 Bit Identifies the current high address of the 31-bit private region (DB2 field name: QW0225EP).

Data Sharing Group The name of the DB2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.

Data Sharing Member The name of the DB2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

DB2 Subsystem The name of the DB2 subsystem.

DB2 Version The version of the DB2 system.

Fixed Storage (MB) Identifies the total amount of fixed storage (DB2 field name: QW0225FX).

Fixed Storage above (MB) Identifies the total amount of fixed storage above the 2 GB bar (DB2 field name: QW0225FA).

Getmained Storage (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GM). This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Storage above (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GA). This includes space for the compression dictionary, and statement and DBD cache that can

be used by the Environmental Descriptor Manager (EDM). This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Stack Storage (MB) Identifies the total GETMAINED storage allocated for program stack use (DB2 field name: QW0225GS). This includes total getmained stack storage, total 64-bit shared system agent stack, and total 64-bit shared non-system agent stack.

HWM Auxiliary 4K Slot in Use 64 Bit Shows the high water mark of auxiliary storage in use for 64-bit private pools. This value is available from z/OS V1.11.

HWM 64 bit real storage in use MB Shows the high water mark of real storage in use for 64-bit private pools. This value is available from z/OS V1.11.

Interval Start The start time of this interval.

Max Extended Region Size (MB) Identifies the maximum amount of MVS private storage available above the 16 MB line (DB2 field name: QW0225RG).

Max Number of Threads The maximum number of possible threads. It depends on the storage size and average memory usage of active user threads.

Max Number Possible Type 2 Threads The maximum number of possible threads. It depends on the storage size and average memory usage of active allied threads and the maximum number of active DBATs that existed.

MVS System ID The MVS system identifier.

Number of Real Frames in Use Identifies the amount of real-storage frames in use for 31-bit and 64-bit private pools (DB2 field name: QW0225RL).

Originating System ID The managed system name of the agent. It is an alphanumeric text string with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Real 31 bit in use (MB) Shows the amount of real storage in use for 31-bit private pools. This value is available from z/OS V1.11.

Real 64 bit in use (MB) Shows the amount of real storage in use for 64-bit private pools. This value is available from z/OS V1.11.

Real 4K Frame in Use Shows the amount of real storage in use for 31-bit and 64-bit private pools; prior to DB2 10, it shows the real storage used by DBM1, in megabytes.

Stack Storage In Use (MB) The amount of stack storage which is in use; this includes total stack storage in use, total 64-bit shared system agent stack in use, and total 64-bit shared non-system agent stack in use (DB2 field name: QW0225SU).

Storage Manager Control Block (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM). This includes total 64-bit private storage for storage manager control structures, total 64-bit common storage for storage manager control structures, and total 64-bit shared storage for storage manager control structures.

Stor Res Must Complete Identifies the storage reserved for operation that must complete before DB2 is allowed to stop (DB2 field name: QW0225CR).

Storage Cushion Warning to Contract Storage cushion warning to contract (DB2 field name: QW0225SO).

Storage Cushion (MB) Identifies the storage reserved to allow DB2 to complete critical functions while short on storage. This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use.

Total 31-bit stack in use for system agents Shows the amount of 31-bit stack storage that is in use for system agents (DB2 field name: QW0225SS). This is a subset of QW0225SU.

Total Storage Below (MB) Shows the total DBM1 storage below 2 GB.

Total Storage Below (MB) Shows the total DIST storage below the bar.

Variable Storage (MB) The total variable storage available below the 31-bit bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VR).

Variable Storage Above (MB) Identifies the total variable storage available above the 31-bit bar (DB2 field name: QW0225VA).

Storage Consumption Attributes

Use the Storage Consumption attributes to assess storage consumption issues for your DB2 version.

Agent Local Storage (MB) The amount of storage, in MB, allocated for agent-related local storage. This storage is used for operations such as sort. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225AL).

Agent System Storage (MB) The storage used by system agents. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225AS).

Auxiliary Storage in Use (MB) The auxiliary storage used by DBM1, in megabytes. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225AX).

Average Thread Footprint (MB) The current average memory usage of active allied threads and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:

[(total variable storage)
- (total agent system storage)
- (amount of storage allocated for the local cache storage pool)]
/ [(active allied threads) + (active DBATs)]

Buffer Manager Data Manager Trace Table (MB) The storage used for Buffer Manager and Data Manager internal trace tables. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225TT).

Buffer Manager Storage CNTL Blocks (MB) The storage used for Buffer Manager Control Blocks. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225BB).

Castout Engines The number of engines available for data-sharing castout processing. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225CC).

Compression Dictionary (MB) The storage space, in megabytes, allocated for the compression dictionary. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225CD).

DBM1 Storage (MB) The total DBM1 storage. Valid value is an integer in the range 0 - 999999.

This includes:

- Fixed length storage use
- Getmained storage
- Save areas
- Variables

It is calculated as follows:

(total getmained storage)

+ (total variable storage)

+ (total fixed storage)

+ (total getmained stack storage)

Castout Buffers (MB) The total storage for buffers needed for all castout engines. Valid value is an integer in the range 0 - 999999.

It is calculated as follows:

(castout engines) * 128 * 1024

DB2ID The name of a DB2 subsystem.

DB2 Version The version of the DB2 system.

Deferred Write Engines The number of engines used for deferred write operations. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225DW).

Extended CSA Size (MB) The size of the common storage area (CSA) above the 16 MB line. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225EC).

Fixed Storage above (MB) The total amount of fixed storage above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225FA).

Fixed Storage (MB) The total amount of fixed storage. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225FX).

Fixed Virtual 64 Bit Shared (MB) The amount of total fixed virtual shared storage above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SF).

GBP Write Engines The number of engines for group buffer pool writes. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225GW).

Getmained Stack Storage (MB) The total GETMAINED storage allocated for program stack use. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225GS).

Getmained Storage above (MB) The total storage acquired by GETMAIN above the 2 GB bar. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225GA).

Getmained Storage (MB) The total storage acquired by GETMAIN. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225GM).

Getmained Virtual 64 Bit Shared (MB) The amount of virtual shared storage acquired by GETMAIN above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SG).

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Local Dynamic Statement Cache Control Blocks The storage for local dynamic statement cache blocks. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SB).

Max Extended Region Size (MB) The maximum amount of MVS private storage available above the 16 MB line. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225RG).

Maximum Number of Threads The maximum number of possible threads. This depends on the storage size, the average memory usage of active user threads, and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:

{(extended region size) - (31 bit extended low private)
- minimum (extended region size / 8, 200 * 1024 * 1024)
- [(total getmained storage) + (total getmained stack storage) + (total fixed storage)]}
/ (average thread footprint)

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Pipe Manager Subpool Storage (MB) The storage allocated to Pipe Manager for parallel query operations. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225PM).

P-Lock Notify Exit Engines The number of engines for data sharing P-lock/notify exit engines. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225PL).

Prefetch Engines The number of engines used for sequential, list, and dynamic prefetch. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225PF).

RDS OP Pool Storage (MB) The storage for RDS operations pool used for sort, prepare, and so on. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225RO).

Real Storage in Use (MB) The real storage used by DBM1, in megabytes. Valid value is an integer in the range 0 - 999999.

RID Pool Storage (MB) The storage for RID list processing, such as list prefetch, index ANDing, and ORing. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225RP).

Shared Memory Storage (MB) The amount of virtual shared memory storage above the 2 GB bar. Valid value is an integer in the range 0 - 999999.

Stack Storage In Use (MB) The amount of stack storage which is in use. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SU).

Storage Cushion (MB) The storage reserved to allow DB2 to complete critical functions while short on storage. This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use. Valid value is an integer in the range 0 - 999999.

Thread Copies of Cached SQL (MB) The amount of storage allocated for the local cache storage pool. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SC).

Thread Copies of Cached SQL above HWM for Allocated Statements (MB) The statistics interval high-water mark (HWM) of allocated storage for thread copies in the local cache storage pool above the 2 GB bar. This is a subset of the counter **Thread Copies of Cached SQL Statement Count**. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225H2).

Thread Copies of Cached SQL above In Use (MB) The amount of storage used for thread copies in the local cache storage pool above the 2 GB bar. This is a subset of the counter **Thread Copies of Cached SQL Statement Count**. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225L2).

Thread Copies of Cached SQL above (MB) The amount of storage allocated for the local cache storage pool above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225S2).

Thread Copies of Cached SQL Date at High Water Mark The timestamp at high-water storage (DB2 field name: QW0225HT).

Thread Copies of Cached SQL HWM for Allocated Statements (MB) The statistics interval high-water mark of the allocated storage for thread copies in the local cache storage pool. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225HS).

Thread Copies of Cached SQL In Use (MB) The amount of storage used for thread copies in the local cache storage pool. This is a subset of the total allocated storage for thread copies. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225LS).

Thread Copies of Cached SQL Statement Count The number of statements in the local cache storage pool. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225LC).

Thread Copies of Cached SQL Statement Count at High Water Mark The number of statements in the local cache storage pool at high storage time. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225HC).

Variable Storage (MB) The total storage used by all variable pools. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VR).

This includes storage used by:

- System agents
- Local agents
- RID pool
- Pipe manager subpool
- Local dynamic statement cache control blocks

- Local dynamic statement cache statement pool
- Buffer and data manager trace tables

Variable Storage above (MB) The amount of variable storage available above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VA).

Variable Virtual 64 Bit Shared (MB) The amount of virtual shared variable storage above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SV).

24 Bit High Private (MB) The amount of private MVS storage below the 16 MB line. This storage is obtained from top downward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225HI).

24 Bit Low Private (MB) The amount of private MVS storage below the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225LO).

31 Bit Extended High Private (MB) The amount of private MVS storage above the 16 MB line. This storage is obtained from top downward, usually for authorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225EH).

31 Bit Extended Low Private (MB) The amount of private MVS storage above the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225EL).

Subsystem Management Workspace

The Subsystem Management workspace provides an overview of workload related information about the DB2 subsystem that you are monitoring.

This workspace is comprised of the following views:

Background Utilization (needle gauge)
Shows the percentage of available threads being used for background connections.

Foreground Utilization (needle gauge)
Shows the percentage of available threads being used for foreground connections.

Subsystem Management Statistics (table view)
Lists total counts, counts during the last sample period, and the "per second" count for a variety of subsystem requests, abends, and thread statuses associated with the System Resource Manager (SRM) system.

Subsystem Management Summary (table view)
Lists thread availability and usage statistics for foreground and background connections.

Thread Events Approaching Max (bar chart view)
Shows the utilization of the thread events for foreground and background connections.

Thread Events High Water Mark (bar chart view)
Shows the high-water marks for thread events for foreground and background connections.

Thread Events (bar chart view)
Shows information on the thread events for foreground and background connections.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

System Status Workspace

The System Status workspace reflects the health of your DB2 system.

This workspace is comprised of the following views:

System Key Events (table view)
Shows the system key events.

System Key Events (bar chart)
Shows the system key events.

DDF Send Rate (needle gauge)
Reports the send rate of the Distributed Data Facility (DDF).

DDF Receive Rate (needle gauge)
Reports the receive rate of the Distributed Data Facility (DDF).

Thread Events Approaching Max (bar chart view)

EDM Utilization (needle gauge)
Reports the number of current EDM pages divided by total EDM pages for DB2 9 or below. For DB2 10 or later, it reports the number of current DBD pages divided by total DBD pages.

DBAT Wait Percent (needle gauge)
Shows the percentage of threads that are waiting for database services.

System State Information (table view)
Provides activity and performance details of your DB2 system.

Operating System CPU (table view)
Provides CPU information about the operating system.

Operating System CPU Utilization (bar chart)
Provides CPU information about the operating system.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 System States Attributes

Use the DB2 System States attributes to create situations to monitor system-level performance and exception alerts.

Active Stored Procedures The number of stored procedures currently executing.

Active Triggers The number of triggers currently executing.

Active User Functions The number of user defined functions currently executing.

Allowed locks per TS The default (SYSTEM) for the LOCKMAX clause of the SQL statements CREATE TABLESPACE and ALTER TABLESPACE. Install parameter LOCKS PER TABLE(SPACE) on panel DSNTIPJ, or ZPARM NUMLKTS in DSN6SPRM.

Archive Device The CCUU address of the device that is to be used for mounting the tape. It is an alphanumeric text string, with a maximum length of four characters.

Archive DSN The data set name of the archive file being waited on. It is an alphanumeric text string, with a maximum length of 44 characters.

Archive Volser The volser for tape volume being waited on. It is an alphanumeric text string, with a maximum length of six characters.

ASIDs Stored Procedures The number of unique active threads executing stored procedures.

ASIDs User Functions The number of ASIDs executing user functions.

Bytes written to log The log rate for the active log data sets in MB per second. This figure is valid for dual logging. If single logging is used, multiply the value shown by 2. This rate is MB/sec at which data is written to the active log data set. It was calculated by multiplying QJSTCIWR (label LOG CI WRITTEN (LOG1&2)) by 4096, then dividing the result by (1024 * 1024 * statistics-interval-seconds * 2). When the

value exceeds 10MB/sec per log copy, you should examine I/O tuning of log data sets; for example, using faster log devices and/or I/O striping, using variable-length or compressed log record layouts to reduce log data size.

CF global contention The total number of suspends because of contention divided by the total number of synchronous requests that went to XES, and the lock requests that were converted from synchronous to asynchronous locks, and the locks because of child lock propagation. If multiple members from the same data sharing group run on the same LPAR, the global contention rate should be ignored for a member where the QTGSFCON flag is zero. The QTGSFCON flag indicates whether the false contention is reported at the subsystem (=1) or LPAR level (=0).

Checkpoint freq Checkpoint frequency. This shows either the number of minutes (1 through 60) or the number of DB2 log records between the start of successive checkpoints. DB2 starts a new checkpoint when this value is reached. You can use the SET LOG command to change the number of log records between checkpoints dynamically. Valid values are 1-60 when specifying a time value and 200-16000000 when specifying a number of records. Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM CHKFREQ in DSN6SYSP.

Class castout thresh reached The number of times group buffer pool castout was initiated because the group buffer pool class castout threshold was detected. The class castout threshold is one of two group buffer pool thresholds. In most cases the default value for the class threshold (10 percent) is a good choice. Depending on your workload, altering this value can reduce DASD contention during castout.

Current Open Data Set The current number of open data sets.

Current Thread Count The current number of active threads.

DB2 ID The name of a DB2 subsystem.

DB2 version The DB2 version.

DB Wait Percent The percentage of threads that are waiting for database services. Valid entry ranges from 0.0 to 100.0.

DeadLocks The number of times deadlocks were detected. This number should be low, ideally 0. Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order. Deadlocks can also occur through index page splits if there is high insert activity. In this case, the recommendation is to set SUBPAGES to 1 for the index. This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

Dist DB Inactive The state will be true if this DB2 system is not enabled for the Distributed Data Facility (DDF). It is an alphanumeric text string, with a maximum length of one character.

Dist Receive Rate The DDF Receive bytes per second in units of 1,000.

Dist Send Rate The DDF Send bytes per second in units of 1,000.

DM critical thresh reached The number of times the deferred write threshold (DWTH) was reached. This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (up to 128 pages per data set) to reduce the number of unavailable buffers to 10% below the threshold.

DSC active Indicates whether prepared dynamic SQL statements are saved for later use by eligible application processes in the EDM pool. Install parameter CACHE DYNAMIC SQL on panel DSNTIP8, or ZPARM CACHEDYN in DSN6SPRM.

DSC size The size of the statement cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease this value with the SET SYSPARM command. This value cannot be decreased below the value

that is specified at DB2 startup. The CLIST calculates a statement cache size. This storage pool is located above the 2 GB bar. The value used at DB2 startup time is either calculated by the CLIST based on input from other installation information or an override value. For record trace, this value is shown in bytes. Install parameter EDM STATEMENT CACHE on panel DSNTIPC, or ZPARM EDMSTMTC in DSN6SPRM.

DSMAX The maximum number of open data sets allowed to be specified in DSNZPARM.

DSMAX Utilization The number of data sets opened is approaching the maximum number of open data sets defined by the DSMAX parameter in DSNZPARM.

DWQT reached The number of times the deferred write threshold (DWTH) was reached. This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (up to 128 pages per data set) to reduce the number of unavailable buffers to 10% below the threshold.

EDM Current Pages The current number of EDM pages (DB2 9 or below) or the current number of DBD pages (DB2 10 or later) that are used.

EDM Pool full The total number of failures because the EDM pool or EDM pool was full.

EDM Total Pages The total number of pages allocated for the EDM pool (DB2 9 or below) or the total number of pages allocated for the DBD pool (DB2 10 or later).

EDM Utilization The current EDM pages divided by total EDM pages (DB2 9 or below) or the current DBD pages divided by total DBD pages (DB2 10 or later).

GBP castout thresh reached The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected. The GBP castout threshold, GBP class castout threshold, and the length of the GBP checkpoint interval determine the castout characteristics of the group buffer pool. You can consider this threshold a safety margin to protect the group buffer pool from being accidentally flooded by overactive applications. In most situations, the default value for the group buffer pool castout threshold of 50 percent is a good choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer pool thresholds. A value near to 100 indicates that in most cases DB2 found skeleton copies of prepared statements in global dynamic cache and could perform short prepares. A value near to 0 indicates that in most cases skeleton copies of prepared statements were not found in global dynamic cache and full prepares were performed.

Global cache hit ratio The ratio of successful search requests for prepared statements from the global dynamic SQL cache. This indicates the effectiveness of the global dynamic SQL cache in the EDM pool.

Global Trace Active The state will be true if this DB2 system currently has the global tracing active. It is an alphanumeric text string, with a maximum length of one character.

Group or Subsystem Name The DB2ID or data sharing group name. It is an alphanumeric text string with a maximum of 8 characters; for example, TDDB241G.

Group Object Analysis Status The status of the Event Manager for Object Analysis.

Valid values are:

Status	Description
MIX	Some Event Managers are active
NO	Event Manager is not active
YES	Event Manager is active

Group or Subsystem Type Indicates whether a group or subsystem is a DB2 or a data sharing group.

Valid values are:

Value	Description
DB2	DB2 subsystem
DSGRP	Data sharing group

Incomp retained locks The number of global lock or change requests denied or suspended due to an incompatible retained lock.

In Doubt Threads The number of threads that are in an INDOUBT status.

Indoubt-URs The number of indoubt units of recovery. A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. The failure can occur in the address space of the application, the transaction manager, DB2, or all of these. IMS and CICS applications use the prepare and commit sequence to commit work. Ideally, this value should be 0.

Interval Time The number of seconds since last sample.

Lock Conflict Count The total number of owners and waiters that are in lock conflict. Valid value is an integer in the range 0 - 99999999.

Lock Escalations Number of all types of lock escalations.

Lock Escalation Exclusive The number of times that the allowable number of locks per table space was exceeded resulting in page (IX) lock to escalate to table or table space lock in exclusive mode.

Lock Escalation Rate The number of lock escalations (exclusive and shared) per second in this interval.

Lock Escalation Shared The number of times that the allowable number of locks per table space was exceeded, resulting in page (IS) lock to escalate to table or table space lock in shared mode.

Max active DBATs The maximum number of database access threads (DBATs) that can be active concurrently. The maximum number of database access threads (DBATs) that can be active concurrently. When this limit has been reached, DB2 uses the value of DDF THREADS on panel DSNTIPR to decide how to handle a new allocation request. When DDF THREADS is ACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed but any further processing for the connection is queued waiting for an active database access thread to terminate. When DDF THREADS is INACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed and is processed when DB2 can assign an unused database access thread slot to the connection. The total number of threads accessing data concurrently is the sum of MAX USERS and MAX REMOTE ACTIVE. The maximum allowable value for this sum is 2000. Install parameter MAX REMOTE ACTIVE on panel DSNTIPE, or ZPARM MAXDBAT in DSN6SYSP.

Max Batch users The maximum allowed number of concurrent connections for batch jobs and utilities. This includes:

- All batch jobs using QMF.
- All batch jobs using the DSN command processor.
- All tasks connected to DB2 through call attach facility (CAF) running in batch. This can include:
  1. Batch jobs using QMF
  2. APPC applications
  3. TCP/IP FTP connections

Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.

Max DB2 allied users The maximum number of allied threads (threads started at the local subsystem) that can be allocated concurrently. Separate threads are created for each occurrence of the following:

- TSO user (whether running a DSN command or a DB2 request from QMF)
- Batch job (whether running a DSN command or a DB2 utility)
- IMS region that can access DB2
- Active CICS transaction that can access DB2

- Task connected to DB2 through the call attachment facility

Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.

Max degree Indicates the upper limit on the degree of parallelism for a parallel group. This field has a value of 0. This means PARAMDEG is not set and DB2 can set a default maximum degree of parallelism based on the system configuration. Install parameter MAX DEGREE on panel DSNTIP8, or ZPARM PARAMDEG in DSN6SPRM.

Max opened DS The maximum number of data sets that can be open at one time. The practical limit can be less than the MVS limit of 32727, depending on available storage below the line. Install parameter DSMAX on panel DSNTIPC, or ZPARM DSMAX in DSN6SPRM.

Max kept dyn stmt Shows the total number of prepared dynamic SQL statements that are saved past a commit point. 0 means that prepared dynamic SQL statements are not saved past commit points. Install parameter MAX KEPT DYN STMTS on panel DSNTIPE, or ZPARM MAXKEEPD in DSN6SPRM.

Max size of EDM Pool The size (in kilobytes) of the environmental descriptor manager (EDM) pool. This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time. Install parameter EDMPOOL STORAGE SIZE on panel DSNTIPC, or ZPARM EDMPOOL in DSN6SPRM.

Max TSO users The maximum number of concurrent TSO foreground connections (QMF, DSN, DB2I, and SPUFI). Each of the following is a separate user:

- Each TSO foreground user executing a DSN command.
- Each TSO foreground user connected to DB2 through the call attachment facility (CAF). This can include QMF users running in TSO foreground or user-written CAF applications running in TSO foreground.

When the number of TSO users attempting to access DB2 exceeds this limit, connection requests are rejected. There is no subsystem parameter to control the maximum concurrent connections for IMS and CICS. These are controlled by using IMS and CICS facilities. For CICS attachment, the maximum number of connections to DB2 can be controlled using the resource control table (RCT) TYPE=INIT THRDMAX value. Install parameter MAX TSO CONNECT on panel DSNTIPE, or ZPARM IDFORE in DSN6SYSP.

Merge error BP shortage The total number of work files that were rejected during all merge passes because of insufficient buffer resources. This field and the degraded low buffers field determine the average number of work files that cannot be honored at each merge pass because of insufficient buffer pool space. Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the size of the buffer pool using the ALTER BUFFERPOOL command. Note that, when there are many concurrent sorts or large sorts, it is a good idea to dedicate a separate buffer pool for sort work files. This will greatly facilitate work-file performance tuning.

Migrated DS timed out The number of recall timeouts.

MVS System An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

No QP BP shortage The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

No QP no MVS enclave serv The total number of parallel groups that executed in sequential mode due to the unavailability of MVS/ESA enclave services.

Nonstealable pages Percentage of non-stealable pages in use.

Number of Active DBATs The current number of active and disconnected (pooled) DBATs.

Number of batch users The number of connections to a single instance from batch or TSO background tasks.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of GBP Connections The total number of Group Buffer Pool (GBP) Connections.

Number of TSO users The number of connections to a single instance from TSO foreground tasks.

Object Analysis DB Count The total number of monitored databases in a specific data sharing group that are participating in object analysis. Valid value is an integer in the range 0 - 4999.

Open DS thresh reached The number of data sets that were closed because the total number of open data sets reached the deferred close threshold value. The deferred close value is based on the value of DSMAX or the MVS DD limit (whichever is smaller).

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Output buffer full The number of waits caused by an unavailable output log buffer. When DB2 wants to write a log record and the log buffer is not available, DB2 and the application must wait for an available log buffer.

Output buffer size The output log buffer size in kilobytes. There is only one output log buffer per DB2 subsystem. Increasing this parameter reduces BSDS I/O updates when there is a buffer wraparound. Frequent wraparounds are likely in LOAD or REORG with logging, and mass insert operations. Increasing this parameter also helps avoid log write waits for an available buffer during heavy update workload. When the specified size is not a 4KB multiple, it is rounded up to the next 4 KB multiple. Install parameter OUTPUT BUFFER on DSNTIPL, or ZPARM OUTBUFF in DSN6LOGP.

Pages castout The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected. The GBP castout threshold, GBP class castout threshold, and the length of the GBP checkpoint interval determine the castout characteristics of the group buffer pool. You can consider this threshold a safety margin to protect the group buffer pool from being accidentally flooded by overactive applications. In most situations, the default value for the group buffer pool castout threshold of 50 percent is a good choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer pool thresholds.

Pages read from BPs The number of Getpage requests including conditional and unconditional requests.

Pages read from DASD The number of synchronous read I/O operations performed by DB2 for applications and utilities. This number includes both Synchronous Reads Sequential Access Only (QBSTSIO) and synchronous read operations for non-sequential access. You can use this value and the value of Synchronous Reads Sequential Access Only to calculate the number of Non-Sequential Synchronous Reads. Check the buffer pool hit ratio if the number of non-sequential synchronous reads is larger than expected.

Resource Timeout The number of seconds before a timeout is detected. This is an integer multiple of DEADLOCK TIME on panel DSNTIPJ. Timeout means that a lock request has waited for a resource (or for claims on a resource for a particular claim class to be released) longer than this time. For data sharing, the actual timeout period is longer than the timeout value. Install parameter RESOURCE TIMEOUT on panel DSNTIPI, or ZPARM IRLMRWT in DSN6SPRM.

Resource unavailable The number of read accesses delayed due to unavailable resources. Generally, this can be due to insufficient tape units allocated. If this is so, reissue the SET ARCHIVE command and use a higher value for the count parameter. Another (although unlikely) cause is insufficient archive log read service task availability.

Resync attempted The number of resynchronization connections attempted with all remote locations (two-phase commit operations only). A large value can indicate network or system problems.

RID Pool size The size of the RID pool in bytes.

RID Pool size too small The number of times the maximum RID pool storage was exceeded. The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is: (Number of concurrent RID processing activities) x (average number of RIDs) x 2 x (5bytes per RID).

RIDPool Fail No Storage Due to insufficient storage for the candidate RID lists, DB2 was unable to use more than one index when accessing a DB2 table.

RIDPool Fail No Storage Rate The number of RIDPOOL fallbacks per second in this interval.

SMF overruns The total number of SMF buffer overruns. Ideally, this field should be 0 or very small.

Sort degraded BP too small The number of times that a merge pass was not efficiently performed due to a shortage of space in the buffer pool. The number in this field is incremented for each merge pass where the maximum number of work files allowed is less than the number of work-files requested. The maximum number of work files allowed is calculated as follows: Buffers consumed=2*(work files already allocated); Buffers available = (sequential steal threshold * buffer pool size - buffers consumed); Maximum work files allowed = buffers available / (2 * 8); Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the buffer pool size using the ALTER BUFFERPOOL command.

Sort error BP shortage The number of times a work file could not be created due to insufficient buffer resources. It indicates that a sort is in progress and limited in regard to the number of work files it can use. Ideally, this should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are many concurrent work files. For example, there could be a number of open cursors that require sorting. Generally, sorts are performed more efficiently with additional work files, but there are internal DB2 limits on the number of work files a transaction can have. It is possible that at run time a transaction cannot use as many work files as it had planned. You can control this by increasing the buffer pool size (ALTER BUFFERPOOL), or changing the transaction so it requires fewer concurrent work files.

SP abends The number of times a stored procedure terminated abnormally.

SP start failed/rejected The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.

SP timed out The number of times an SQL call timed out waiting to be scheduled.

Status Indicates whether a DB2 subsystem or data sharing group for a monitored entity is operational. Valid values are OFFLINE or ONLINE.

Tape volume contention The number of read accesses that were delayed because of a tape volume contention when only one reader per tape is possible.

Threads Wait Limit The number of inactive connections waiting because the system thread limit (MAXDBAT) has been reached: If CONQUED is less than or equal to DSCDBAT and CONQUED is less than or equal to (MDBAT-ADBAT), inactive connections waiting equals to 0, otherwise inactive connections waiting equals to CONQUED - (MDBAT-ADBAT+DSCDBAT); refer to the DB2 DISPLAY DDF DETAIL command for the field names.

Threads Wait Lock The number of threads in a suspend state because they are waiting to obtain a lock.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Timeouts The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.

Transactions per second The number of successful requests for commit phase 1 in a two-phase commit environment such as CICS or IMS. It includes successfully prepared agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits. IMS and CICS applications use the PREPARE and COMMIT sequence to commit work.

Trigger Depth The depth of the largest trigger stack.

UDF abended The number of times a user-defined function abended.

UDF start failed/rejected The number of times a user-defined function was rejected.

UDF timed out The number of times a user-defined function timed out while waiting to be scheduled.

Users Waiting Threads The count of users waiting for threads.

Wait Tape Mount The state will be true if the DB2 system is waiting on a tape mount to recover from an archive log. It is an alphanumeric text string, with a maximum length of one character.

Write failed no storage The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources. It is an alphanumeric text string, with a maximum length of one character.

ZOS CPU Utilization Attributes

Use the ZOS CPU Utilization attributes to determine how much of your processor is used by DB2.

Note: Parameter ZOSMETRICS must be set to YES for enabling DB2 to retrieve data from the RMF interface. If ZOSMETRICS is not set to YES, you might see negative Operating System CPU data. ZPARM ZOSMETRICS in DSN6SPRM.

CPU Utilization DB2 The percentage of the processor used by the DB2 subsystem; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

CPU Utilization DB2 DBM1 The percentage of the processor used by the DB2 DBM1 address space; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

CPU Utilization DB2 MSTR The percentage of the processor used by the DB2 MSTR address space; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

CPU Utilization LPAR The average processor usage per LPAR; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

DB2ID The name of a DB2 subsystem.

DB2 Version The version of the DB2 system.

Free Real Storage LPAR (MB) The free real storage on the logical partition (LPAR), in MB.

Free Virtual Storage LPAR (MB) The free virtual storage on the LPAR, in MB.

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

MVS System ID The MVS system identifier.

Number of CPU on LPAR The number of processors on the LPAR; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Page-in Rate LPAR The Page-in Rate in percents for the LPAR.

Page-in Rate DB2 The Page-in Rate in percents for the DB2 subsystem.

Real Storage non LPAR (MB) The total real storage on the LPAR, in MB.

RMF API Reason Code The reason code from the RMF API call.

RMF API Return Code The return code from the RMF API call.

RMF API Status Flag The status flag for the Resource Measurement Facility (RMF) API call.

Unreferenced Interval Count The unreferenced interval count.

Used Free Real DB2 (MB) The real storage used by the DB2 subsystem, in MB.

Used Virtual Storage DB2 (MB) The virtual storage used by the DB2 subsystem, in MB.

Virtual Storage LPAR (MB) The total virtual storage on the LPAR, in MB.

Tasks List Workspace

The Tasks List workspace provides statistics about the processes at the selected DB2 Connect gateway, such as the CPU and the working set. It enables you to determine if the DB2 Connect gateway is overloaded by DB2 Connect or any other allocation application.

This workspace is comprised of the following views:

DB2 Connect Server - Process Memory Usage (bar chart)
Shows the current working set of a process. The current working set is the number of pages that are currently resident in memory.

DB2 Connect Information (table view)
Shows key information about the selected DB2 Connect gateway.

Tasks List (table view)
Provides details on the processes.

Process CPU % (bar chart)
Shows the percentage of time that a process used the CPU since the last update.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect Server Tasklist Attributes

Use DB2 Connect Server Tasklist attributes to create situations that identify any process using too much CPU time or memory.

CPU Usage Per Process The percentage of time that a process used the CPU since the last update.

DB2 ID The DB2 subsystem ID.

Gateway Process ID The numerical ID that uniquely distinguishes a process while it runs.

Gateway Snapshot Time The date and time at which the database system monitor information was collected.

IP Address The current IP address.

Memory Usage by Process The current working set of a process, in kilobytes. The current working set is the number of pages currently resident in memory.

MVSID The MVS system identifier.

Name The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

Node Name The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

This information can be useful if you are saving your monitor output in a file or database for later analysis and you need to differentiate the data from different database server nodes. This node name is determined based on the NNAME configuration parameter.

Node Number The number assigned to the node in the file with filename db2nodes and file type cfg. (db2nodes.cfg).

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Overall Process Time The sum of the times contained in the System Process Time and User Process Time columns.

Process Name The name of the process.

Process Owner Name The session ID that owns the process.

Server Instance Name The name of the database manager instance for which the snapshot was taken.

If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

Server Product Version ID The product and version that is running on the server in the form pppvvrrm.

In this case pppvvrrm represents:

- *ppp* stands for SQL
- *vv* identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- *rr* identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- *m* identifies a 1-digit modification level

Server Status Shows whether the server is active or inactive.

Server Version The version of the server returning the information.

System Process Time The total system CPU time, in seconds and microseconds, used by the database manager agent process, the unit of work, or the statement.

Time Stamp The start time of this interval.

Time Zone Displacement The umber of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

User Process Time The total user CPU time, in seconds and microseconds, used by the database manager agent process, the unit of work, or the statement.

Threads Workspaces

The DB2 Threads workspaces provide detailed thread activity information about your DB2 threads.

Using the Thread workspaces, you can:

- Identify all active threads within a data sharing group
- Evaluate and analyze thread activity for application threads
- Monitor and track thread activity over a period of time
- View statistics for an application thread
- View claim or locks owned by threads

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Activity Workspace

The Thread Activity workspace provides a global view of thread activity for a specific DB2 subsystem. A consolidated list of DB2 threads displays on the table view in alphabetical order by plan name. Your table view may sort differently if you have changed the sort field or sort order.

Use the Thread Activity table view to:

- Identify all active threads
- Track thread activity for specific threads
- Analyze thread data when a thread evaluates to true
- View thread SQL counts 1, 2, or 3

Monitoring Thread Activity

You can view the Top Ten In-DB2 CPU Time threads from a bar chart as well as from the table view. You can use the thread data to:

- Monitor critical application threads

- Evaluate the thread elapsed and wait times for critical threads

Analyzing Specific Threads

You can analyze a specific application thread from the Thread Activity table view by viewing the thread detail.

1. Right-click a row on the Thread Activity table view.
2. Click **Link to --> Thread Detail**.

The Thread Detail workspace displays detailed information about a specific thread including the thread ID, thread activity, triggers, user-defined functions, and stored procedures.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Detail Attributes (Data Sharing)

Use Thread Detail attributes to create situations that monitor DB2 threads. This information is used locally for data sharing.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Collection ID The collection ID.

This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters

Thread Detail Attributes (Data Sharing) Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Detail Attributes (Data Sharing) The type of connection associated with the thread.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type

Value	Description
UTILITY	DB2 Utility

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

CPU Rate The thread CPU rate.

DB2 ID The name of a DB2 subsystem.

Display CPU Time The total amount of CPU time that DB2 has accumulated for a thread.

Display Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on.

Display Wait Time The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

ID Name An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

IIP CPU The accumulated CPU time consumed while executing on an IBM zIIP in all environments.

In DB2 CP CPU Time The CP CPU time accumulated in DB2 include the current in-DB2 CPU time for the SQL statement in progress.

In DB2 Elapsed Time The elapsed time accumulated in DB2 include the current in-DB2 time for the SQL statement in progress.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package Name Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Thread CPU Time The total amount of CPU time that DB2 has accumulated for a thread. Valid value is an integer in the range 0 - 99999999 seconds.

Thread Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0 - 99999999 seconds.

Thread Group Name The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Thread Group Member Name The name of the member within a data sharing group for a thread.

Thread Status The current status of a thread.

Valid values are:

Status
Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:

- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Stored Procedure Name The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.

Thread Detail Attributes (Data Sharing) The type of thread.

It can be:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Thread Wait Time The total amount of thread wait time. It is an integer in the range 09 - 99999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

The timestamp format for SCAN and STR functions is *CYYMMDDHHMMSSmmm* (as in 1180315064501000 for 03/15/18 06:45:01) where: C = Century (0 for 20th, 1 for 21st), Y = Year, M = Month, D = Day, H = Hour, M = Minute, S = Second, m = Millisecond.

Thread Activity by Package Workspace

The Thread Activity by Package workspace provides an overview of the activity of the ten threads, sorted by package name, that use the most class 2 CPU and elapsed time (in DB2).

This workspace is comprised of the following views:

Top Ten In-DB2 CPU Time Threads (bar chart)
Shows the class 2 CPU time (in DB2) for the ten threads that use the most class 2 CPU time.

Top Ten In-DB2 Time Threads (bar chart)
Shows the class 2 elapsed time (in DB2) for the ten threads that use the most class 2 elapsed time.

Top Ten In-DB2 CP CPU Time Threads (table view)
Provides key data for the ten threads, sorted by package name, that use the most class 2 CPU time (in DB2).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

Thread Activity by Plan Workspace

The Thread Activity by Plan workspace provides an overview of the activity of the top ten threads, sorted by plan name, that use the most class 2 CPU and elapsed time (in DB2).

This workspace is comprised of the following views:

Top Ten In-DB2 CP CPU Time Threads (bar chart)
Shows the class 2 CPU time (in DB2) for the ten threads that use the most class 2 CPU time.

Top Ten In-DB2 Time Threads (bar chart)
Shows the class 2 elapsed time (in DB2) for the ten threads that use the most class 2 elapsed time.

Top Ten In-DB2 CP CPU Time Threads (table view)
Provides key data for the ten threads, sorted by plan name, that use the most class 2 CPU time (in DB2).

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- "IMS Thread Summary Workspace" on page 338
- "Lock Conflicts Workspace" on page 339
- "Thread Activity by Package Workspace" on page 391
- "Thread Activity by Plan Workspace" on page 391
- "Utility Jobs Workspace" on page 414

You can also link to:

- OMEGAMON XE for NetView DVIPA Definition and Status, if installed
- OMEGAMON XE for Mainframe Networks Applications, if installed

Thread Detail Workspace

The Thread Detail workspace provides detailed information about the activity of an individual thread.

This workspace is comprised of the following views:

- Thread ID (table view), which identifies the thread.
- Accounting Time (chart view)
- In-DB2 Times (table view), which shows class 2 CPU time (in DB2).
- Triggers (table view)
- Thread Activity (table view), which provides information about the status of the thread, the CPU, and parallel tasks.
- User-Defined Functions (table view)
- Stored Procedures (table view)
- Savepoints (table view)
- Thread SQL counts 1 (table view), which provides information on the following statements associated with a thread:
  - SQL DCL (Data Control Language) declarations
  - SQL DDL (Data Definition Language) statements
  - SQL DML (Data Manipulation Language) statements
- Thread SQL counts 2 (table view), which provides information on:
  - Stored Procedures
  - User-Defined Functions

  - Triggers
  - Direct Row Access
  - Parallelism
  - RID Pool Access
  - Prepare Statements
- Thread SQL counts 3 (table view), which provides information on:
  - Multi-Row Processing
  - Concentrate Statements

All other tables provide details on the named activities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Enclave Detail Workspace

The Thread Enclave workspace provides detailed information about the attributes of an enclave.

This workspace is comprised of the following views:

- Thread ID (table view)
- General Information (table view)
- Performance Index Input Data for Velocity Goal (table view)
- Service Period Information (table view)
- Classification Work Qualifiers (table view)
- Service Class Information (table view)
- WLM Application Environment (table view)
- zIIP Information (table view)

The Thread ID table identifies the thread. The General Information table shows details about the enclave token and the CPU. All other tables provide details on the named activities.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Enclave Service Period Information Workspace

The Thread Enclave Service Period Information workspace provides detailed information about the service periods for the current service class.

This workspace is comprised of the following views:

Thread ID (table view)
Identifies the thread.

Current Period (table view)
Provides the service class name and current period information.

First Four Periods (table view)
Provides information about the first four entries of period. If the period is not defined, a zero or no data is shown.

Next Four Periods (table view)
Provides information about the next four entries of period. If the period is not defined, a zero or no data is shown.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Locks Owned Workspace

The Thread Locks Owned workspace provides detailed information about all the locks and claims owned by an individual thread.

This workspace is comprised of the following views:

Thread ID (table view)
Identifies the thread.

Locks Ownership Information (table view)
Provides totals of all the types of locks owned by the thread, as well as the percentage of total locks allowed that are currently held (the percent of the DB2 parameter NUMLKUS).

Locks Owned (table view)
Shows all the locks owned by this thread.

Claims Owned (table view)
Shows all the claims owned by this thread.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Locks Owned Attributes

Use Thread Locks Owned attributes to view detailed information about all the locks and claims owned by an individual thread.

AGNT ASID The address space ID (ASID) of the agent.

Authorization ID The authorization ID.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

Claim Class The type of claim class. Possible claim classes are:

CS
Cursor stability

RR
Repeatable read

Write
Write access

Claim Type The type of object that is claimed. Possible claim types are:

TS
Tablespace

TS LPRT
Tablespace logical partition

TS PART
Tablespace partition

IX
Index space

IX LPRT
Index space logical partition

IX PART
Index partition

Collection ID (Unicode) The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Thread Locks Owned Attributes Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Locks Owned Attributes The type of connection associated with the thread.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Correlation ID The DB2 Correlation ID.

DB2 ID The name of a DB2 subsystem.

Elapsed time Shows the elapsed time in milliseconds.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

Job Name The job name that is associated with a thread.

Lock Claim Resource The name of the object which is locked or claimed. The resource name can include the database name, pageset name, partition number, page number, record id (RID), collection ID, package name, or plan name:

- DB=database name can be represented as DBID=identifier.
- PS=pageset name can be represented as PSID=identifier.

- DBID represents the decimal identifier of the database.
- PSID represents the decimal identifier of the table space or index space.

Lock Level The level or mode of the lock request. This information describes the level of resource access demanded by the lock request. Possible lock levels are:

Value	Description
IS	Intent share
IX	Intent exclusive
NSU	Non-shared Update
S	Share
SIX	Share intent exclusive
U	Update
UNS	Unprotected shared
X	Exclusive

Lock Type The lock type of the lock request. Possible lock types are:

Table 76. Lock types

Lock type	Description
ACSC	The Accelerator Services commands (ACSC) lock.
ALBP	The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an **ALTER BUFFERPOOL** command.
BIND	The BIND lock indicates an autobind or remote bind lock.
BMBA	The Buffer manager SCA MBA (BMBA) L-lock. The Buffer Manager (BM) gets this lock when it needs to read, insert, or update a multiple buffer pool (MBA) record in a Shared Communications Area (SCA). (BMC_MBAO or BMC_MBAR)
BPPS	The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock: • BP = buffer pool ID • DB = database name • PS = pageset name
CCAT	The CATMAINT convert catalog (CCAT) lock is acquired when catalog conversion is performed.
CDBL	The Compress dictionary build (CDBL) lock.
CDIR	The CATMAINT convert directory (CDIR) lock is acquired when directory conversion is performed.
CDRN	The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object: • DB = database name • PS = pageset name • PT = partition
CMDS	The DB2 Command Serialization (CMDS) lock.

Table 76. Lock types (continued)	
Lock type	**Description**
CMIG	The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed.
COLL	The Collection (COLL) lock
DBDL	The DBD load (DBDL) lock is the database descriptor load lock.
DBEX	The Database exception (DBEX) lock indicates a lock on a "Logical page list" (LPL) or "Group buffer pool recovery pending" (GRECP) database exception status. This lock is only used in a data sharing environment.
DBXU	The DB exception update lock is used for updating the database exception status.
DGTT	The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock.
DPAG	The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data. • DB = database name • PS = pageset name • PG = page
DSET	The partitioned lock. A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter. Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced. • DB = database name • PS = pageset name • PT = partition number
DTBS	The Database lock indicates a lock on the database. • DB = database name • PS = pageset name • PT = partition number
GRBP	The Group buffer pool (GRBP) start/stop lock. BP=buffer pool ID
HASH	The Hash anchor (HASH) lock. • DB = database name • PS = pageset name • PG = page
HPSP	The Header Page (HP) Bucket or Stored Procedure (SP) Command lock.

Table 76. Lock types (continued)

Lock type	Description
IEOF	The Index end of file (IEOF) lock is acquired at the index end of file. • DB = database name • PS = pageset name • PT = partition
IPAG	The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used. • DB = database name • PS = pageset name • PG = page
IXKY	The Index key (IXKY) lock.
LBLK	The Large object (LOB) lock.
LPLR	The Logical page list recovery (LPLR) lock.
MDEL	The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace. It is used to prevent another user from reusing freed segments before a delete operation is committed. • DB = database name • PS = pageset name
PALK	The Partition lock. • DB = database name • PS = pageset name • PT = partition
PBPC	The Group BP level castout (PBPC) P-lock. A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD. This lock is only used in a data sharing environment.
PCDB	The DDF CDB P-lock. A Distributed Data Facility communication database physical lock. This lock is only used in a data sharing environment.
PDBD	The DBD P-lock is a database descriptor physical lock. This lock is only used in a data sharing environment.

Table 76. Lock types (continued)	
Lock type	**Description**
PDSO	The Pageset or partitioned pageset open lock. If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace. • DB = database name • PS = pageset name
PITR	The Index manager tree (PITR) is a physical lock (P-lock). This lock is only used in a data sharing environment. • DB = database name • PS = pageset name • PT = partition
PPAG	The Page P-lock is a physical lock on a page. This lock is only used in a data sharing environment.
PPSC	The Pageset/partition level castout physical lock (P-lock). This lock is only used in a data sharing environment.
PPSP	The Pageset/partition physical lock (P-lock). This lock is only used in a data sharing environment.
PRLF	The Resource Limit Facility (RLF) physical lock (P-lock). This lock is only used in a data sharing environment.
PSET	The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only. • DB = database name • PS = pageset name
PSPI	The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece.
RDBD	The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/ diagnose).

Table 76. Lock types (continued)	
Lock type	**Description**
RDRN	The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object. • DB = database name • PS = pageset name • PT = partition
RGDA	The Retry Getpage During Abort (RGDA) lock.
ROW	The Row lock indicates a lock on a row.
RSTR	The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP)
SDBA	The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects. • DB = database name • PS = pageset name
SENV	The System environment (SYSENV) serialization lock.
SKCT	The Skeleton cursor table (SKCT) lock indicates a lock on the application plan. PLAN=plan name
SKPT	The Skeleton package table (SKPT) lock indicates a lock on the application package. TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE.
SPRC	The System level point in time (PIT) recovery lock. SYS_PITR
SREC	The Log range lock. DB2 writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed. The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB2 writes to SYSLGRNG, the program acquires a lock on the tablespace with updates. • DB = database name • TS = tablespace name
TABL	The Table (TABL) lock on the table which resides in a segmented tablespace. • DBID = DBid • TABL = Tableid
UIDA	The Util I/O Damage Assessment lock.

Table 76. Lock types (continued)	
Lock type	**Description**
UNDT	The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types. Resource ID (in hexadecimal).
UNKN	The Unknown (UNKN) lock indicates the resource does not exist.
UTEX	The Utility exclusive execution (UTEX) lock. UTEXEC
UTID	The Utility identifier (UTID) lock. UID=utility id
UTOB	The Utility object (UTOB) lock. • DB = database name • PS = pageset name • PT = partition
UTSE	The Utility serialization (UTSE) lock is required when running utility jobs. UTSERIAL
WDRN	The Write drain (WDRN) lock is acquired to drain all write access to an object. • DB = database name • PS = pageset name • PT = partition
XMLK	The XML lock.

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

```
luw-id=token
```

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the **Luwid** field displays data such as the following:

```
USCACO01.O2D22A.A1FE8E04B9D4=8
```

MVSID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package DBRM name.

Plan The plan name.

Resource Type The type of resource can be Lock or Claim.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Total Locks The number of locks of the same lock type owned by the thread.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Thread Locks Owned Summary Attributes

Use Thread Locks Owned Summary attributes to view a summary of all locks and claims owned by a thread.

AGNT ASID The address space ID (ASID) of the agent.

Authorization ID The authorization ID.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

Bind ACQUIRE Option The ACQUIRE option specified at BIND time: ALLOCATE or USE. This allows you to control when the allocation of tablespace locks is to occur. If ACQUIRE(USE) is specified, tablespace locks will be acquired when the resource is used by the application. If ACQUIRE(ALLOCATE) is specified, all tablespace locks will be obtained at plan allocation time. Dynamic SQL users (QMF, SPUFI) always execute with the ACQUIRE(USE) option.

Bind RELEASE Option The RELEASE option specified at BIND time: COMMIT or DEALLOCATE. The RELEASE option controls when tablespace and SKCT locks are freed. RELEASE(COMMIT) causes these locks to be released at each commit point. RELEASE(DEALLOCATE) causes these locks to be freed at application termination. Page locks are always released at commit time, regardless of the release option.

Catalog Locks The total number of all catalog locks owned. This number includes any locks owned on a page or tablespace in database DSNDB06. This is the total of the catalog pageset and page locks.

Catalog Page Row Locks The total number of page and row locks on the catalog (DSNDB06) database. This includes data page (DPAG), index page (IPAG), and row (ROW) locks.

Catalog Pageset Locks The total number of pageset locks in which the object of the lock is a pageset owned by the catalog (DSNDB06) database (PSET).

Collection ID (Unicode) The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Thread Locks Owned Summary Attributes Connection ID.Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Locks Owned Summary Attributes The type of connection associated with the thread.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread

Value	Description
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Correlation ID The DB2 Correlation ID.

DB2 ID The name of a DB2 subsystem.

Directory and Other Locks The total number of directory and other locks owned by the thread. Directory locks are issued against resources contained in the DSNDB01 directory database.

Elapsed time Shows the elapsed time in milliseconds.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

ISOLATION Option The ISOLATION option specifies when the plan is bound. The isolation parameter allows you to control the data consistency in the pages that the plan accesses. It has an effect on the number of page or row locks held concurrently by an application.

The available options are:

Cursor Stability (CS or CURSOR)
Causes a page lock acquired for read processing to be released when the application subsequently accesses data contained on another data page. (Page locks acquired as a result of update activity are always retained until commit.)

Read Stability (RS or READ)
Is similar to Repeatable Read but this isolation option allows to insert new rows or update rows that did not satisfy the original search condition of the application.

Repeatable Read (RR or REPEAT)
Causes all application locks obtained for read processing to be retained until application commit time.

RR with X-lock (REPEATX)
Means Repeatable Read with X-lock.

RS with X-lock (READX)
Means Read Stability with X-lock.

Uncommitted Read (UR or UNCOMMIT)
Causes data to be read without acquiring locks. This can result in accessing data that has been updated but not yet committed. It applies only to read-only operations: SELECT, SELECT INTO, or FETCH from a read-only result table. Use this isolation level only when:

- Data consistency is not necessary or inconsistencies already exist
- Errors cannot occur with its use, such as with a reference table that is rarely updated

Job Name The job name that is associated with a thread.

Locks Owned The total number of all locks owned by the thread. This includes all lock types.

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

```
luw-id=token
```

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the **Luwid** field displays data such as the following:

```
USCACO01.O2D22A.A1FE8E04B9D4=8
```

MVSID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package DBRM name.

Page Row Lock Total number of page and row locks owned by the thread. It includes data page locks (DPAG), index page locks (IPAG), and row locks (ROW). It excludes any locks in which the lock object is owned by the catalog database or the directory database.

Pageset and Dataset Locks The total number of pageset locks held. This excludes pageset locks in which the lock object is a pageset owned by the catalog database or the directory database. Lock types included are PSET and DSET.

Percent NUMLKUS The current percentage of NUMLKUS reached by the thread. NUMLKUS is an installation parameter in DSNZPARM that specifies the maximum number of page, row, LOB, or XML locks that can be held by a single process at any one time. It includes locks for both, the DB2 catalog and directory and for user data.

Plan The plan name.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Thread SQL Counts 1 Workspace

The Thread SQL Counts 1 workspace provides information about SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements.

This workspace is comprised of the following views:

Thread ID (table view)
Lists the thread IDs.

DML (table view)
Provides information on SQL DML (Data Manipulation Language) statements.

DCL (table view)
Provides information on DCL (Data Control Language) declarations.

DDL Create (table view)
Provides information on SQL DDL (Data Definition Language) statements for Create.

DDL Drop (table view)
Provides information on SQL DDL (Data Definition Language) statements for Drop.

DDL Alter / Rename (table view)
Provides information on SQL DDL (Data Definition Language) statements for Alter / Rename.

Note: For DML, DCL, and DDL, each table view provides total counts since the last sample period.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread SQL Counts Attributes

Use the Thread SQL Counts attributes to create situations to monitor the SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements, associated with a thread. These attributes also list information for stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements. They also show information for currently committed rows, multi-row processing, workfile storage, and concentrate statements.

Abort The number of times the thread has rolled back uncommitted data (Field name QWACCOMM).

AGNT ASID The address space ID (ASID) of the agent.

Allocate Cursor The number of SQL ALLOCATE CURSOR statements executed (Field name: QXALOCC).

Alter Database The number of ALTER DATABASE statements executed (Field name: QXALDAB).

Alter Function The number of ALTER FUNCTION statements executed (Field name: QXALUDF).

Alter Index The number of ALTER INDEX statements executed (Field name: QXALTIX).

Alter Procedure The number of ALTER PROCEDURE statements executed (Field name: QXALPRO).

Alter Stogroup The number of ALTER STOGROUP statements executed (Field name: QXALTST).

Alter Table The number of ALTER TABLE statements executed (Field name: QXALTTA).

Alter Tablespace The number of ALTER TABLESPACE statements executed (Field name: QXALTTS).

Alter Trusted Context The number of alter trusted context statements executed (Field name QXALTCTX) - not supported prior to DB2 9.

Associate Locator The number of SQL ASSOCIATE LOCATORS statements executed (Field name: QXALOCL).

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

Close Cursor The number of CLOSE statements executed. This number at the server location might not match the user application because of DDF's internal processing (DB2 field name: QXCLOSE).

Collection ID (Unicode) The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Comment On The number of COMMENT ON statements executed (Field name: QXCMTON).

Commit The number of times the thread successfully concluded commit phase 2 processing (Field name QWACABRT).

Connect (Type 1) The number of CONNECT type 1 statements executed (Field name: QXCON1).

Connect (Type 2) The number of CONNECT type 2 statements executed (Field name: QXCON2).

Thread SQL Counts Attributes Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread SQL Counts Attributes The type of connection associated with the thread.

Valid values are:

Value	Description
BATCH	Batch job
CICS	CICS attach
DLIBATCH	DL/I batch
Distributed	Distributed Database Access thread
IMS_BMP	IMS attach BMP
IMS_CTL	IMS control region
IMS_MPP	IMS attach MPP
IMS_TBMP	IMS transaction BMP
DistAllied	Distributed Allied thread
RRSAF	DB2 Resource Recovery Services attachment facility
SYSTEM	System directed access
TSO	TSO foreground and background
UNKNOWN	Unrecognizable connection type
UTILITY	DB2 Utility

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

Create Alias The number of CREATE ALIAS statements executed (Field name: QXCRALS).

Create Database The number of CREATE DATABASE statements executed (Field name: QXCRDAB).

Create Distinct Type The number of CREATE DISTINCT TYPE statements executed (Field name: QXCDIST).

Create Function The number of CREATE FUNCTION statements executed (field name: QXCRUDF).

Create Global Temp Table The number of CREATE GLOBAL TEMPORARY TABLE statements executed (field name: QXCRGTT).

Create Index The number of CREATE INDEX statements executed (Field name: QXCRINX).

Create Procedure The number of CREATE PROCEDURE statements executed (Field name: QXCRPRO).

Create Role The number of CREATE ROLE statements executed (Field name QXCRROL) - not supported prior to DB2 9.

Create Stogroup The number of CREATE STOGROUP statements executed (field name: QXCRSTG).

Create Synonym The number of CREATE SYNONYM statements executed (Field name: QXCRSYN).

Create Table The number of CREATE TABLE statements executed (Field name: QXCRTAB).

Create Tablespace The number of CREATE TABLESPACE statements executed (Field name: QXCTABS).

Create Trigger The number of CREATE TRIGGER statements executed (Field name: QXCTRIG).

Create Trusted Context The number of create trusted context statements executed (Field name QXCRCTX) - not supported prior to DB2 9.

Create View The number of CREATE VIEW statements executed (Field name: QXDEFVU).

DB2 ID The DB2 subsystem ID.

Delete The number of DELETE statements executed (DB2 field name: QXDELET).

Describe The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXDESC).

Describe Table The number of DESCRIBE TABLE statements executed (Field name: QXDSCRTB).

Description The description of the monitored activity.

Direct Row Revert to Index The number of times that direct row access failed and an index was used to find a record (Field name: QXROIIDX).

Direct Row Revert to TS Scan The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was not able to use a matching index scan (Field name: QXROITS).

Direct Row Successful The number of times that direct row access was successful (Field name: QXROIMAT).

Drop Alias The number of SQL DROP ALIAS statements executed (Field name: QXDRPAL).

Drop Database The number of DROP DATABASE statements executed (field name: QXDRPDB).

Drop Distinct Type The number of DROP DISTINCT TYPE statements executed (Field name: QXDDIST).

Drop Function The number of DROP FUNCTION statements executed (Field name: QXDRPFN).

Drop Index The number of DROP INDEX statements executed (Field name: QXDRPIX).

Drop Package The number of SQL DROP PACKAGE statements executed (Field name: QXDRPPKG).

Drop Procedure The number of DROP PROCEDURE statements executed (Field name: QXDRPPR).

Drop Role The number of DROP ROLE statements executed (Field name QXDRPROL) - not supported prior to DB2 9.

Drop Stogroup The number of DROP STOGROUP statements executed (Field name: QXDRPST).

Drop Synonym The number of DROP SYNONYM statements executed (Field name: QXDRPSY).

Drop Table The number of DROP TABLE statements executed (Field name: QXDRPTA).

Drop Tablespace The number of DROP TABLESPACE statements executed (Field name: QXDRPTS).

Drop Trigger The number of DROP TRIGGER statements executed (Field name: QXDRPTR).

Drop Trusted Context The number of drop trusted context statements executed (Field name QXDRPCTX) - not supported prior to DB2 9.

Drop View The number of DROP VIEW statements executed (Field name: QXDRPVU).

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (Field name: QWHCEUID).

Fetch The number of FETCH statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXFETCH).

Grant The number of GRANT statements executed (Field name: QXGRANT).

Incremental Bind The number of incremental binds (excluding prepare) (Field name: QXINCRB).

Insert The number of INSERT statements executed (Field name: QXINSRT).

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Job Name The job name that is associated with a thread.

Label On The number of LABEL ON statements executed (Field name: QXLABON).

Literals Dups Created The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS

behavior (Field name: QXSTCWLD). The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

Literals Matches Found The number of times DB2 found a matching reusable copy of a dynamic statement in cache because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLM).

Literals Parsed The number of times DB2 parsed dynamic statements because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLP).

Literals Replaced The number of times DB2 replaced at least one literal in a dynamic statement because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLR).

Lock Table The number of LOCK TABLE statements executed (Field name: QXLOCK).

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

```
luw-id=token
```

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the **Luwid** field displays data such as the following:

```
USCACO01.O2D22A.A1FE8E04B9D4=8
```

Max Nested SQL Trigger The maximum level of indirect SQL cascading (Field name: QXCASCDP). This includes cascading because of triggers, UDFs, or stored procedures.

Max Parallel Degree The maximum degree of parallel query processing executed among all parallel groups to indicate the extent to which queries were processed in parallel (Field name: QXMAXDEG).

Merge The number of MERGE statements executed (DB2 field name QXMERGE) - not supported prior to DB2 9.

MVS ID The MVS system identifier.

Open Cursor The number of OPEN statements executed (Field name: QXOPEN).

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package name of the database request module (DBRM) with which a thread is associated. It is an alphanumeric text string with a maximum of 128 characters.

Parallel Bypass DB2 (Buffers) The number of times the parallelism coordinator had to bypass a DB2 when distributing tasks because one or more DB2 members did not have enough buffer pool storage (Field name: QXXCSKIP). The number in this field is only incremented at the parallelism coordinator once per parallel group, even though more than one DB2 might have lacked buffer pool storage for that parallel group. It is also only incremented when the buffer pool is defined to allow for parallelism. For example, if VPXPSEQT=0 on an assistant, DB2 does not send parallel work there and the number in this field is not incremented.

Parallel Degree Executed The total number of parallel groups that executed in the planned parallel degree (Field name: QXNORGRP). This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).

Parallel Degree Reduced (no buffer) 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 (Field name: QXREDGRP).

Parallel Failed (Cursor) The total number of parallel groups that fell back to sequential mode because of a cursor that can be used by UPDATE or DELETE (Field name: QXDEGCUR).

Parallel Failed (No Buffer) The total number of parallel groups that fell back to sequential mode because of a storage shortage or contention on the buffer pool (Field name: QXDEGBUF).

Parallel Failed (No ESA Sort) The total number of parallel groups that fell back to sequential mode because of a lack of ESA sort support (Field name: QXDEGESA).

Parallel Failed (No Enclaves) The total number of parallel groups that executed in sequential mode because of the unavailability of MVS/ESA enclave services (Field name: QXDEGENC).

Parallel Grp Executed The total number of parallel groups that were executed (Field name: QXTOTGRP).

Parallel Maximum LOB Storage The maximum storage used for LOB values (DB2 field name: QXSTLOBV).

Parallel Single DB2 (Coord=NO) The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO (Field name: QXCOORNO). 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.

Parallel Single DB2 (Cursor) The total number of parallel groups executed on a single DB2 subsystem because of a repeatable-read or read-stability isolation (Field name: QXISORR).

Parallel Sysplex Intent The total number of parallel groups that DB2 intended to run across the data sharing group (Field name: QXXCBPNX). This number is only incremented at the parallelism coordinator at run time.

Parallelism Disabled YES indicates that query parallelism is disabled by the Resource Limit Facility for at least one dynamic SQL SELECT statement.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Prepare The number of PREPARE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXPREP).

Prepare Avoided KEEPDYN(YES) The number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache (Field name: QXSTNPRP). When an application plan or package is bound with KEEPDYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary. An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

Prepare Copied from Cache The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache (Field name: QXSTFND).

Prepare Discarded - MAXKEEPD 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 (Field name: QXSTDEXP).

Prepare Implicit KEEPDYN(YES) An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES (Field name: QXSTIPRP). If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

Prepare No Match The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement (Field name: QXSTNFND).

Prepare Purged - DROP/ALT/REV 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 (Field name: QXSTDINV).

Release The number of RELEASE statements executed (DB2 field name: QXREL).

Rename Index The number of RENAME INDEX statements executed (Field name QXRNIX) - not supported prior to DB2 9.

Rename Table The number of RENAME TABLE statements executed (Field name: QXRNTAB).

Revoke The number of REVOKE statements executed (Field name: QXREVOK).

RID HWM The highest number of RID blocks in use at any time since DB2 startup (Field name: QISTRHIG). This is a high-water mark.

RID In Use The number of RID blocks currently in use (snapshot value) (Field name: QISTRCUR).

RID Exceeded Pool The number of times the maximum RID pool storage was exceeded (Field name: QISTRMAX). The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is: Number of concurrent RID processing activities x average number of RIDs x 2 x 5 bytes per RID.

RID Exhausted Virtual The number of times RID pool processing was not used because DBM1 storage was exhausted (Field name: QISTRSTG).

RID Not Used (no storage) The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID pool process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXNSMIAP).

RID Not Used (Max Limit) 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) (DB2 field name: QXMRMIAP). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

RID Pool Used The number of times the RID (RECORD ID) pool has been processed (Field name: QXMIAP). During RID (RECORD ID) pool (also called RID list) processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

RID Terminated (> DM) The number of times a RID pool processing operation terminated because the number of RID entries was greater than the DM limit (Field name: QISTRPLM).

RID Terminated (> RDS) The number of times RID pool processing terminated because the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size). Beginning Db2 Version 12, the number of times processing was terminated is incremented by the DM as well as RDS. (Field name: QISTRLLM).

Row Triggers Executed The number of times a row trigger was activated (Field name: QXROWTRG).

Rows Deleted The number of rows that have been deleted because of SQL DELETE statements (Field name: QXRWSDELETD).

Rows Fetched The number of rows that have been fetched because of SQL FETCH statements (Field name: QXRWSFETCHD).

Rows Inserted The number of rows that have been inserted because of SQL INSERT statements (Field name: QXRWSINSRTD).

Rows Updated The number of rows that have been updated because of SQL UPDATE statements (Field name: QXRWSUPDTD).

Select The number of SQL SELECT statements executed (Field name: QXSELECT).

Set Connection The number of SET CONNECTION statements executed (Field name: QXSETCON).

Set Current Degree The number of SET CURRENT DEGREE statements executed (Field name: QXSETCDG).

Set Current Path The number of SET CURRENT PATH statements executed (Field name: QXSETPTH).

Set Current Rules The number of SET CURRENT RULES statements executed (Field name: QXSETCRL).

Set Current SQLID The number of SET CURRENT SQLID statements executed (Field name: QXSETSQL).

Set Host Variable The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked (Field name: QXSETHV).

SP Abended The number of times a stored procedure terminated abnormally (Field name: QXCALLAB).

SP Call Statements The number of times the SQL CALL statements executed to invoke a stored procedure (SP).

SP Rejected The number of times an SQL CALL statement was rejected because of the procedure that is in the STOP ACTION(REJECT) state (Field name: QXCALLRJ).

SP Timed-Out The number of times an SQL CALL statement timed out when waiting to be scheduled (Field name: QXCALLTO).

SQL Error in Trigger The number of times an SQL error occurred during the execution of a triggered action (Field name: QXTRGERR). This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

Stmt Triggers Executed The number of times a statement trigger was activated (Field name: QXSTTRG).

Total The total count executed by the thread.

UDFs Abended The number of times a user-defined function (UDF) abended (Field name: QXCAUDAB).

UDFs Executed The number of user-defined functions (UDFs) executed (Field name: QXCAUD).

UDFs Rejected The number of times a user-defined function (UDF) was rejected (Field name: QXCAUDRJ).

UDFs Timed Out The number of times a user-defined function (UDF) timed out while waiting to be scheduled (Field name: QXCAUDTO).

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (Field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Update The number of UPDATE statements executed (Field name: QXUPDTE).

Thread SQL Counts 2 Workspace

The Thread SQL Counts 2 workspace provides information about stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements.

This workspace is comprised of the following views:

- Thread ID (table view)
- Stored Procedures
- User-Defined Functions
- Triggers
- Parallelism
- RID Pool Access
- Prepare Statements
- Direct Row Access

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread SQL Counts 3 Workspace

The Thread SQL Counts 3 workspace provides information about multi-row processing and concentrate statements.

This workspace is comprised of the following views:

Thread ID (table view)
Lists the thread IDs.

Multi-Row Processing
Enables you to track performance improvements such as multi-row fetch and multi-row insert.

Concentrate Statements
Indicates if literal constants, which are referenced in dynamic SQL statements, are replaced with special markers so that these constants are not cached with the statement in the dynamic SQL statement cache.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Statistics Workspace

The Thread Statistics workspace displays thread statistics for a specific application thread. If the application thread is a parallel thread, the table view displays thread statistics for all the associated parallel threads.

Viewing Additional Thread Information

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session to investigate a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Statistics Attributes

Use Thread Statistics attributes to create situations that determine the usage of parallel threads.

Asynchronous Page Reads The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

Dynamic Prefetch The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

Get Page Requests The number of thread getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. Valid value is an integer in the range 0 - 2147483647.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Immediate Write I/O The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

List Prefetch The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of SETW The number of set write requests to write a page out to DASD. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Sequential Prefetch The number of sequential prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Synchronous Read I/O The number of synchronous read I/O requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Type Indicator Indicates the type of parallel thread.

Valid values are:

Value	Description
blank	Not a parallel thread
Parent	Parallel thread is a parent
Child	Parallel thread is a child
Autonomous SP	Originating thread who invoked autonomous stored procedures

Unsuccessful Get Page Operation The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

Thread Wait Events Workspace

The Thread Wait Events workspace provides wait time and counts on events that the thread waited on.

This workspace is comprised of the following views:

- Thread ID (table view)
- Archive Log Wait Events (table view)
- Other Wait Events (table view)
- Local Lock/Latch Wait Events (table view)
- Global Lock Wait Events (table view)
- I/O & Switch Wait Events (table view)
- Log & Sync Ex Unit Wait Events (table view)

The Thread ID table identifies the thread. All other tables provide time information and counts with regard to the named events.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Utility Jobs Workspace

The Utility Jobs workspace provides an overview of all active utilities. Workspace monitoring includes utilities that because of abnormal termination, have not yet completed their run.

This workspace is comprised of the following view:

Notepad (notepad view)
Is a simple text editor for writing notes about the workspace.

Utility Jobs (table view)
Lists the phase, record counts, and status of DB2 utility jobs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 179
- “CICS Thread Summary Workspace” on page 200
- “Detailed Thread Exception Workspace” on page 244
- “Distributed Allied Thread Summary Workspace” on page 252
- “DBAT End-to-End SQL Monitoring Workspace” on page 238
- “Enclave Thread Summary Workspace” on page 299
- “IMS Thread Summary Workspace” on page 338
- “Lock Conflicts Workspace” on page 339
- “Thread Activity by Package Workspace” on page 391
- “Thread Activity by Plan Workspace” on page 391
- “Utility Jobs Workspace” on page 414

DB2 SRM UTL Attributes

Use the DB2 SRM UTL attributes to create situations to monitor all active utilities. Monitoring also includes utilities that due to abnormal termination, have not yet completed their run.

ID The utility qualifier. It is an alphanumeric text string, with a maximum length of eight characters.

Job Name The utility job name. It is an alphanumeric text string, with a maximum length of eight characters.

Name The utility name. It is an alphanumeric text string, with a maximum length of eight characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Phase The utility phase. It is an alphanumeric text string, with a maximum length of eight characters.

Record Count The number of records/pages processed.

Run Date The date the job was run (if available).

Stat A for Active, S for stopped.

Status The utility status. It is an alphanumeric text string, with a maximum length of 12 characters.

Statement The statement number.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

User The user ID. It is an alphanumeric text string, with a maximum length of eight characters.

Utilid The utility qualifier. It is an alphanumeric text string, with a maximum length of 16 characters.

Volume Activity Workspace

The Volume Activity workspace provides an overview of the performance of volumes that contain DB2 objects in order to evaluate DASD performance by volume.

This workspace is comprised of the following views:

Service Time (bar chart)
Shows the average service time for the volume since the beginning of the collection interval.

Volume Activity (table view)
Includes data that allows you to monitor I/O activity for individual volumes.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Volume Activity Attributes

Use the DB2 Volume Activity attributes to create situations to monitor the status and performance of DB2 volume activity.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum length of eight characters.

DB2 IO Percent The percentage of DB2 I/O activity to the volume. Valid entry ranges from 0.0 to 100.0.

DB2 ID The name of the DB2 subsystem. It is an alphanumeric text string, with a maximum length of four characters.

Extents per Data Set Ratio The ratio of total extents allocated to the total data set count.

Filler A placeholder to keep fullword alignment.

IDNAME An internal attribute used for navigation, it contains either the data sharing group name or the DB2ID. It is an alphanumeric text string, with a maximum length of eight characters.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string, with a maximum length of four characters.

Number of Data Sets The total number of allocated data sets for the DB2 subsystem being monitored.

Number of DB2 systems The total number of monitored DB2 systems that are sharing this volume.

Number of Extents The number of extents the operating system has allocated for a data set.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Volume DB2 IO The total number of I/Os for this volume originating from the DB2 system being monitored.

Volume DB2 IO Rate The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored.

Volume DB2 IO Rate MAX The maximum I/O rate per second during the collection period.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum length of six characters.

Volume Service Time The average service time for the volume since the beginning of the collection interval.

Volume Service Time MAX The maximum service time for the volume since the beginning of the collection interval.

Volume Total IO The total number of I/Os for this volume.

Volume Total IO Rate The total number of I/Os per second for the volume.

Volume Use Percent The percentage of DB2 I/O activity to the volume that is attributable to the database, computed by dividing the total I/O rate for the database by the total DB2 I/O rate to the volume. Valid entry ranges from 0.0 to 100.0.

Volume Utilization The percentage of volume utilization, which represents the percent of time the volume is in use. Valid entry ranges from 0.0 to 100.0.

Data Sharing Status Attributes

Use the Data Sharing Status attributes to create situations that monitor the status of a specific DB2 system or data sharing group.

DB2 ID The name of a DB2 subsystem.

Group Object Analysis Status The status of the Event Manager for Object Analysis.

Valid values are:

Status	Description
MIX	Some Event Managers are active
NO	Event Manager is not active
YES	Event Manager is active

Group or Subsystem Name An internal attribute used for navigation. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

Group or Subsystem Type Indicates whether a group or subsystem is a DB2 or a data sharing group.

Valid values are:

Value	Description
DB2	DB2 subsystem
DSGRP	Data sharing group

Lock Conflict Count The total number of owners and waiters that are in lock conflict. Valid value is an integer in the range 0 - 99999999.

MVS Subsystem The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of GBP Connections The total number of Group Buffer Pool (GBP) Connections.

Number of Threads The total number of currently monitored threads. Valid value is an integer in the range 0 - 99999999.

Object Analysis DB Count The total number of monitored databases in a specific data sharing group that are participating in object analysis. Valid value is an integer in the range 0 - 4999.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Status Indicates whether a DB2 subsystem or data sharing group for a monitored entity is operational. Valid values are OFFLINE or ONLINE.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Local Group Object Analysis Thread Volume Attributes

Use the Local Group Object Analysis (GOA) Thread Volume attributes to create situations that monitor the thread activity for volumes.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

DB2 Read I/O The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

DB2 Read I/O Rate The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

DB2 Write I/O The number of I/O writes. Valid value is an integer in the range 0 - 2147483647; for example, 20.

DB2 Write I/O Rate The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Percent Volume Use The percentage of DB2 I/O activity to the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 5.0.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Total DB2 I/O The total I/O count. Valid value is an integer in the range 0 - 2147483647; for example, 22.

Total DB2 I/O Rate The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

Local Group Object Analysis Volume Group Attributes

Use the Local Group Object Analysis (GOA) Volume Group attributes to create situations that monitor DASD performance by volume.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

MVS System The MVS System Management Facility (SMF) ID. Valid format is alphanumeric with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Originating System ID The managed system name of the agent. Valid format is alphanumeric, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Volume DB2 I/O The total number of I/Os for the volume originating from the DB2 subsystem being monitored. Valid value is an integer in the range 0 - 2147483647.

Volume DB2 I/O Rate The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

Volume Service Time The average service time for the volume since the beginning of the collection interval. This value is the sum of the average I/Os pending time, the average I/Os connect time, and the average I/Os disconnected time for the volume. It does not include I/Os queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

Volume Total I/O The total number of I/Os for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is an integer in the range 0 - 2147483647; for example, 19.

Volume Total I/O Rate The total number of I/Os per second for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

Volume Use Percent The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I//O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

Volume Utilization The percentage of volume utilization. The value represents a percentage of time the volume is in use. Valid value is an integer in the range 0 - 100; for example, 22.

Local Group Object Analysis Volume Database Attributes

Use the Local Group Object Analysis (GOA) Volume Database attributes to create situations that monitor I/O activity for a single volume in a DB2 database.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Database The name of a DB2 database. Valid format is alphanumeric with a maximum of 8 characters; for example, DSNDB06.

DB2 ID The name of a DB2 subsystem. It is an alphanumeric text string with a maximum of 4 characters.

DB2 Read I/O The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

DB2 Read I/O Rate The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

DB2 Write I/O The number of write I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 20.

DB2 Write I/O Rate The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. VIt is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Space Name The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Total DB2 I/O The total I/O count. Valid value is an integer in the range 0 - 2147483647.

Total DB2 I/O Rate The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

Volume Use Percent The percentage of DB2 I/O activity to the volume. The value is calculated by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

Local Object Activity Attributes

Use the Local Object Activity attributes to create situations that you can use to monitor the I/O and getpage activity by database.

ASYNC Write Rate The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with 1 decimal place allowed, in the range 0.0 - 9999.9; for example, 2.1.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Database The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

DB2 ID The name of a DB2 subsystem.

Getpage Rate The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.3.

Getpage RIO Ratio The ratio of getpage requests to read I/Os for the database.

The ratio is calculated by dividing the number of getpage requests by the sum of the following values:

- Number of synchronous reads
- Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.8.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of ASYNC Writes The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

Number of Getpages The number of getpage requests for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Number of Other Writes The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

Number of Prefetch Reads The number of prefetch read I/Os for the database. Valid value is an integer in the range 0 - 2147483647.

Number of SYNC Reads The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Other Write Rate The number of immediate and format writes per second. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.6.

Percent of Getpage Activity The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.6.

Percent of I/O The percentage of total I/O activity that is applicable to the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

Prefetch Read Rate The number of prefetch read I/Os per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

Space Name The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

SYNC Read Rate The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Local Object Space Name Attributes

Use the Local Object Space Name attributes to crate situations that monitor object, volume, and extent activity for a specific DB2 object space.

Buffer Pool ID The ID for a buffer pool. Valid values are:

- 32K = 80
- 32K1 = 81
- 32K2 = 82
- 32K3 = 83
- 32K4 = 84
- 32K5 = 85
- 32K6 = 86
- 32K7 = 87
- 32K8 = 88
- 32K9 = 89

Database Name The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum length of eight characters.

DB2 ID The name of a DB2 subsystem.

Extents per Data Set Ratio The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Max Number of Extents per DSN The largest number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 219.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Number of Volumes The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

Object Space Name The name of a DB2 object space. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

Object Type The type of object space name.

Valid values are:

Value	Description
INDX	Index
PTIX	Partitioned index
PTTS	Partitioned table space
SEGM	Segmented table space
TBLS	Simple table space
UNDT	Undetermined

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Accessing an OMEGAMON Host Session

When researching the cause of an alert, you may want to review conditions raised by an OMEGAMON product.

To access an OMEGAMON host session, use the *terminal emulator adapter* feature of Tivoli Enterprise Portal.

The terminal emulator adapter turns a view into a 3270 or 5270 interface so you can connect to any TN3270 or TN5250 host system (such as MVS or OS/400) using TCP/IP. The terminal emulator adaptor provides for simple terminal emulation. It also provides a scripting language interface that:

- Allows you to record (capture) a host session. As you interact with a host session, the session is recorded as a set of script commands that can be saved under a name you specify and played back at a later time. This allows you to automate navigation to a specific set of panels.
- Allows you to author complex scripts containing custom functions for manipulating host sessions.

The Summarization and Pruning Feature

Use the Summarization and Pruning feature to customize the time required for saving data (*pruning*) and how often to compress data (*summarization*) in the Tivoli Data Warehouse.

OMEGAMON XE for DB2 PE supports configurable data summarization and data pruning. With summarized data, the performance of queries can be improved considerably. In addition, with data summarization and data pruning working together, the amount of disk space utilized can be better managed.

The Summarization and Pruning feature uses information that is stored in the data warehouse to generate, store, and prune data. The data in the data warehouse is a historical record of activity and conditions in your enterprise. Summarizing the data is the process of aggregating your historical data into time-based categories such as hourly, daily, weekly, and so on. You can summarize your data to perform historical analysis of the data over time.

Pruning data means that old data is deleted automatically, rather than manually. You can set pruning criteria to remove old data from the data warehouse to limit the size of your database tables.

Configuring Summarization and Pruning

Summarization and Pruning allows you to customize the length of time for which to save data and how often to compress data. You can see and maintain the historical collections that have been configured for a monitored application and configure new collections.

Before you begin

Before you begin, ensure that you have started the following items:

- Tivoli Enterprise Monitoring Server
- Tivoli Enterprise Portal Server
- Tivoli Enterprise Portal
- Tivoli Enterprise Monitoring Agent

About this task

Configure the supported workspaces for summarization and pruning.

Procedure

1. From the Edit menu of the Tivoli Enterprise Portal, select **History Configuration**.
   The **History Collection Configuration** window opens.
2. In the **Monitored Applications** pane, select **OMEGAMON XE for DB2 PE and PM on z/OS**.
   The **Select Attribute Groups** pane opens.
3. From the **Select Attribute Groups** column, select the name of the attribute group that you want to configure.
4. In the **Configuration and Controls** section, set the Summarization and Pruning options.
   a) In the **Summarization** section, set the time period for data aggregation.
   b) In the **Pruning** section, set the time period to prune data.
5. Click **OK** to save your changes and close the window.

Summarization and Pruning Workspaces

Certain workspaces in OMEGAMON XE for DB2 PE allow data to be aggregated and pruned. This feature is called summarization and pruning.

The following workspaces support summarization and pruning:

Workspace	View	Attribute Group Name
"Buffer Pool Details Workspace" on page 195	Status, Thresholds, Ratio	DB2_SRM_BPD
"Buffer Pool Management Workspace" on page 198	Buffer Pool Management	DB2_SRM_BPM
"CICS Connections Workspace" on page 199	CICS Connection Summary	DB2_CICS_Exceptions
"CICS Threads Workspace" on page 200	CICS Threads	DB2_CICS_Threads
"DB2 Connect Server Workspace" on page 226	DB2 Connect Server	DB2_CONNECT_SERVER
"DDF Conversations Workspace" on page 241	DDF Conversation	DB2_DDF_CONV
"IMS Connections Workspace" on page 334	IMS Connections	DB2_IMS_Connections
"Package Statistics Workspace" on page 226	Package Statistics	DB2_CONNECT_PACKAGE
System Resource Manager ("EDM Pool Workspace" on page 295)	• EDM Statistics • EDM Summary	• DB2_SRM_EDM_Statistics • DB2_SRM_EDM
System Resource Manager ("Log Manager Workspace" on page 350)	• Log Manager Statistics • Log Manager Summary	• DB2_SRM_Log_Statistics • DB2_SRM_Log_Manager • Log_Detail
System Resource Manager ("Subsystem Management Workspace" on page 375)	• Subsystem Management Statistics • Subsystem Management Summary	• DB2_SRM_Subsystem_Statistics • DB2_SRM_Subsystem
"System Status Workspace" on page 375	System State Information	DB2_System_States

To use the summarization and pruning feature, you must also specify the behavior and summary type as follows:

Type of data	Behavior	Summary Type
Rate, Ratio, Percent data	GAUGE	AVG
Delta data	PDEL	SUM
Maximum data	PEAK	MAX
Minimum data	LOW	MIN
Size data	PROPERTY	LAT (latest)
Total, Accumulative data	COUNT	LAT

Type of data	Behavior	Summary Type
Current data	GAUGE (apply to counter as well)	AVG

History Configuration

Use the **History Configuration** window to configure history collection for OMEGAMON XE for DB2 PE.

The Collection Location must be set to TEMA for the following attribute groups::

- All threads
- Thread details
- Distributed thread details
- Thread enclave
- Detailed thread exception
- MVS storage

For more information, refer to **Historical data collection configuration**.

HTML Navigation

The HTML navigation allows you to navigate from one workspace to another, while passing context information to the next workspace.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

The workspaces have been grouped into following functional units:

1. Thread Summary workspaces:
   - “All Threads Connected to DB2 Workspace” on page 179
   - “CICS Thread Summary Workspace” on page 200
   - “Detailed Thread Exception Workspace” on page 244
   - “Distributed Allied Thread Summary Workspace” on page 252
   - “DBAT End-to-End SQL Monitoring Workspace” on page 238
   - “Enclave Thread Summary Workspace” on page 299
   - “IMS Thread Summary Workspace” on page 338
   - “Lock Conflicts Workspace” on page 339
   - “Thread Activity by Package Workspace” on page 391
   - “Thread Activity by Plan Workspace” on page 391
   - “Utility Jobs Workspace” on page 414
2. Thread Detail workspaces:
   - “Thread Activity by Plan Workspace” on page 391
   - “Thread Detail Workspace” on page 392
   - “Distributed Thread Detail Workspace” on page 253
   - “Thread Enclave Detail Workspace” on page 393
   - “Thread Locks Owned Workspace” on page 394
   - “Thread SQL Counts 1 Workspace” on page 404
   - “Thread SQL Counts 2 Workspace” on page 411
   - “Thread SQL Counts 3 Workspace” on page 412

- "Thread Wait Events Workspace" on page 413

3. Statistic workspaces
   - "Buffer Pool Management Workspace" on page 198
   - "DB2 Connect Server Workspace" on page 226
   - "EDM Pool Workspace" on page 295 (System Resource Manager)
   - "EDM Pool (DB2 10) Workspace" on page 298 (System Resource Manager)
   - "Log Manager Workspace" on page 350 (System Resource Manager)
   - "SQL Counts 1 Workspace" on page 356
   - "SQL Counts 2 Workspace" on page 362
   - "SQL Counts 3 Workspace" on page 362
   - "Storage Consumption Workspace" on page 369
   - "Subsystem Management Workspace" on page 375 (System Resource Manager)
   - "System Status Workspace" on page 375

Adding HTML Links to the Existing HTML Navigation Structure

You can add new HTML links to the existing HTML navigation structure.

About this task

Add a new HTML link to the existing HTML navigation structure.

Procedure

1. Determine the name of the customized workspace that you want to add to the existing navigation structure. You find the workspace name in the title bar of the Tivoli Enterprise Portal window.
2. Determine the workspace ID that uniquely identifies the customized workspace. Enter the following SQL statement on the Tivoli Enterprise Portal Server database: `select OBJECTID from <TEPS database name>.KFWWORKSPACE where "NAME" like '<name of the new user-defined workspace>'`

   In this SQL statement *<TEPS database name>* is the database name of Tivoli Enterprise Portal Server.

   Make a note of the OBJECTID, as it is needed later.
3. Choose a navigation category that you would like to add the new workspace link to. The available navigation categories are:
   - Statistic_Navigation
   - Thread_Detail_Navigation
   - Thread_Summary_Navigation
4. Open the file with file extension XML that defines all HTML links for the chosen navigation category. The name of the file is <navigation category>.xml. The path for this file is the following:
   ITM base directory\CNB\classes\candle\kdp\resources\help*language locale*\HTML_BrowserNavigation*version*

   where:

   ITM base directory
   Identifies the base directory of IBM Tivoli Monitoring

   language locale
   Identifies the language that is used. An empty language locale string represents the English language locale.

   version
   Identifies the current version: V540

5. Add a new `first_level_navigator` node. You can add the new node between any other existing `first_level_navigator` nodes. If you add the new node at the bottom of the file with file extension XML, the new HTML link shows up at the end of the HTML links list.
6. Make the following changes to the added `first_level_navigator` node: Set the name of your customized workspace as the new `caption_EN_US` value. Set the name of your customized workspace as the new `caption_NLS` value. Set the `target_workspace_objectid` to the OBJECTID that you have determined in Step "2" on page 425.

   Parameter details:

   a) `caption_EN_US`: This property must be unique in the file with file extension XML. Therefore, choose a `caption_EN_US` name that does not exist yet in this file.

   b) `caption_NLS`: This xml node contains the link caption. The new workspace link gets its caption from here.

   c) `target_workspace_objectid`: This xml node defines the target workspace for the HTML link.

   d) `keep_symbols`: This parameter is important for context-sensitive navigation.

   `keep_symbols` set to 'true' specifies that there is context information that must be passed along when linking to the workspace.

   `keep_symbols` set to 'false' specifies that no context information that must be passed along when linking to the workspace.

   Do not change this parameter.
7. To generate the files with file extension XML that are required for the HTML navigation in Tivoli Enterprise Portal, browse to the following directory:
   ITM base directory\CNB\classes\candle\kdp\resources\help*language locale*\HTML_BrowserNavigation*version*

   where:

   ITM base directory
   Identifies the base directory of IBM Tivoli Monitoring

   language locale
   Identifies the language that is used. An empty language locale string represents the English language locale.

   version
   Identifies the current version: V540
8. Run the `HTML_Navigation_Generator.bat`.
9. Restart Tivoli Enterprise Portal.
10. Use the added HTML link to navigate to your customized workspace. The new customized workspace is displayed. But in the HTML navigation the wrong navigator item is highlighted. The new customized workspace is displayed and that navigator item should be the one that is highlighted.

    a) To correct this, open the **Properties** dialog for the HTML navigation. In the "HOME" text field, change the file name of the file with file extension XML to the `caption_EN_US` value that you specified for the added HTML link.

    b) In the file name, replace all blanks by underscores.

    c) Click **OK**.
11. Click on the added HTML link again, and click **OK** when you are asked to save the workspace changes.

    Now the correct navigator item is highlighted when the new customized workspace is displayed in Tivoli Enterprise Portal.

Exception paths

About this task

One exception path is that you enter a wrong OBJECTID into the file with file extension XML (see Step "5" on page 426). This means that the identifier for the workspace that Tivoli Enterprise Portal should

navigate to is wrong. The effect in Tivoli Enterprise Portal is that nothing happens when you click on that workspace link with the wrong OBJECTID in the HTML navigation view. There is no error message displayed on the Tivoli Enterprise Portal GUI, but Tivoli Enterprise Portal provides a trace log. You can navigate to the trace log using the **Manage Tivoli Enterprise Monitoring Services** dialog.

Results

In the trace log you find the following error messages that indicate the problem:

```
...
An error occurred requesting the workspace record for: REPORT, 117cae1a3ad
...
No workspace group was found for the given workspace type and id
At least one invalid parameter found, request has failed.
...
```

Here 117cae1a3ad is the wrong OBJECTID.

What to do next

You can correct the OBJECTID by either removing a typo or by determining the correct workspace ID of the new customized workspace (Step "2" on page 425).

Changing HTML Links to Point to User-Defined Workspaces

You can customize workspaces and change the corresponding HTML link to point to the user-defined workspace.

About this task

Alter an HTML link to link to a different workspace.

Procedure

1. Determine the name of the workspace link that you want to use in order to point to a user-defined workspace.

   For example, you have created a customized Thread Wait Events workspace. Now you want to change the default Thread Wait Events HTML link to point to your customized Thread Wait Events workspace. In this case, the name of the workspace link that you want to change is Thread Wait Events.
2. Open the **Properties** dialog of the browser view of the HTML navigation browser and determine the navigation category that the workspace link belongs to. The available navigation categories are:
   - Statistic_Navigation
   - Thread_Detail_Navigation
   - Thread_Summary_Navigation
3. Navigate to your custom workspace that should become the new target of the HTML link. Determine the name of the new user-defined workspace that should be the new target for the link. You find the workspace name in the title bar of the Tivoli Enterprise Portal window.
4. Determine the workspace ID that uniquely identifies the new customized workspace. Enter the following SQL statement on the Tivoli Enterprise Portal Server database: `select OBJECTID from <TEPS database name>.KFWWORKSPACE where "NAME" like '<name of the new user-defined workspace>'`

   In this SQL statement *<TEPS database name>* is the database name of Tivoli Enterprise Portal Server.

   Make a note of the OBJECTID, as it is needed later.
5. Open the XML file that defines all HTML links for the chosen navigation category. The name of the XML file is <navigation category>.xml. The path for this XML file is the following: *<ITM base directory>*\CNB\classes\candle\kdp\resources\help\<language locale>\HTML_BrowserNavigation\V420

where *<ITM base directory>* is the base directory of IBM Tivoli Monitoring.

Remark: An empty language locale string represents the English language locale.

6. Search for the `caption_NLS` element that contains the name of the workspace link that you want to change. You have determined the workspace name in Step "1" on page 427.

```
<first_level_navigator>
        <caption_EN_US>Thread Wait Events</caption_EN_US>
        <caption_NLS>Thread Wait Events</caption_NLS>
        <target_workspace_objectid>1013a039535:420</target_workspace_objectid>
        <keep_symbols>true</keep_symbols>
</first_level_navigator>
```

7. Make the following changes: Set the `caption_NLS` to the name of your customized workspace that you have determined in Step "3" on page 427. Set the `target_workspace_objectid` to the OBJECTID that you have determined in Step "4" on page 427.

   Parameter details:

   a) `caption_EN_US`: Do not change the text in this node as it is important for the proper function of the HTML navigation.

   b) `caption_NLS`: This xml node contains the link caption.

   c) `target_workspace_objectid`: This xml node defines the target workspace for the HTML link. Set it to the OBJECTID determined in Step "3" on page 427.

   d) `keep_symbols`: This parameter is important for context-sensitive navigation.

      `keep_symbols` set to 'true' specifies that there is context information that must be passed along when linking to the workspace.

      `keep_symbols` set to 'false' specifies that no context information that must be passed along when linking to the workspace.

      Do not change this parameter.

8. XML files that are required for the HTML navigation in Tivoli Enterprise Portal are generated in this step. To generate these XML files, browse to the following directory:
   <ITM base directory>\CNB\classes\candle\kdp\resources\help\<language locale>\HTML_BrowserNavigation\V420

   where *<ITM base directory>* is the base directory of IBM Tivoli Monitoring.

9. Run the `HTML_Navigation_Generator.bat`.
10. Restart Tivoli Enterprise Portal.
11. The old HTML link caption has changed to the caption of the new customized workspace. When clicking on that customized workspace HTML link, Tivoli Enterprise Portal links to this new workspace.

Exception paths

About this task

One exception path is that you enter a wrong OBJECTID into the XML file (see Step "5" on page 427). This means that the identifier for the workspace that Tivoli Enterprise Portal should navigate to is wrong. The effect in Tivoli Enterprise Portal is that nothing happens when you click on that workspace link with the wrong OBJECTID in the HTML navigation view. There is no error message displayed on the Tivoli Enterprise Portal GUI, but Tivoli Enterprise Portal provides a trace log. You can navigate to the trace log using the **Manage Tivoli Enterprise Monitoring Services** dialog.

Results

In the trace log you find the following error messages that indicate the problem:

```
...
An error occurred requesting the workspace record for: REPORT, 117cae1a3ad
...
No workspace group was found for the given workspace type and id
```

```
At least one invalid parameter found, request has failed.
...
```

Here 117cae1a3ad is the wrong OBJECTID.

What to do next

You can correct the OBJECTID by either removing a typo or by determining the correct workspace ID of the new customized workspace (Step “3” on page 427).

Converting Performance Warehouse table spaces for Db2 12 FL504 compatibility

Follow these steps to convert Performance Warehouse table spaces for Db2 12 FL504 compatibility.

About this task

If you use Db2 V12 subsystems activated at FL504 or later and make use of any of the following:

- Performance Warehouse (PWH)
- Db2 connect monitoring
- IBM DB2 SQL Performance Analyzer (SQLPA)

You must apply APAR PH08213, you must complete the following steps for each Db2 subsystem for which PWH is configured:

Procedure

1. (Optional) **Perform this step if you have an existing DB2PM database in Db2 that uses PWH, and tables in ACCS and STAT that contain data you want to preserve.**

   If you do not have an existing DB2PM database, proceed to step 2.

   Before restarting the OMPE server task:

   a. Run the unload utility to save data from the DB2PM database tables.

   b. Drop the DB2PM database.
2. **Restart the OMPE server task to activate APAR PH08213**.

   This creates the new PWH Db2 objects in the DB2PM database.
3. (Optional) **If you unloaded data from an existing DB2PM database that uses PWH (step 1), then run the load utility to reload the data to the newly created tables.**

   The new tables might now reside in a different table space.

Installing and configuring Tivoli Enterprise Portal

In this step, you install and configure Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and IBM Eclipse Help Server on the workstation.

Before you begin

You must install and configure the IBM Tivoli Monitoring components on z/OS before installing and configuring Tivoli Enterprise Portal. See “Enabling IBM Tivoli Monitoring” on page 118 for more information.

About this task

The entire OMEGAMON family of products uses the Tivoli Enterprise Portal, so the installation and configuration are not explained here. For detailed instructions, see the *Tivoli Monitoring in the IBM Knowledge Center*.

Adding Tivoli Data Warehouse

The configuration of your Tivoli Data Warehouse will vary, depending on the size of the environment, which database management systems you use, and which operating systems you use.

Before you begin

You must install and configure the IBM Tivoli Monitoring components on z/OS before adding Tivoli Data Warehouse. See "Enabling IBM Tivoli Monitoring" on page 118 for more information.

About this task

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

For detailed installation and configuration instructions, see *Setting up data warehousing* in the Monitoring section of the *Tivoli Monitoring in the IBM Knowledge Center*.

Installing and configuring end-to-end SQL or stored procedure monitoring

In this step, you install and configure end-to-end SQL or stored procedure monitoring on the workstation.

Before you begin

1. You must add end-to-end SQL or stored procedure monitoring support before installing and configuring end-to-end SQL or stored procedure monitoring. See "Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support" on page 117 for more information.
2. You must add port information for end-to-end SQL or stored procedure monitoring before installing and configuring end-to-end SQL or stored procedure monitoring. See "Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring" on page 136 for more information.
3. You must add additional DB2 traces before installing and configuring end-to-end SQL or stored procedure monitoring. See "Starting Additional DB2 Traces" on page 135 for more information.
4. In order to use stored procedure monitoring, you must enable it separately. See "Configuring Additional Monitoring Features" on page 135 for more information.

About this task

Installation and configuration of the InfoSphere Optim Performance Manager including the end-to-end SQL or stored procedure monitoring feature is documented in the *InfoSphere Optim Performance Manager Installation Guide, Version 5.1.1* (or higher). For more information on configuring the stored procedure monitoring feature, refer to the *InfoSphere Optim Performance Manager Installation Guide, Version 5.1.1.1*. For detailed instructions, see the *IBM InfoSphere Optim Performance Manager in the Knowledge Center*.

About this information

This information describes how to configure the component Buffer Pool Analyzer for z/OS (hereafter abbreviated to Buffer Pool Analyzer).

Always check the IBM DB2 and IMS Tools Library web page and the Tivoli library page for the most current version of this information:

- *OMEGAMON for Db2 Performance Expert on z/OS* (PDFs and Techdocs on Db2 Tools Product Page)
- *OMEGAMON for Db2 Performance Monitor on z/OS* (PDFs and Techdocs on Db2 Tools Product Page)

Who should read this information

This information is written for database administrators (DBAs), system programmers, and system operators who are responsible for configuring Buffer Pool Analyzer.

To configure this program you should have a working knowledge of:

- Multiple Virtual Storage (MVS)
- Time Sharing Option (TSO)
- Interactive System Productivity Facility (ISPF)
- Job control language (JCL)
- Structured Query Language (SQL)
- z/OS

Installing Buffer Pool Analyzer Client

This topic describes how to install Buffer Pool Analyzer Client. It also explains how to start it. Buffer Pool Analyzer Client is required if you want to use the graphical user interface (GUI) of Buffer Pool Analyzer Client.

Note: IBM OMEGAMON for Db2 Performance Monitor on z/OS: From Version 5.4.0 Buffer Pool Analyzer is no longer a standalone option, it is only delivered as part of IBM OMEGAMON for Db2 Performance Expert on z/OS. If you want to update your client you must select IBM OMEGAMON for Db2 Performance Expert on z/OS.

Hardware requirements

The minimum hardware requirements to install and run Performance Expert Client are:

- A personal computer with Intel-based processor architecture, 400 MHz Pentium
- 512 MB RAM
- 390 MB (Windows 64-bit) disk space in the installation directory for the installation files
- 350 MB temporary space for running the installation program
- A high-resolution display unit of 1024 x 768 or higher
- For object placement, the following free memory:
  - 60 MB for up to 1000 objects
  - 220 MB for up to 100 000 objects
  - 500 MB for up to 200 000 objects

  where objects are table spaces and index spaces.

Recommendation: If you have installed only the minimum requirements, you should not run other applications at the same time.

Software requirements

The minimum software requirements to install and run Buffer Pool Analyzer Client are:

- One of the following Windows (x86, x86-64) versions:
  - Windows XP Professional Edition with Service Pack 2, including XP FDCC
  - Windows Vista Business Edition, Enterprise Edition, and Ultimate Edition, including Vista XP FDCC
  - Windows 7 Professional Edition and Ultimate Edition including FDCC
  - Windows Server 2003 with Service Pack 1, Standard Edition, Enterprise Edition, and Datacenter Edition
  - Windows Server 2003 R2 Standard Edition, Enterprise Edition, and Datacenter Edition

  - Windows Server 2008 Standard Edition, Enterprise Edition, and Datacenter Edition
  - Windows Server 2008 R2 Standard Edition, Enterprise Edition, and Datacenter Edition
- Optimization Service Center for DB2 for z/OS V1.1 or Optimization Service Center for DB2 for z/OS V1.2
- TCP/IP installed on the workstation
- One of the following web browsers:
  - Microsoft Internet Explorer V5 or later
  - Netscape Navigator V7 or later
  - Mozilla V1.5 or later
- Software programs to download files or code from z/OS, such as File Transfer Protocol (FTP) or IBM Personal Communications

Installing the program files

About this task

Requirement: You must have administration privileges to install Buffer Pool Analyzer Client.

After the installation completes successfully, you can start Buffer Pool Analyzer Client and use its functions from the DB2 Control Center.

Downloading the program files of Buffer Pool Analyzer Client

Both the initial version and later fixes for the program files for Buffer Pool Analyzer Client are available online. For download instructions, refer to the technote “OMPE: web-based delivery of updates for PE Workstation Client and PE Agent” on the IBM Software Support website. If needed, a direct link to the technote is included in the hold instructions of every PE Client PTF on the host. The available program build levels and fix descriptions are documented in the technote.

Note: The technote and website refer to the Performance Expert Client rather than the Buffer Pool Analyzer Client. However, these are the same. You chose at installation which product you want to install.

Installing Buffer Pool Analyzer Client

After downloading the program files ofBuffer Pool Analyzer Client, you can install them using the InstallAnywhere Wizard.

To begin installation, follow these steps:

- Verify that you have administration privileges.
- Download the program files of Buffer Pool Analyzer Client. See “Downloading the program files of Buffer Pool Analyzer Client” for more information.
- Close the DB2 Control Center before installing the Buffer Pool Analyzer Client program files.

To install the program files, follow these steps:

1. Verify that you have closed the DB2 Control Center. The DB2 Control Center must be closed before you start the client installation in order for the Control Center plugin to be installed properly.
2. Extract the files and directories from the compressed file(s) into the installation directory, for example, `C:\PROGRAMS\IBM\BPACLIENT`.

   The archives contain the following files and directories:

   - `db2pe.client.*.exe`
   - `iehs*win.jar`
3. Run the *.exe file.

   The InstallAnywhere Wizard starts, and the IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS V5 Setup window opens.

If you did not close the DB2 Control Center before installing the plug-in then you might not be able to access the Buffer Pool Analyzer Client from the DB2 Control Center.

4. Click **Next**.

   The next IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS V5 Setup window shows the License Agreement.

5. To install Buffer Pool Analyzer Client, select **I accept the terms of the license agreement**, then click **Next**.

   The next IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS V5 Setup window opens. It lets you select the different clients.

6. Click **Buffer Pool Analyzer Client**, then click **Next**.

   The IBM DB2 Buffer Pool Analyzer V5 Setup window opens. It lets you specify the installation path.

7. To install the program files to the default destination folder, click **Next**. To install the program files to a different folder, click **Browse** and select another folder.

   The next IBM DB2 Buffer Pool Analyzer V5 Setup window opens.

8. Select the setup type that you prefer, then click **Next**.

   The next IBM DB2 Buffer Pool Analyzer V5 Setup window opens.

9. Check the summary information, then click **Install**.

   The program files are copied to the specified destination folder and the next IBM DB2 Buffer Pool Analyzer V5 Setup window opens. It shows summary information about the installation. It also shows the location of the log file.

10. Click **Finish** to exit the InstallAnywhere Wizard.

Starting Buffer Pool Analyzer Client

About this task

To start Buffer Pool Analyzer Client, follow one of these options:

- Click **Start** → **Programs** → **IBM DB2 Buffer Pool Analyzer for z/OS** → **IBM DB2 Buffer Pool Analyzer for z/OS**.
- Double-click the **IBM DB2 Buffer Pool Analyzer for z/OS** icon on your desktop.

Buffer Pool Analyzer Client is then started.

Related reading: For information about how to work with Buffer Pool Analyzer Client, refer to *Buffer Pool Analyzer User's Guide*.

Configuration summary for Buffer Pool Analyzer

Follow the installation instructions in the Program Directory that is included with Buffer Pool Analyzer. After you install Buffer Pool Analyzer, you must configure the tool by using the instructions in this topic.

The SMP/E installation of Buffer Pool Analyzer is described in *Program Directory for IBM OMEGAMON for Db2 Performance Expert on z/OS*.

This topic describes how to configure the setup of Buffer Pool Analyzer. It also explains the mandatory or optional setup steps, and shows the corresponding authorizations that you need to perform each step.

Recommendation: The product image is installed from tape to the high-level qualifier hlqdb2pe. Before you start the configuration, you should create other data sets to which sample members are to be copied and where sample members are to be changed. This prevents your sample members from being overwritten, for example, when you install a program temporary fix (PTF).

Overview of the setup procedure for Buffer Pool Analyzer

The table in this section shows a typical configuration procedure for Buffer Pool Analyzer.

Table 77. Typical configuration procedure for Buffer Pool Analyzer

Step	Mandatory or Optional	Step description	Comment
1	Mandatory	“Step 1: Granting DB2 privileges for Buffer Pool Analyzer” on page 435	Run section 1 of BPOYAUTH.
2	Mandatory	“Step 2: Binding Buffer Pool Analyzer packages for DB2” on page 436	Run BPOYBIND.
3	Mandatory	“Step 3: Binding DB2 plan” on page 436	Run BPOYPLAN with the plan name for Buffer Pool Analyzer.
4	Mandatory	“Step 4: Reviewing security requirements for Buffer Pool Analyzer” on page 436	Run section 2 of BPOYAUTH.
5	Mandatory	“Step 5: Changing the FPEJINIT EXEC” on page 436	Run FPEJINIT.
6	Mandatory	“Step 6: Configuring ISPF defaults ” on page 437	Run BPOJVARS.
7	Mandatory	“Step 7: Adding Buffer Pool Analyzerto your ISPF environment” on page 438	Add Buffer Pool Analyzer to the ISPF menu.
8	Optional	“Step 8: Optional. Adding Buffer Pool Analyzer to the DB2 Administration Tool launchpad” on page 438	Add Buffer Pool Analyzer to the DB2 Administration Tool launchpad.
9	Optional	“Step 9: Optional. Installing Buffer Pool Analyzer Client” on page 439	To use the graphical user interface (GUI), you must install Buffer Pool Analyzer Client. See “Installing Buffer Pool Analyzer Client” on page 431 for more information.

Note: The library TKO2SAMP contains the members.

For more information about the jobs that you have to run, refer to “Summary of configuration and verification jobs” on page 439.

Overview of setup steps and authorizations

This topic gives an overview of the setup steps and required authorizations to configure Buffer Pool Analyzer.

The following table lists the setup steps and the authorizations that are required to perform the steps.

Table 78. Required authorizations for setup steps

Step	Authorization
“Step 1: Granting DB2 privileges for Buffer Pool Analyzer” on page 435	GRANT privileges and DB2 administration rights

Table 78. Required authorizations for setup steps (continued)	
Step	**Authorization**
"Step 2: Binding Buffer Pool Analyzer packages for DB2" on page 436	The following DB2 privileges: • BINDADD • PACKADM on collection BPO540 • SELECT on the following catalog tables: – SYSIBM.SYSINDEXES – SYSIBM.SYSTABLESPACE GRANT statements to support these authorizations are included in section 1 of the DDL member BPOYAUTH.
"Step 3: Binding DB2 plan" on page 436	The DB2 privilege BINDADD
"Step 4: Reviewing security requirements for Buffer Pool Analyzer" on page 436	The following DB2 privileges: • EXECUTE on the Buffer Pool Analyzer plan (K02PLAN) • MONITOR1 privilege • MONITOR2 privilege • TRACE and DISPLAY privilege • Resource Access Control Facility (RACF) administrator • PCF administrator GRANT statements to support these authorizations are included in section 2 of the DDL member BPOYAUTH.
"Step 5: Changing the FPEJINIT EXEC" on page 436 "Step 6: Configuring ISPF defaults " on page 437 "Step 7: Adding Buffer Pool Analyzerto your ISPF environment" on page 438	Authorizations required for these steps.

Step 1: Granting DB2 privileges for Buffer Pool Analyzer

This section explains how to grant DB2 privileges for Buffer Pool Analyzer.

About this task

You must perform this step for each DB2 subsystem for which you want to use Buffer Pool Analyzer.

To grant DB2 privileges, follow these steps:

Procedure

1. Run section 1 of the DDL member BPOYAUTH.
2. Run the DDL member by using SQL Processor Using File Input (SPUFI) or an equivalent.

What to do next

Ensure that the SQL return code is 0 and that a commit is performed.

Step 2: Binding Buffer Pool Analyzer packages for DB2

This section explains how to bind Buffer Pool Analyzer packages for DB2.

About this task

You must perform this step for each DB2 subsystem for which you want to use Buffer Pool Analyzer.

1. Change the DB2 subsystem ID.
2. Change the DB2 high-level qualifier in the job BPOYBIND.
3. Run the job BPOYBIND.
4. Repeat this step.

Step 3: Binding DB2 plan

In this step you bind the plan for Buffer Pool Analyzer.

About this task

To bind the plan for Buffer Pool Analyzer, run the job BPOYPLAN for each DB2 subsystem for which you want to use Buffer Pool Analyzer.

Step 4: Reviewing security requirements for Buffer Pool Analyzer

Depending on your system software and the functions that you plan to use, you might have to change the existing security definitions.

About this task

To work with the Host Online Monitor, users need the following DB2 privileges:

EXECUTE
On the host online monitor plan (K02PLAN).

MONITOR1
Grants the privilege to obtain IFC data classified as serviceability data, statistics, accounting, and other performance data that does not contain potentially sensitive data.

MONITOR2
Grants the privilege to obtain IFC data classified as containing potentially sensitive data, such as SQL statement text and audit data. Note that users with MONITOR2 privileges have also MONITOR1 privileges.

TRACE and DISPLAY
For users who have to use the CRD function.

GRANT statements to support these authorizations are included in section 2 of the DDL member BPOYAUTH.

Step 5: Changing the FPEJINIT EXEC

About this task

To change the FPEJINIT EXEC, follow these steps:

Procedure

1. Copy the FPEJINIT EXEC from the target library hlqdb2pe.TKO2SAMP into a library that is in your EXEC library concatenation.
2. Change the corresponding lines in this EXEC. They are at the beginning of the EXEC and are delimited by comments. These comments indicate the start and the end of the section that you can change.

```
checks = 1;
rte_mode = 0;
smpe_mode = 1;
hlq2.1     = "hlq of SMP/E data sets";
sclm_mode = 0;
```

where "hlq of SMP/E data sets" denote the names that you choose for the SMP/E target libraries.

For example, if the libraries start with SYS1.DB2BPA, change the statement in the following way:

```
hlq2.1 = "SYS1.DB2BPA"
```

3. Save the updated FPEJINIT EXEC.
4. Optionally change the FPEJINIT EXEC after the installation verification procedure (IVP) completes successfully from checks = 1 to checks = 0.

What to do next

Requirement: If you want to use the Host Online Monitor, you must do the following before you start your ISPF session:

- Allocate the DB2 load library corresponding to the version and release number of the DB2 subsystem to be monitored to ISPLLIB. You can also have the library in a STEPLIB, JOBLIB, or the system LNKLST concatenation.
- To test this EXEC, perform the installation verification procedures as described in "Verifying configuration and setup of Buffer Pool Analyzer" on page 439.

Step 6: Configuring ISPF defaults

BPOJVARS is a REXX EXEC in the library hlqdb2pe.TKO2SAMP that you can use to configure defaults for the ISPF dialog.

About this task

To run this EXEC and configure ISPF defaults for Buffer Pool Analyzer, follow these steps:

Procedure

1. Enter the following command in ISPF option 6 (TSO Command Processor) to run the EXEC:

   EXEC 'hlqdb2pe.TKO2SAMP(BPOJVARS)'

   The following panel shows the parameters.

```
BPOJOPTS        IBM DB2 Buffer Pool Analyzer Customization

Complete fields as indicated, then press Enter.


Type requested names
z/OS subsystem name  . . .    DGOV
Load library . . . . . .'BPO540.TKANMOD'

Select option with '/'
/  Load library is in the system LNKLST concatenation



F1=Help        F2=Split        F9=Swap        F12=Cancel
```

2. Check the following parameters and configure them according to your needs:
   - z/OS subsystem name
   - Load library name
   - Load library in the system LNKLST concatenation

3. Complete the panel fields and press Enter.

   Message BPOJ0008 is displayed.

   In the following example, the name of the load library is changed. It is also specified that the load library is in the system LNKLST concatenation.

```
BPOJOPTS        IBM DB2 Buffer Pool Analyzer Customization

Complete fields as indicated, then press Enter.


Type requested names
z/OS subsystem name  . . .    DGOV
Load library . . . . . .'SYS1.TKANMOD'

Select option with '/'
/  Load library is in the system LNKLST concatenation



F1=Help        F2=Split        F9=Swap        F12=Cancel
```

Step 7: Adding Buffer Pool Analyzerto your ISPF environment

This topic is intended primarily for DBAs working with ISPF and TSO systems.

About this task

You can add Buffer Pool Analyzer as an ISPF application to your environment.

To update the corresponding panels so that this ISPF application can be started, follow these steps:

Procedure

1. Select a panel that is available to all users, for example, the ISPF/PDF main menu ISR@PRIM.
2. Change the panel for the application.

   The associated ZSEL variable value for the application is CMD(%FPEJINIT).
3. Ensure that the new version of the FPEJINIT EXEC is available in the active EXEC library. FPEJINIT uses the TSO ALTLIB command to allocate and deallocate the EXEC library dynamically.

Step 8: Optional. Adding Buffer Pool Analyzer to the DB2 Administration Tool launchpad

About this task

Requirement: You must have system administrator privileges to perform this step.

To add Buffer Pool Analyzer to the DB2 Administration Tool launchpad, follow these steps:

Procedure

1. Edit the sample EXEC BPOADBI in the library hlqdb2pe.TKO2SAMP in the following way:
   a) Set the high-level qualifier of DB2 Admin data sets.
   b) Set the name of the CLSIT/EXEC library, which contains the ADBDMTI exec.
   c) Specify the ISPF statement to invoke Buffer Pool Analyzer.
2. Execute the EXEC BPOADBI.

   Buffer Pool Analyzer is added to the launchpad.

   Related reading: For more information about how to add an IBM DB2 tool for the launchpad, refer to *DB2 Universal Database for z/OS Administration Guide*.

Step 9: Optional. Installing Buffer Pool Analyzer Client

About this task

To use the graphical user interface (GUI), you must install Buffer Pool Analyzer Client. How to do this is described in “Installing Buffer Pool Analyzer Client” on page 431.

Verifying configuration and setup of Buffer Pool Analyzer

This topic contains a summary of the configuration and verification jobs. It also shows how to run a sample job to verify the configuration of Buffer Pool Analyzer.

Summary of configuration and verification jobs

The following table shows the configuration jobs that you can edit and run after the SMP/E installation is finished.

The SMP/E installation is described in *Program Directory for IBM DB2 Buffer Pool Analyzer for z/OS*.

Table 79. Summary of configuration jobs for Buffer Pool Analyzer

Job	Description
BPOYAUTH	Grant DB2 privileges for Buffer Pool Analyzer. Use the DDL member.
BPOYBIND	DB2 bind packages for Buffer Pool Analyzer.
BPOYPLAN	DB2 bind plan for Buffer Pool Analyzer.
BPOYAUTH	Review security requirements. Use the DDL member.
BPOJIVPA	Verifies the configuration of Buffer Pool Analyzer.

Running the sample verification job

You can run the verification job BPOJIVPA after the configuration is finished.

About this task

Data set*hlqdb2pe*.TKO2SAMP contains the sample job BPOJIVPA to help you verify the configuration.

Submit the job BPOJIVPA. This procedure causes the production of a report file. The expected return code is zero.

Final step

Verification of the configuration is now complete.

About this task

After the IVP completes successfully, move the updated FPEJINIT to a system EXEC or CLIST library so that the users can access it.

Chapter 4. Migrating

Migrating your existing installation to OMEGAMON for Db2 Performance Expert V5.4.0

You can update previous versions of OMEGAMON for Db2 PE to V5.4.0. If you want to update to V5.4.0 from 5.2.0 or earlier, you must first update certain tables to 5.3.0, then update all other tables to V5.4.0. For an overview of steps you'll complete to update tables, see Figure 5 on page 445.

Complete the following tasks to update to OMEGAMON for Db2 PE Performance Database Version V5.4.0.

Changes to parameter values for OMEGAMON for Db2 PE V5.4.0

Before updating to OMEGAMON for Db2 PE V5.4.0, familiarize yourself with changed values for certain parameters.

Changes to parameter values apply to the Configuration Tool and PARMGEN. Values have changed for the following parameters in the PARMGEN profile for V5.4.0.

Table 80. Changed parameter values

Parameter	V5.3.0 values	V5.4.0 values
KD2_DBxx_DB2_VER	10, 11	10, 11, 12
	• OMEGAMON for Db2 PE V5.3.0 does not support Db2 Version 9. • OMEGAMON for Db2 PE V5.4.0 supports Db2 Version 12.	
KD2_PFxx_SQLPA_VERSION	4.1, 4.2, 5.1	4.2, 5.1
	OMEGAMON for Db2 PE V5.4.0 does not support SQL Performance Analyzer (SQLPA) V4.1; 4.2 and 5.1 are the only valid values for this parameter.	
KD2_PFxx_SQLPA_CF_ENBL	Y	Y
GBL_DSN_DB2_LOADLIB_V10 **GBL_DSN_DB2_RUNLIB_V10**	*Db2 load and run libraries*	*Db2 load and run libraries*

Table 80. Changed parameter values (continued)		
Parameter	**V5.3.0 values**	**V5.4.0 values**
	These parameters configure the load and run libraries for Db2 Version 10 monitoring. These parameters are located in the global parameter configuration profile GBLUSR. You can also add them to the existing LOADLIB and RUNLIB parameters for other Db2 versions.	
GBL_DSN_DB2_LOADLIB_V11 **GBL_DSN_DB2_RUNLIB_V11**	*Db2 load and run libraries*	*Db2 load and run libraries*
	These parameters configure the load and run libraries for Db2 Version 11 monitoring. These parameters are located in the global parameter configuration profile GBLUSR. You can also add them to the existing LOADLIB and RUNLIB parameters for other Db2 versions.	
GBL_DSN_DB2_LOADLIB_V12 **GBL_DSN_DB2_RUNLIB_V12**	not applicable	*Db2 load and run libraries*
	Specify these parameters to configure the load and run libraries for Db2 Version 12 monitoring. You can find these parameters in the global parameter configuration profile GBLUSR. If you do not see these parameters in this profile, you can add them to the already existing LOADLIB and RUNLIB parameters for the other Db2 versions.	
GBL_DSN_DB2_LOADLIB_V8 **GBL_DSN_DB2_RUNLIB_V8**	not applicable	not applicable
GBL_DSN_DB2_LOADLIB_V9 **GBL_DSN_DB2_RUNLIB_V9**	not applicable	not applicable
	OMEGAMON for Db2 PE V5.3.0 does not support Db2 Version 9. These parameters are ignored during configuration.	

Installing the SMP/E

Instructions for installing the SMP/E are in the Program Directory for your product. Also check the PSP bucket for additional information. You can find the Program Directory for your product at the IBM Knowledge Center: https://www.ibm.com/support/knowledgecenter/SSUSPS_5.4.0/kdp54/topics/kdpucon_documentation.html.

When installing the SMP/E:

- Install the latest PTFs for the version of OMEGAMON for Db2 PE you are updating to.
- You can use a separate SMP/E CSI zone for the new version of OMEGAMON for Db2 PE, or you can use the same SMP/E CSI zone for both, the old and the new versions.
  - If using separate SMP/E zones, install the new SMP/E as a new installation shown at *Common PARMGEN - Implementation scenarios*.
  - If using the same SMP/E zone, use the instructions in the Program Directory, keeping in mind that the SMP/E control statements of each FMID control acceptance and installation rules.

Related information

IBM DB2 and IMS Tools PTF Listing

Update the runtime environment in PARMGEN

Update your runtime environments for the new version.

About this task

When updating from V5.1.0 to V5.4.0, the Near-Term History Data Collector no longer issues a START TRACE command to start flag IFCID 318. If you want to use a START TRACE, you'll need to add the START TRACE command to option **Specify Additional Traces** when configuring your Db2 monitoring profile. For details, refer to "Configuring Additional Db2 Traces" on page 135 in this guide.

Procedure

1. Add **GBL_DSN_DB2_LOADLIB_V12** and **GBL_DSN_DB2_RUNLIB_V12** to the list of Db2 system libraries, as shown below. For Db2 12, you must provide corresponding load and run libraries for the version-specific libraries. GBLUSR is not updated during migration and you'll need to add the corresponding parameters manually.

   GBL_DSN_DB2_SDSNLOAD "DSN.VAR1M0.SDSNLOAD"
   GBL_DSN_DB2_LOADLIB_V8 "DSN.V8R1M0.SDSNLOAD"
   GBL_DSN_DB2_LOADLIB_V9 "DSN.V9R1M0.SDSNLOAD"
   GBL_DSN_DB2_LOADLIB_V10 "DSN.VAR1M0.SDSNLOAD"
   GBL_DSN_DB2_LOADLIB_V11 "DSN.VBR1M0.SDSNLOAD"
   GBL_DSN_DB2_LOADLIB_V12 "DSN.VCR1M0.SDSNLOAD"
   GBL_DSN_DB2_RUNLIB_V8 "DSN.V8R1M0.RUNLIB"
   GBL_DSN_DB2_RUNLIB_V9 "DSN.V9R1M0.RUNLIB"
   GBL_DSN_DB2_RUNLIB_V10 "DSN.VAR1M0.RUNLIB"
   GBL_DSN_DB2_RUNLIB_V11 "DSN.VBR1M0.RUNLIB"
   GBL_DSN_DB2_RUNLIB_V12 "DSN.VCR1M0.RUNLIB"
   GBL_DSN_DB2_DSNEXIT "DSN.VAR1M0.DSNEXIT"
2. Recreate the BIND jobs:
   a) Copy the BIND sample jobs FPEVOMBD and FPEVOMBP from the *&shilev.*TKO2SAMP library to the *&rhilev.*RKD2PRF library of the RTE.
   b) Rename the sample job FPEVOMBD to OMBDDBID, and rename the sample job FPEVOMBP to OMBPDBID.
   c) Submit the *&rhilev.*RKD2PRF(CRTDB2M) job to recreate all configured Db2 subsystem-related runtime members.

      A BIND job for each configured Db2 subsystem is created.
   d) For each Db2 subsystem you want to monitor, submit the BIND jobs OMBP*<ssid>* and OMBD*<ssid>* where *<ssid>* is the Db2 subsystem ID. If you use EXPLAIN, submit the BIND jobs EXBP*<ssid>* and EXBD*<ssid>* for each Db2 subsystem you use EXPLAIN.

      For more information, see the *PARMGEN Alternative Configuration for IBM OMEGAMON and other Tivoli Management Services technote*.
3. Repeat the steps above for each runtime environment.

Related information

Implementation scenarios

Updating Tivoli Enterprise Monitoring Agent

If the updated runtime environment has a Tivoli Enterprise Monitoring Agent, you must update the Tivoli Enterprise Monitoring Agent.

Procedure

- To update the Tivoli Enterprise Monitoring Agent, complete the steps for your implementation scenario listed at https://www.ibm.com/support/knowledgecenter/SSAUBV/com.ibm.omegamon_share.doc_6.3.0.2/parmgenref/PARMGEN_scenarios_intro.htm

Updating the Performance Warehouse

If you created a Performance Warehouse for an earlier version, you must manually update it for V5.4.0.

Before you begin

Due to data model changes, you will need to manually update data stored in Statistics tables to 5.4.0.

If Performance Warehouse is enabled, the new OMEGAMON Collector automatically detects older Performance Warehouse versions and stops the Performance Warehouse server task.

If you are starting with version 5.4.0, delete the existing Performance Warehouse database DB2PM from the old version and drop the plan DB2PM and its packages. There are no further update steps. Note that if Performance Warehouse is enabled in the configuration, the OMEGAMON Collector of the new version automatically manages the bind of its packages in the plan DB2PM and creates the Performance Warehouse tables.

Note: After you update the Performance Warehouse tables, Db2 might place the table space STAT in advisory REORG-pending (AREO*) status because existing data is not immediately converted to its new definition. You can reorganize the table space to prevent possible performance degradation. When data is in REORG-pending or AREO* status, you can automatically re-organize partitions using the REORG utility with the SCOPE PENDING option - you do not need to identify which partitions need to be reorganized or customize the REORG control statement.

Procedure

1. Disconnect all workstation clients and stop the OMEGAMON Collector enabled for the Performance Warehouse.
2. Drop the table space STAT in the database DB2PM.
3. Start the new OMEGAMON Collector with the newly created Performance Warehouse configuration and Performance Warehouse response file.

   The Collector recreates the table space STAT and create the new Statistics tables. The table space STAT has a default size of 32K and a minimum size of 4K.

   Note: If this step fails, continue to step 5; otherwise, continue with step 4.
4. Stop the Performance Warehouse server task using the following console command: `/F <started task>,F PESERVER,F <db2ssid>, PWH=N`.
5. Restart the Performance Warehouse server task in FORCE mode by using the following console command: `/F <started task>,F PESERVER,F <db2ssid>, PWH=F`.

Updating the Performance Database

Use the following figure as a reference for the steps you need to complete to update to OMEGAMON for Db2 PE Performance Database 5.4.0.

Due to data model changes, you'll need to manually update data stored in Statistics tables to 5.4.0.

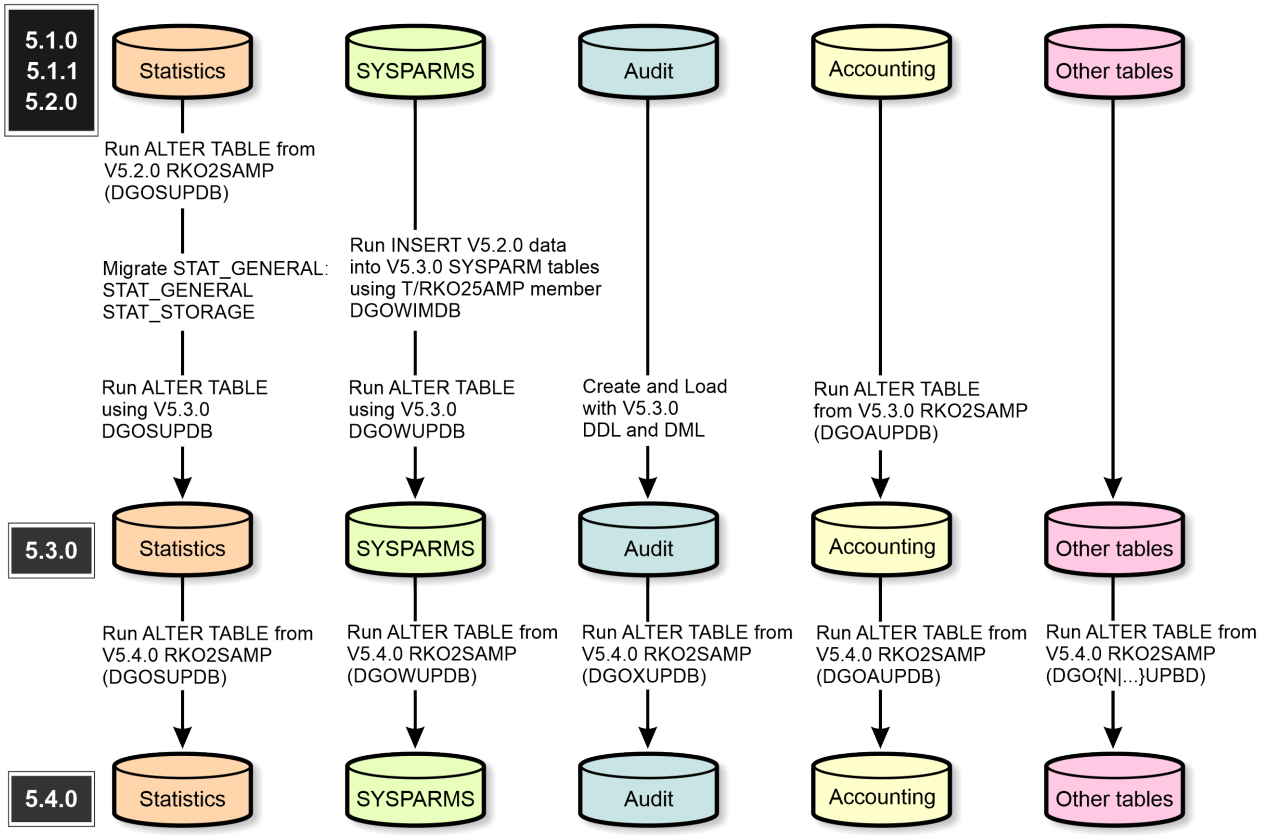

Figure 5. Overview of update steps to V5.4.0

Updating Performance Database tables to V5.3.0

Complete this task if you are updating from V5.2.0 or earlier to V5.4.0. Since some tables cannot be updated to V5.4.0 directly, you'll need to complete the steps in this task to update those tables to V5.3.0 before updating other tables to V5.4.0.

About this task

If possible, start with the new V5.4.0 of Performance Database tables because many changes have been applied to the data model between versions 5.1.0 - 5.3.0, and to 5.4.0.

Procedure

1. Recreate and load the System Parameters tables DB2PMSYSPAR_106, DB2PMSYSPAR_201, DB2PMSYSPAR_202 with the V5.3.0 CREATE and LOAD statements. You can use the INSERT SQL statement provided in T/RKO2SAMP(DGOWIMDB) to transfer the V5.2.0 saved data into the V5.3.0 DB2PMSYSPAR tables.

   You cannot load the System Parameter FILE data of an updated 5.3.0 or 5.4.0 version to the tables of a version earlier than 5.3.0.

   The column names in System Parameters tables DB2PMSYSPAR_106, DB2PMSYSPAR_201, and DB2PMSYSPAR_202 have been reworded. DB2PMSYSPAR_106 supports new Db2 instrumentation fields, column names are now identical with the Db2 system parameter names, and column names are alphabetically sorted.
2. Run ALTER TABLE using V5.3.0 DGOWUPDB.
3. Create and load Audit tables with the V5.3.0 CREATE and LOAD statements.

   Beginning V5.3.0, the column names in Audit tables were reworded to support new Db2 instrumentation fields.

4. Update queries or application programs you have on tables of versions prior to 5.4.0 because the column names of the new table, and their data format, can vary. You can find updated sample SQL queries in T/RKO2SAMP members DGOxQxxx.

What to do next

Complete the steps in "Updating Statistics tables to V5.3.0" on page 446.

Updating Statistics tables to V5.3.0

Because in Performance Database V5.3.0, the DB2PM_STAT_GENERAL table was split into two tables DB2PM_STAT_GENERAL and DB2PM_STAT_STORAGE, you must manually update Statistics tables to V5.3.0 and again to V5.4.0 as part of your update to Performance Database V5.4.0.

About this task

The V5.3.0 T/RKO2SAMP library includes two new members DGOSLMGE and DGOSLMST added with APAR PI63414 for use in the Db2 Load Utility. These two new members enable you to load V5.2.0 Statistics table data.

Note:

After you execute ALTER TABLE statements, Db2 might place the table space containing the modified data in advisory REORG-pending (AREO*) status because existing data is not immediately converted to its new definition. You can reorganize the table space to prevent possible performance degradation. When data is in REORG-pending or AREO* status, you can automatically re-organize partitions using the REORG utility with the SCOPE PENDING option - you do not need to identify which partitions need to be reorganized or customize the REORG control statement.

Procedure

1. Run the ALTER TABLE statements to add new columns to statistics tables as listed in V5.2.0 member T/RKO2SAMP(DGOSUPDB).
2. Unload the V5.2.0 DB2PM_STAT_GENERAL to reload in a later step.
3. Request the current V5.3.0 library T/RKO2SAMP library from IBM support.
4. Migrate the DB2PM_STAT_GENERAL data from earlier version to the V5.3.0 tables:
   - Migrate the DB2PM_STAT_GENERAL data from the earlier version to the V5.3.0 tables:
   - Create the two new Statistics tables DB2PM_STAT_GENERAL and DB2PM_STAT_STORAGE.
   - Reload the unloaded data from the earlier version using the two V5.3.0 DML Load members DGOSLMGE and DGOSLMST available in V5.3.0 library T/RKO2SAMP.
5. Run the remaining ALTER TABLE statements that apply to V5.3.0 to add columns as listed in members DGOSUPDB in the V5.3.0 library T/RKO2SAMP.
6. Adapt the Statistics spreadsheet field selection list members T/RKANSAMF to the new split Statistics tables.

Updating all V5.3.0 Performance Database tables to V5.4.0

After you update Statistics, SYSPARMS, Audit, and Accounting tables to V5.3.0, update the remaining tables to V5.4.0.

About this task

If you are updating from V5.2.0 or earlier to V5.4.0, you must first update Statistics, SYSPARMS, Audit, and Accounting tables to V5.3.0 by completing the following tasks:

- "Updating Performance Database tables to V5.3.0" on page 445
- "Updating Statistics tables to V5.3.0" on page 446

Note:

After you execute ALTER TABLE statements, Db2 might place the table space containing the modified data in advisory REORG-pending (AREO*) status because existing data is not immediately converted to its new definition. You can reorganize the table space to prevent possible performance degradation. When data is in REORG-pending or AREO* status, you can automatically re-organize partitions using the REORG utility with the SCOPE PENDING option - you do not need to identify which partitions need to be reorganized or customize the REORG control statement.

Procedure

1. Complete one of the following:
   - If you are starting with V5.3.0 or earlier, execute the ALTER TABLE statements that apply to version V5.3.0 to add columns listed in members DGO*UPDB of the V5.3.0 library RKO2SAMP (RTE).
   - If you are starting with V5.4.0, execute the ALTER TABLE statements that apply to version V5.4.0 to add or drop columns listed in members DGO*UPDB of the V5.4.0 library RKO2SAMP (RTE).
2. Populate all modified tables with new data:
   - Customize the LOAD parts of the new version.
   - If you work with Accounting and Statistics SAVE tables, use the SAVE file conversion utility with the new version.

Updating statistics SQL queries

Your customized SQL queries may no longer work if they refer to storage-related data in the statistics GENERAL data of a Performance Database version prior to 5.4.0.

About this task

If your customized SQL queries no longer work, update your statistics SQL queries.

Procedure

- Rewrite the SQL queries according to the new data model. The data now resides in the statistics STORAGE table.

Updating statistics field selection lists of the Spreadsheet Input Data Generator

You can update customized field selection lists delivered with the Spreadsheet Input Data Generator.

About this task

Performance Database V5.3.0 introduces a new table DB2PM_STAT_STORAGE containing data previously stored in columns of table DB2PM_STAT_GENERAL. New Field Selection Lists members for the spreadsheet utility are delivered for statistics general- and storage-related data in T/RKANSAMF. If you customized the Field Selection List member, you must adjust selection lists from a previous version to the new data model.

Procedure

- Recreate the customized field selection lists based on the sample lists delivered as members RKANSAMF/TKANSAMF(FPEP*) in the product library. Note that RKANSAMF/TKANSAMF is a new product library. If you do not want to customize the lists, the Spreadsheet Input Data Generator can use the sample lists in this library as input.

Updating the Performance Expert Client

You must update to the new Performance Expert Client when you update the server. The old Performance Expert Client does not work with the new server.

Procedure

- Complete the instructions in "Installing and configuring Performance Expert Client" on page 165 of this guide.

  When you double-click the .exe icon, you are prompted to update. Follow the prompts in the wizard. You do not need to uninstall the old version before beginning because the new version overwrites the old version. Subsystem definitions in the old Performance Expert Client are automatically imported into the new Performance Expert Client. You do not need to manually export and then import the definitions.

Updating the Performance Expert Agent for Db2 Connect Monitoring

You must manually update Performance Expert Agent for Db2 Connect Monitoring to version V5.4.0 on each system.

Before you begin

Configuration entries containing the Db2 Performance Expert for Linux, UNIX, and Windows server version 3.2.0 or later are no longer supported. They will be set to *paused* status during runtime.

Procedure

- To manually update the Performance Expert Agent for Db2 Connect Monitoring on each system, complete the instructions for you environment available at "Installing and configuring Performance Expert Agent for Db2 Connect Monitoring on Windows" on page 141.

Updating IBM Tivoli Monitoring components

You must update IBM Tivoli Monitoring components such as Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal, and Tivoli Enterprise Portal Server so that the OMEGAMON for Db2 PE V5.4.0 Application Support works.

Procedure

1. Update each of the IBM Tivoli Monitoring framework components to IBM Tivoli Monitoring V6.3.0 by completing the instructions at *Tivoli Monitoring in the IBM Knowledge Center*.

   Personalized workspaces are automatically migrated during the update.
2. If you do not have self-describing agent capability configured, update OMEGAMON for Db2 PE Application Support using the V5.1.0 Consolidated DVD image.

   For detailed instructions, refer to the IBM Tivoli OMEGAMON XE Monitoring Agents on z/OS Quick Start Guide at *Tivoli Monitoring in the IBM Knowledge Center*.
3. Set the attribute Product (two-letter code of a monitoring agent) to D5 or DP if necessary.
   a) In V5.1.1, the attribute Product in Tivoli Enterprise Monitoring Server table INODESTS has a value of DP for OMEGAMON for Db2 PE. In V5.1.0 and V4.2.0, this two-letter product code is D5. If you have a customized workspace or situation on Tivoli Enterprise Monitoring Server table INODESTS and filtering on the attribute Product that is set to D5, then you need to set the filtering to D5 or DP.
   b) The attribute Product in workspace **Managed System Status** has a value of DP for OMEGAMON for Db2 PE V5.1.1, and D5 for V5.1.0 and V4.2.0. You can navigate to workspace **Managed System Status** from navigator item **Enterprise**. If you have a customized workspace based on workspace **Managed System Status** and filtering on the attribute Product set to D5, then you need to set the Product attribute to D5 or DP.

c) If you have a customized situation based on product-provided situation **MS_Offline** from **All Managed Systems**, and filtering on attribute Product set to D5, then you need to set it to D5 or DP.

4. If you are updating from OMEGAMON for Db2 PE V5.1.0, V4.2.0, V4.1.0, or V3.1.0 and you want to run the OMEGAMON enhanced 3270 user interface, you need to re-configure the Tivoli Enterprise Monitoring Server.

Related information

Tivoli Monitoring and OMEGAMON XE Knowledge Center

Updating User-Tailored Report (UTR) layouts

You can create and tailor accounting and statistics report layouts with User-Tailored Reports (UTR).

You can add and remove report blocks and fields within blocks and change block and field labels. UTR functionality is described in the *Reporting User's Guide, Customizing OMEGAMON XE for DB2 PE functions*.

OMEGAMON for Db2 PE supports the migration of accounting and statistics report layouts created with previous releases. Previous layouts are identified and mapped to the internal representation of the new version, and a user-defined report is externalized similarly in version 5.4.0. You are encouraged to recreate a user-tailored report layout within the new version to avoid report mismatches that result from semantic changes in the new version.

The Accounting Save-File Utility

Use the Save-File utility to migrate and convert Accounting Save data sets into a format suitable for OMEGAMON for Db2 PE V5.4.0.

The function performed is specified in a parameter on the EXEC command.

Migrating Data Sets

This topic describes how to migrate Accounting Save data sets created by OMEGAMON for Db2 PE V5.2.0 or V5.3.0 into the record format of OMEGAMON for Db2 PE V5.4.0.

To migrate Accounting Save data sets:

1. Create a VSAM data set for V520 or V530.
2. Define an OMEGAMON for Db2 PE V5.4.0 VSAM data set using IDCAMS as output.
3. Use the MIGRATE function of the Save-File utility to migrate the data sets of OMEGAMON for Db2 PE V5.2.0 or V5.3.0.
4. Restore the migrated VSAM data sets in V540 and compare the reports.

The RKO2SAMP library provides the sample job DGOPJAMI, which you can modify to suit your installation.

Note:

- You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.

  To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.
- Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.
- Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

Converting Data Sets

To store performance data in Performance Database tables or spreadsheets, you must first convert Accounting Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets that can be used by the DB2 load utility or the Spreadsheet Input-Data Generator of OMEGAMON for Db2 PE.

You can use the CONVERT function of the Accounting Save-File Utility to convert Accounting Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets. The RKO2SAMP library provides the sample job DGOPJACO, which you can modify to suit your installation.

You can also use the ACCOUNTING SAVE subcommand with the CONVERT option to convert and save reduced data into a sequential data set. The output of this subcommand option is a sequential data set, that is specified and requested in SYSIN. The data set attributes are:

Organization
PS

Record format
VB

Record length
9072

Block size
9076

For more information about the ACCOUNTING SAVE subcommand refer to *Report Command Reference*.

The following list shows the types of records that are created by the CONVERT function (or CONVERT command option) and where to find their layout descriptions in the sample library RKO2SAMP:

- General data records (DGOADSGE)
- Buffer pool data records (DGOADSBU)
- Distributed Data Facility (DDF) data records (DGOADSDF)
- Group buffer pool records (DGOADSGP)
- Package records (DGOADSPK)
- Resource Limit Facility (RLF) records (DGOADSRF)
- Accelerator records (DGOADSXC)

For more information about the Spreadsheet Input-Data Generator refer to *Reporting User's Guide*.

Save-File Utility DD Statements

This topic lists the DD statements needed for migration and conversion. All of the DD statements described here are required.

Input

The DDNAME of the input data set. This can be an OMEGAMON for Db2 PE V5.2.0 or V5.3.0 Accounting SAVE data set for the MIGRATE function, or an OMEGAMON for Db2 PE V5.4.0 Accounting VSAM Save data set for the CONVERT function.

Output

The DDNAME of the output data set.

For CONVERT, allocate the data set with the following characteristics:

RECFM
VB

LRECL
9072

BLKSIZE
9076

DPMLOG

OMEGAMON for Db2 PE command processor messages and messages indicating exceptional processing conditions are written to DPMLOG. If DPMLOG is not specified, it is dynamically allocated to the SYSOUT message class of the job. Allocate the data set with the following attributes:

RECFM
FBA

LRECL
133

BLKSIZE
6251

The Statistics Save-File Utility

Use the Save-File utility to migrate and convert Statistics Save data sets into a format suitable for OMEGAMON for Db2 PE V5.4.0.

The function performed is specified in a parameter on the EXEC command.

Migrating Data Sets

This topic describes how to migrate Statistics Save data sets created by OMEGAMON for Db2 PE V5.2.0 or V5.3.0 into the record format of OMEGAMON for Db2 PE V5.4.0.

To migrate Statistics Save data sets:

1. Create a VSAM data set for V520 or V530.
2. Define an OMEGAMON for Db2 PE V5.4.0 VSAM data set using IDCAMS as output.
3. Use the MIGRATE function of the Save-File utility to migrate the data sets of OMEGAMON for Db2 PE V5.2.0 or V5.3.0.
4. Restore the migrated VSAM data sets in V540 and compare the reports.

The RKO2SAMP library provides the sample job DGOPJSMI, which you can modify to suit your installation.

Note:

- You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.

  To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.
- Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.
- Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

Converting Data Sets

To store performance data in Performance Database tables or spreadsheets, you must first convert Statistics Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets that can be used by the DB2 load utility or the Spreadsheet Input-Data Generator of OMEGAMON for Db2 PE.

You can use the CONVERT function of the Statistics Save-File Utility to convert Statistics Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets. The RKO2SAMP library provides the sample job DGOPJSCO, which you can modify to suit your installation.

You can also use the STATISTICS SAVE subcommand with the CONVERT option to convert and save reduced data into a sequential data set. The output of this subcommand option is a sequential data set, that is specified and requested in SYSIN. The data set attributes are:

Organization
PS

Record format
VB

Record length
9072

Block size
9076

For more information about the STATISTICS SAVE subcommand refer to *Report Command Reference*.

The following list shows the types of records that are created by the CONVERT function (or CONVERT command option) and where to find their layout descriptions in the sample library RKO2SAMP:

- General data records (DGOSDGEN)
- Buffer Pool data records (DGOSDBUF)
- DDF data records (DGOSDDDF)
- Group Buffer Pool records (DGOSDGBP)
- Buffer Pool data set records (DGOSDSET)
- Accelerator data records (DGOSDXCL)
- Aggregated Accounting data records (DGOSDACC)
- Storage data records (DGOSDSTG)

For more information of the Spreadsheet Input-Data Generator refer to *Reporting User's Guide*.

Save-File Utility DD Statements

This topic lists the DD statements needed for migration and conversion. All of the DD statements described here are required.

Input

The DDNAME of the input data set. This can be an OMEGAMON for Db2 PE V5.2.0 or V5.3.0 Statistics Save data set for the MIGRATE function, or an OMEGAMON for Db2 PE V5.4.0 Statistics VSAM Save data set for the CONVERT function.

Output

The DDNAME of the output data set.

For CONVERT, allocate the data set with the following characteristics:

RECFM
VB

LRECL
9072

BLKSIZE
9076

DPMLOG

OMEGAMON for Db2 PE command processor messages and messages indicating exceptional processing conditions are written to DPMLOG. If DPMLOG is not specified, it is dynamically allocated to the SYSOUT message class of the job. Allocate the data set with the following attributes:

RECFM
FBA

LRECL
133

BLKSIZE
6251

Chapter 5. Publication keys

Chapter 6. Product keys

Chapter 7. Version and path keys

Chapter 8. Links

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Index

D

E

F

G

H

I

L

M

N

O

P

Q

R

S

T

U

V

W

X

Z

Product Number: 5655-W37

GH12-7072