



DB2 Performance Monitor for OS/390

Installation and Customization

Version 6

Note

Before using this information and the product it supports, be sure to read the information in "Appendix D. Notices" on page 117.

Second Edition, April 2000

This edition applies to Version 6 of IBM DATABASE 2 Performance Monitor for OS/390, a feature of IBM DATABASE 2 Universal Database Server for OS/390 Version 6 (5645-DB2), and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this book

This book describes how to install and customize the components of IBM DATABASE 2 Performance Monitor for OS/390 (DB2 PM). DB2 PM is a performance analysis tool that helps you monitor and tune the following IBM DATABASE 2(TM) products:

- IBM DATABASE 2 Universal Database Server for OS/390 (DB2 UDB for OS/390) Version 6, Program Product 5645-DB2
- IBM DATABASE 2 Server for OS/390 (DB2 for OS/390) Version 5, Program Product 5655-DB2
- IBM DATABASE 2 for MVS/ESA (DB2 MVS/ESA) Version 4, Program Product 5692-DB2.

DB2 PM Version 6 is a feature of DB2 UDB for OS/390.

Who should read this book

This book is intended for users responsible for installing and setting up DB2 PM.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other DB2 PM Version 6 documentation:

- Visit our home page at <http://www.software.ibm.com/data/dbtools/db2n1mst.html>. There you will find the feedback page where you can enter comments and send them.
- Send your comments by e-mail to swsdid@de.ibm.com, or to the IBMMAIL address DEIBM3P3@IBMMAIL. Be sure to include the name of the book, the part number of the book, the version of DB2 PM, and, if applicable, the specific location of the text you are commenting on (for example, a page number or table number).
- Fill out one of the forms at the back of this book and return it by mail, by fax, or by giving it to an IBM representative. The mailing address is on the back of the Readers' Comments form. The fax number is +49-(0)7031-16-4892.

How this book is organized

This book is divided into the following parts:

1. "Part 1. Planning and installing DB2 PM" on page 1
2. "Part 2. Customizing DB2 PM" on page 49
3. Appendixes.

"Part 1. Planning and installing DB2 PM" on page 1 tells you how to install DB2 PM and how to customize the setup for DB2 PM.

"Part 2. Customizing DB2 PM" on page 49 describes the purpose and the function of the data collector. It describes in detail the parameters and commands with which you can customize the data collector. It also explains how to customize and activate the DB2 PM user exits.

“Appendix A. Data collector command interface summary” on page 105 summarizes the data collector command interface.

“Appendix B. Installation work sheet” on page 113 and “Appendix C. Follow-on installation work sheet” on page 115 provide the respective work sheets for your convenience.

Prerequisites

For all customization tasks, a working knowledge of, and experience with, either one of the following IBM DATABASE 2 products is required:

- DB2(R) Universal Database(TM) for OS/390 Version 6
- DB2 for OS/390(R) Version 5
- DB2 for MVS/ESA(TM) Version 4.

How to read the syntax diagrams

The following rules apply to the syntax diagrams used in this book:

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

The \blacktriangleright — symbol indicates the beginning of a statement.

The — \blacktriangleright symbol indicates that the statement syntax is continued on the next line.

The \blacktriangleright — symbol indicates that a statement is continued from the previous line.

The — \blacktriangleright symbol indicates the end of a statement.

Diagrams of syntactical units other than complete statements start with the \blacktriangleright — symbol and end with the — \blacktriangleright symbol.

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

\blacktriangleright —*required_item*— \blacktriangleright

- Optional items normally appear below the main path.

\blacktriangleright —*required_item*— \blacktriangleright
 └*optional_item*┘

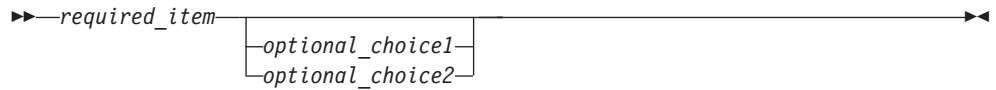
If an optional item appears above the main path, that item has no effect on the execution of the statement and is used only for readability.

\blacktriangleright —*required_item*— \blacktriangleright
 ┌*optional_item*┐

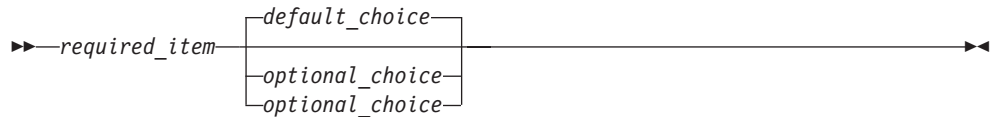
- If you can choose from two or more items, they appear vertically, in a stack. If you **must** choose one of the items, one item of the stack appears on the main path.

\blacktriangleright —*required_item*— \blacktriangleright
 ┌*required_choice1*
 └*required_choice2*┘

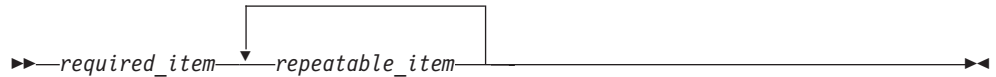
If choosing one of the items is optional, the entire stack appears below the main path.



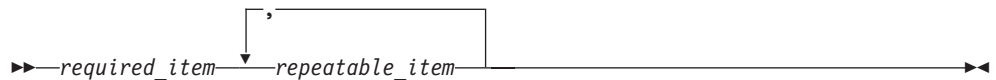
If one of the items is the default, it appears above the main path and the remaining choices are shown below.



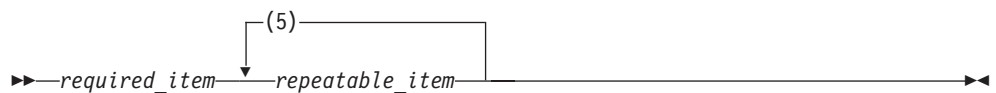
- An arrow returning to the left, above the main line, indicates an item that can be repeated.



If the repeat arrow contains a comma, you must separate repeated items with a comma.



If the repeat arrow contains a number in brackets, the number represents the maximum number of times that item can appear.



A repeat arrow above a stack indicates that you can repeat the items in the stack.

- Keywords appear in uppercase (for example, `FROM`). They specify field names in the field table and must be substituted by the field ID when coded.
- Variables appear in all lowercase letters (for example, `column name`). They represent user-supplied names or values. Variables enclosed in quotes must be coded as character strings.
- If punctuation marks, parentheses, arithmetic operators, or other such symbols are shown, you must enter them as part of the syntax.

Part 1. Planning and installing DB2 PM

Chapter 1. Introduction to the installation

This chapter gives some general information about the installation of DB2 PM. It also introduces you to the steps that are required to install DB2 PM.

DB2 PM is a priced feature of DB2 UDB for OS/390. It is offered in a “Try and Buy” program that you can install and use for up to 90 days without paying license charges. To obtain unrestricted access for a priced feature, order the “Buy” component and install it onto your DB2 UDB server.

DB2 PM Workstation Analysis & Tuning (providing access to subsystem statistics data) is delivered to DB2 licensees free of charge and is packaged on the media with the DB2 PM “Try and Buy” feature. To use this capability, you must install DB2 PM Try. When the “Try and Buy” program ends, DB2 PM is deactivated on your system, but you can still access your subsystem statistics data.

Before you begin

The distribution medium for this program is a 9-track magnetic tape (written at 6250 BPI), 3480 cartridge, or 4-mm cartridge. The tape or cartridge contains programs and data that are needed for installation. It is installed using SMP/E and is in SMP/E RELFILE format.

If you are installing DB2 PM for OS/390 by using the MVS(TM) Custom-Build Product Delivery Offering (CBPDO) (5751-CS3), your order might differ.

Along with this tape or cartridge, you receive a set of documents. One of these documents is the *DB2 PM Program Directory*. Read the *DB2 PM Program Directory* before installing DB2 PM. This document contains information about the system requirements for DB2 PM, the program materials, the program support, and the program and service level. It identifies and describes the contents of FMIDs for the tape or cartridge. It also describes any additional service that needs to be applied to DB2 PM.

Before installing DB2 PM, review the current Preventive Service Planning (PSP) information. If you obtained DB2 PM as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO tape.

If you obtained DB2 PM on a product tape, or if the CBPDO is more than two weeks old when you install it, contact the IBM Support Center or use S/390(R) SoftwareXcel to obtain the current *PSP Bucket*. Refer to the *DB2 PM Program Directory* for PSP keyword specifications.

Installation steps overview

To install DB2 PM Try, you need to perform the following procedures:

- Do the SMP/E steps for the Try installation as described in “Installing DB2 PM Try” on page 22
- Do the SMP/E steps for the NLS installation as described in “Installing DB2 PM Buy or English and Kanji panel libraries” on page 26
- Perform the product follow-on installation as described in “Product follow-on installation” on page 29

- Prepare DB2 PM for use as described in “Chapter 4. Customizing the setup for DB2 PM” on page 41
- Verify installation as described in “Chapter 5. Verifying the installation” on page 47.

To install DB2 PM Buy onto a DB2 PM Try installation, you need to perform the following procedure:

- Do the SMP/E steps for the Buy installation as described in “Installing DB2 PM Buy or English and Kanji panel libraries” on page 26.

To install DB2 PM Buy without having DB2 PM Try installed, you need to perform the following procedures:

- Do the SMP/E steps for the Try installation as described in “Installing DB2 PM Try” on page 22
- Do the SMP/E steps for the Buy and NLS installation as described in “Installing DB2 PM Buy or English and Kanji panel libraries” on page 26
- Perform the product follow-on installation as described in “Product follow-on installation” on page 29
- Prepare DB2 PM for use as described in “Chapter 4. Customizing the setup for DB2 PM” on page 41
- Verify installation as described in “Chapter 5. Verifying the installation” on page 47.

SMP/E steps summary

Before you begin installing DB2 PM, you must unload the DB2 PM tapes or cartridges. Then, you edit and run the SMP/E jobs. Table 1 shows the SMP/E steps you need to perform.

Before proceeding with these steps, refer to the *DB2 PM Program Directory* for keyword specifications for Preventive Service Planning (PSP).

Table 1. Overview of SMP/E steps DB2 PM Try

Step	Description	Job
1	Unload the installation tool (ITool)	IEBCOPY
2	Customize the parameter file	DGOJBPAP
3	Run the SMP/E-ITool to generate the SMP/E jobs	DGOJBGEN
4	Allocate the distribution and target libraries	DGOJB2AL
5	Create DDDEF entries	DGOJB3ZO
6	Run the RECEIVE job	DGOJB4RE
7	Run the APPLY job	DGOJB5AP
8	Run the ACCEPT job	DGOJB6AC
9	Receive and apply any maintenance shipped with the product	

For a detailed description of the SMP/E steps for DB2 PM Try, see “Installing DB2 PM Try” on page 22.

Table 2. Overview of SMP/E steps DB2 PM Buy and NLS

Step	Description	Job
1	Customize the parameter file	DGOJBPAP
2	Run the SMP/E-ITool to generate the SMP/E jobs	DGOJNGEN

Table 2. Overview of SMP/E steps DB2 PM Buy and NLS (continued)

Step	Description	Job
3	Allocate the distribution and target libraries	DGOJx2AL
4	Create DDDEF entries	DGOJx3ZO
5	Run the RECEIVE job	DGOJx4RE
6	Run the APPLY job	DGOJx5AP
7	Run the ACCEPT job	DGOJx6AC
8	Receive and apply any maintenance shipped with the product	

For a detailed description of the SMP/E steps for DB2 PM Buy, see “Installing DB2 PM Buy or English and Kanji panel libraries” on page 26.

Installation steps summary

After you have performed the SMP/E steps, you can edit and run the jobs for the product follow-on installation of DB2 PM. Following are the steps you need to perform.

Table 3. Overview of installation steps

Step	Description	Job
1	Customize the parameter file	DGOJCPAR
2	Run the PM-ITool to generate the product follow-on jobs	DGOJCGEN
3	Grant DB2 privileges Online Monitor Use sample job or Use DDL member DGOJAUTH	DGOJOMAU
4	DB2 bind packages Online Monitor	DGOJOMPK
5	Grant DB2 privileges explain Use sample job or Use DDL member DGOJAUTH	DGOJEXAU
6	Create or migrate DB2 views and tables for explain (a) Use DDL members: DGOYCTAB DGOYCVx1 DGOYMGx1 DGOYMIGR DGOYCOPY DGOYINDEX (b) Use sample job	DGOJEXCM
7	Create QMF(TM) tables or views Use sample job or Use DDL member DGOYxQMF	DGOJEXQM
8	DB2 bind packages explain	DGOJEXPK
9	DB2 bind plan for Online Monitor and explain	DGOJBPLA
10	Update system libraries Install data collector	—
11	IPL MVS	—
12	Review security requirements, DDL member DGOJAUTH	—

For a detailed description of the installation procedure, see “Product follow-on installation” on page 29.

Customization steps summary

After you have performed the installation steps, you can customize the setup for DB2 PM.

Table 4. Overview of customization steps

Step	Description	Job
1	Change the name for the temporary DASD storage EXEC 'prefix.DGOSAMP(DGOJUNIT)'	—
2	Modify the DGOJINIT EXEC	—
3	Activate DB2 PM source explain DGOJXPLS EXEC	—
4	Customize the ISPF defaults for DB2 PM EXEC 'prefix.SDGOSAMP(DGOJVAR)S'	—
5	Add DB2 PM to the ISPF environment	—
6	Customize the data collector installation jobs: User authorization address space Collect report data address space Data collector control statements Data sets for history, exception, and collect report data Data collector started task	DGOVDCAS DGOVDCCx DGOVDCCS DGOVDCDD DGOVDCST

For a detailed description of the customization procedure, see “Chapter 4. Customizing the setup for DB2 PM” on page 41.

Verification steps summary

After you have customized the setup for DB2 PM, verify the proper installation of DB2 PM.

Table 5. Overview of verification steps

Step	Description	Job
1	Run the installation verification jobs for: Batch reporting Batch explain Data collector Host Online Monitor	DGOJIVPA DGOJIVPB DGOJIVPC —

For a detailed description of the installation verification procedure, see “Chapter 5. Verifying the installation” on page 47.

How to fill in the installation work sheets

The values of the parameters in the parameter files DGOJBPAR and DGOJCPAR describe the operating characteristics of DB2 PM. When you install DB2 PM, the first step is to customize the parameter files according to your system’s requirements.

This section describes the parameters in the parameter files DGOJBPAR and DGOJCPAR. You find the name of the parameter, the IBM default value, which is

underlined, with alternative values. The values are separated by a logical or (|). The parameter name is followed by a description of the parameter together with additional information, such as length and relationship to other parameters.

The work sheets in “Appendix B. Installation work sheet” on page 113 and “Appendix C. Follow-on installation work sheet” on page 115 are provided to help you collect all required data before you install DB2 PM. The work sheets show the parameters with the IBM-suggested default value. Fill the work sheet column “User value” with the values you choose for each of the parameters.

Description of the parameters in parameter file DGOJBPARG

In this section, the parameters are grouped as follows:

- “Installation part-generation parameters”
- “JOB-specific parameters”
- “Global parameters” on page 8
- “SMP/E-specific parameters” on page 10.

Installation part-generation parameters

DRYRUN = 'YES' | 'NO'

Allows to run the ITOOL for checking parameters only, **no** parts are customized. Where:

YES The installation tool only checks the installation parameters.

NO The installation tool checks the parameters and generates the installation jobs if no errors were encountered.

JOB-specific parameters

JOBLIN1 = '/*' | 'value'

JCL job information: First line of JOB card. Where *value* is the job information. Length of *value* is as defined in your JES installation.

JOBLIN2 = '/*' | 'value'

JCL job information: Second line of JOB card. Where *value* is the job information. Length of *value* is as defined in your JES installation.

JOBLIN3 = '/*' | 'value'

JCL job information: Third line of JOB card. Where *value* is the job information. Length of *value* is as defined in your JES installation.

JOBLIN4 = '/*' | 'value'

JCL job information: Fourth line of JOB card. Where *value* is the job information. Length of *value* is as defined in your JES installation.

JOBLIN5 = '/*' | 'value'

JCL job information: Fifth line of JOB card. Where *value* is the job information. Length of *value* is as defined in your JES installation.

JOBLIN6 = '/*' | 'value'

JCL job information: End of JOB card. Where *value* is the job information. Length of *value* is as defined in your JES installation.

JOBOUTC = '*' | 'value'

JCL job information: output class for SYSOUT data sets. Where *value* is the job output class you use. Length of *value* is as defined in your JES installation.

SMS = 'NO' | 'YES'

Indicates whether DFSMS(TM) (Storage Management Subsystem) is installed. If DFSMS is installed, no VOLSER and UNIT specifications are generated in the installation jobs. Where:

NO DFSMS is not installed.

YES DFSMS is installed. In this case you can also specify the STORCLASS parameter.

STORCLAS = 'NONE' | 'value'

Specifies a storage-class name for a new DFSMS-managed data set. Where *value* is the name of the storage class. Length of *value* is 1 to 8. Where:

NONE

No storage class is specified.

value Is the name of the storage class. Length of *value* is 1 to 8.

This parameter is applicable only if DFSMS is installed.

TUNIT = '3480' | 'value'

The device type of the tape unit from which the distribution tape is unloaded during the installation. Where *value* is the tape device type you use. Length of *value* is 1 to 8.

WDSK = 'SYSALLDA' | 'value'

The UNIT parameter for the work disk. Where *value* is the unit type you use. Length of *value* is 1 to 8.

This parameter is applicable only if DFSMS is **not** installed.

Global parameters**APPCLIB = 'SYS1.CSSLIB' | 'value'**

The name of the APPC/MVS link-library data set that contains the APPC modules. Where *value* is the data set name in your installation. Length of *value* is 1 to 44.

This parameter is applicable only for the Workstation Online Monitor on OS/2(R) if the level of MVS you have installed supports APPC/MVS.

ASSNAME = 'ASMA90' | 'value'

The name of the Assembler that is used in your installation. Where *value* is the name in your installation. Length of *value* is 1 to 8.

BLKFB = 0 | value

The block size to be used when allocating data sets that have a **fixed block** record format. Where *value* is the block size you choose. Length of *value* is 1 to 5.

BLKU = 32760 | value

The block size to be used when allocating data sets that have an **undefined** record length. Where *value* is the block size you choose. Length of *value* is 1 to 5.

DB2PMHLQ = 'DGO.V6R1M0' | 'value'

The high-level qualifier of the product libraries. Where *value* is the qualifier you choose. Length of *value* is 1 to 35.

The following SMP/E data sets are allocated under these qualifiers:

- SMP/E distribution libraries: *DGO.V6R1M0.ADGOxxxx*

- SMP/E target libraries: *DGO.V6R1M0.SDGOxxxx*

INSTBASE = 'YES' | 'NO'

Installation indicator: Install DB2 PM Try (FMID = H0G9610). Where:

YES DB2 PM Try is to be installed now.

NO DB2 PM Try is **not** to be installed now.

If you want to install all FMIDs with DB2 PM Try, specify **INSTOPT = YES** and either **INSTENU = YES** or **INSTJPN = YES**.

INSTENU = 'YES' | 'NO'

Installation indicator: Install DB2 PM English language (FMID = J0G961E).

Where:

YES DB2 PM English language is to be installed now.

NO DB2 PM English language is **not** to be installed now.

INSTJPN = 'NO' | 'YES'

Installation indicator: Install DB2 PM Japanese language (FMID = J0G961J).

Where:

YES DB2 PM Japanese language is to be installed now.

NO DB2 PM Japanese language is **not** to be installed now.

INSTOPT = 'YES' | 'NO'

Installation indicator: Install DB2 PM Buy (FMID = J0G961X). Where:

YES DB2 PM Buy is to be installed now.

NO DB2 PM Buy is **not** to be installed now.

ISPMLIB = 'SYS1.ISPMLIB' | 'value'

The data set name of the ISPF message library. Where *value* is the data set name that is used in your installation. Length of *value* is 1 to 44.

ISPPLIB = 'SYS1.ISPPLIB' | 'value'

The data set name of the ISPF panel library. Where *value* is the data set name that is used in your installation. Length of *value* is 1 to 44.

ISPTLIB = 'SYS1.ISPTLIB' | 'value'

The data set name of the ISPF table library. Where *value* is the data set name that is used in your installation. Length of *value* is 1 to 44.

LKEDNAME = 'HEWLH096' | 'value'

The name of linkage editor or binder that is used in your installation. Where *value* is the name in your installation. Length of *value* is 1 to 8.

MVSLEVEL = 'NOAPPC' | 'APPC'

Indicator to specify whether your MVS level supports APPC/MVS. Where:

NOAPPC The level of MVS you have installed does not support APPC/MVS.

APPC The level of MVS you have installed supports APPC/MVS. In this case, you must also specify the APPCLIB parameter.

Notes:

1. This parameter is used to control the link-edit of the DB2 PM modules with the APPC/MVS interface module. APPC support is needed with the Workstation Online Monitor for OS/2 and for DB2 Workstation Analysis & Tuning.

- If you plan to use the Workstation Online Monitor for OS/2 or DB2 Workstation Analysis & Tuning, make sure that you are on the required MVS level and specify `MVSLEVEL = APPC` for the APPC support.

SMP/E-specific parameters

`CSIDISP = 'NEW' | 'OLD'`

This indicator determines whether an existing global-zone CSI data set is to be used or a new CSI data set has to be allocated. Where:

NEW A new CSI is to be allocated.

OLD An existing global zone CSI is to be used. The data set name of the existing global zone CSI you want to use is derived from the value of parameter `GCSIHLQ`, which is suffixed by CSI.

`DCSIHLQ = 'DGO.V6R1M0' | 'value'`

The high-level qualifier of the CLUSTER name of the distribution zone CSI. Where *value* is the qualifier you choose. Up to three single qualifiers are allowed. Length of *value* is 1 to 26.

Notes:

- The data set name of the distribution zone CSI is derived from the value of parameter `DCSIHLQ`, which is suffixed by CSI. For example, if you specify `DB2PM.REL61.DLB` for distribution zone CSI, the installation job `DGOJB1SM` is generated, which contains:
 - The VSAM statement to delete the old CSI cluster:

```
DELETE (DB2PM.REL61.DLB.CSI)
```
 - The VSAM statement to allocate the new CSI cluster:

```
DEFINE CLUSTER(NAME(DB2PM.REL61.DLB.CSI) ... )
```
- A distribution zone CSI data set is allocated only if the data set name **differs** from the data set name you specified for your global zone CSI (see parameter `GCSIHLQ`). If the two parameters are equal, no additional data set is allocated for the distribution zone CSI, because it indicates that you want to share a **common** data set between global zone CSI and distribution zone CSI.

`DCSIVOL = 'DGO001' | 'value'`

The volume-serial identifier of the disk on which the distribution zone CSI is to be allocated. Where *value* is the volume you want to use. Length of *value* is 1 to 6.

This parameter is applicable only if DFSMS is **not** installed.

`DISTUNIT = 'SYSALLDA' | 'value'`

The UNIT parameter for `DISTVOL`. This is the disk on which the distribution libraries (`DGO.V6R1M0.ADGOxxxx`) are loaded. Where *value* is the unit type you use. Length of *value* is 1 to 8.

This parameter is applicable only if DFSMS is **not** installed.

`DISTVOL = 'DGO001' | 'value'`

The volume-serial identifier for the disk on which the distribution libraries (`DGO.V6R1M0.ADGOxxxx`) are loaded. Where *value* is the volume you want to use. Length of *value* is 1 to 6.

This parameter is applicable only if DFSMS is **not** installed.

`DSPREFIX = 'DGO.V6R1M0' | 'value'`

The data-set prefix to be used to construct the full data set name when

SMPTLIB data sets are being allocated for RELFILE tapes. Where *value* are the qualifiers you choose. Length of *value* is 1 to 26.

DZONE = 'DGOD610' | 'value'

The name of the DLIB zone to be used by SMP/E. This name must be unique for the global zone. Where *value* is the zone name you want to use. Length of *value* is 1 to 7.

GCSIHLQ = 'DGO.V6R1M0' | 'value'

The high-level qualifier of the CLUSTER name of the global zone CSI. Where *value* are the qualifiers you choose. Up to three single qualifiers are allowed. Length of *value* is 1 to 26.

Notes:

1. The data set name of the global zone CSI is derived from the value of the parameter GCSIHLQ and is suffixed by CSI. For example, if you specify NEW for the parameter CSIDISP and DB2PM.REL61.GLOB for global zone CSI, the installation job DGOJB1SM is generated, which contains:
 - a. The VSAM statement to delete the old CSI cluster:

```
DELETE (DB2PM.REL61.GLOB.CSI)
```
 - b. The VSAM statement to allocate the new CSI cluster:

```
DEFINE CLUSTER(NAME(DB2PM.REL61.GLOB.CSI) ... )
```
2. A new global zone CSI data set is allocated only if you specify NEW for the parameter CSIDISP. Otherwise, specify the qualifier of an existing global zone CSI data set you want to share with DB2 PM for OS/390 (parameter GCSIHLQ).
3. If the values for the parameters
 - GCSIHLQ (global zone qualifiers)
 - DCSIHLQ (distribution zone qualifiers)
 - TCSIHLQ (target zone qualifiers)

are equal and you specify CSIDISP = NEW, you indicate that you want to share a **new common** data set between global zone CSI, distribution zone CSI, and target zone CSI. In this case, the installation job DGOJB1SM contains a single DELETE / DEFINE CLUSTER for this common data set.

If you want to put your distribution zone CSI and target zone CSI in data sets **different** from the global zone CSI, you can do this by specifying values for the parameters DCSIHLQ and TCSIHLQ that are different from the value specified for GCSIHLQ.

GCSIVOL = 'DGO001' | 'value'

The volume-serial identifier of the volume on which the global zone CSI is to be allocated. Where *value* is the volume you want to use. Length of *value* is 1 to 6.

This parameter is applicable only if DFSMS is **not** installed.

RELFILS = 'AUTO' | 'PRE'

Specifies if SMP/E allocates the relfiles dynamically or if the first installation job (DGOJB1SM) makes a preallocation for all SMP/E relfiles. Where:

AUTO

The allocation of the SMP/E relfiles is done dynamically.

PRE

A preallocation for all SMP/E relfiles is done by job DGOJB1SM.

RELUNIT = 'SYSALLDA' | 'value'

The UNIT parameter for RELVOL. This is the disk onto which SMP/E loads the RELFILE data sets. Where *value* is the unit type you want to use. Length of *value* is 1 to 8.

This parameter is applicable only if DFSMS is **not** installed.

RELVOL = 'DGO001' | 'value'

The volume-serial identifier for the disk onto which SMP/E loads the RELFILE data sets. Where *value* is the volume you want to use. Length of *value* is 1 to 6.

This parameter is applicable only if DFSMS is **not** installed.

SMPUNIT = 'SYSALLDA' | 'value'

The UNIT parameter for SMPVOL, the disk that contains the permanent, non-VSAM SMP/E data sets. Where *value* is the unit type you want to use. Length of *value* is 1 to 8.

This parameter is applicable only if DFSMS is **not** installed.

SMPVOL = 'DGO001' | 'value'

The volume-serial identifier of the disk that contains the permanent, non-VSAM SMP/E data sets. Where *value* is the volume you want to use. Length of *value* is 1 to 6.

The permanent SMP/E data sets are:

- DGO.V6R1M0.SMPLOG
- DGO.V6R1M0.SMPLTS
- DGO.V6R1M0.SMPMTS
- DGO.V6R1M0.SMPPTS
- DGO.V6R1M0.SMPSCDS
- DGO.V6R1M0.SMPSTS

This parameter is applicable only if DFSMS is **not** installed.

TARGUNIT = 'SYSALLDA' | 'value'

The UNIT parameter for TARGVOL. This is the disk that contains the target libraries (*prefix*.SDGOxxxx). Where *value* is the unit type you want to use. Length of *value* is 1 to 8.

This parameter is applicable only if DFSMS is **not** installed.

TARGVOL = 'DGO001' | 'value'

The volume-serial identifier for the disk that contains the target libraries (*prefix*.SDGOxxxx). Where *value* is the volume you want to use. Length of *value* is 1 to 6.

This parameter is applicable only if DFSMS is **not** installed.

TCSIHLQ = 'DGO.V6R1M0' | 'value'

The high-level qualifier of the cluster name of the target zone CSI. Where *value* are the qualifiers you choose. Up to three single qualifiers are allowed. Length of *value* is 1 to 26.

Notes:

1. The data set name of the target zone CSI is derived from the value of parameter TCSIHLQ, which is suffixed by CSI. For example, if you specify DB2PM.REL61.TGT for target zone CSI, the installation job DGOJB1SM is generated, which contains:
 - a. The VSAM statement to delete the old CSI cluster:

DELETE (DB2PM.REL61.TGT.CSI)

b. The VSAM statement to allocate the new CSI cluster:

```
DEFINE CLUSTER(NAME(DB2PM.REL61.TGT.CSI) ... )
```

2. A target zone CSI data set is allocated only if the data set name **differs** from the data set name you specified for your global zone CSI (see parameter GCSIHLQ earlier). If the two parameters are equal, no additional data set is allocated for the target zone CSI, because it indicates that you want to share a **common** data set between global zone CSI and target zone CSI.

TCSIVOL = 'DGO001' | 'value'

The volume-serial identifier of the volume on which the target zone CSI is to be allocated.

This parameter is applicable only if DFSMS is *not* installed. Where *value* is the volume you want to use. Length of *value* is 1 to 6.

TZONE = 'DGOT610' | 'value'

This is the name of the target zone to be used by SMP/E. Where *value* is the zone name you want to use. Length of *value* is 1 to 7.

Description of the parameters in parameter file DGOJCPAR

In this section, the parameters are grouped as follows:

- “Host and Workstation Online Monitor installation parameters”
- “Explain installation parameters” on page 14
- “Data collector installation parameters” on page 15.

Host and Workstation Online Monitor installation parameters

DB2EXIT = 'DSN610.SDSNEXIT' | 'value'

The DB2 exit library data set name. Where *value* is the data set name that is used in your installation. Length of *value* is 1 to 44.

DB2LOAD = 'DSN610.SDSNLOAD' | 'value'

The DB2 load library data set name. Where *value* is the data set name that is used in your installation. Length of *value* is 1 to 44.

DB2PLAN = 'DSNTIA61' | 'value'

The DB2 plan name for the utility program DSNTIAD. Where *value* is the plan name that is used in your installation. Length of *value* is 1 to 8. A plan name must begin with a letter.

DB2RUNL = 'DSN610.RUNLIB.LOAD' | 'value'

The DB2 runlib load library data set name. Where *value* is the data set name that is used in your installation. Length of *value* is 1 to 44.

DB2SUBS = 'DSN1' | 'value'

The DB2 subsystem name. Where *value* is the DB2 subsystem name that is used in your installation. Length of *value* is 1 to 4.

OMCOLLID = 'DGOOM610' | 'value'

The collection ID of the DB2 PM Online Monitor. A collection ID is a qualifier for a package ID. Where *value* is the collection ID used in your installation. Length of *value* is 1 to 15.

OMOWNER = 'DB2PM' | 'value'

The name of the authorization ID of the package owner. Where *value* is the authorization ID used in your installation. Length of *value* is 1 to 8. An authorization ID must begin with a letter.

OMPLAN = **'DGOPMOM'** | *'value'*

This is the name of the DB2 PM Online Monitor plan. Where *value* is the plan name that is used in your installation. Length of *value* is 1 to 8. A plan name must begin with a letter.

Explain installation parameters

EXINST = **'YES'** | **'NO'**

Installation indicator: Install the explain function for DB2 PM for OS/390.

Where:

YES Explain is to be installed now.

NO Explain is *not* to be installed now.

EXIDB2V = **'6.1'** | *'value'* | **NO**

DB2 version installation indicator: It can be 6.1, 5.1, or 4.1. Where:

value Is the DB2 version that is installed on your system. Length of *value* is 1 to 3.

NO DB2 is **not** to be used.

EXIOLD = **'NO'** | **'YES'**

Installation indicator: Is explain in prior DB2 PM for OS/390 release used?

Where:

NO Explain is **not** to be used.

YES Explain is to be used.

EXIOCO = **'NO'** | **'YES'**

Installation indicator: Copy of catalog already used? Where:

NO Migration is **not** to be done.

YES Migration is to be done because of changed catalogs.

Only applicable if explain is installed in prior DB2 PM for OS/390 release.

EXIOCA = **'NO'** | **'YES'**

Installation indicator: Usage of catalog copies with additional indexes? Where:

NO Additional indexes are **not** to be created.

YES Additional indexes are to be created.

The usage of catalog copies with additional indexes refers to the following DB2 tables:

- SYSIBM.SYSKEYS
- SYSIBM.SYSSTMT
- SYSIBM.SYSDBRM
- SYSIBM.SYSFIELDS

Only applicable if explain is **not** installed in prior DB2 PM for OS/390 release.

EXIQMF = **'YES'** | **'NO'**

Installation indicator: QMF is installed on the target DB2 system. Where:

YES QMF is installed.

NO QMF is **not** installed.

EXIUBAT = **'YES'** | **'NO'**

Installation indicator: Use explain function in batch mode? Where:

YES The explain function in batch mode is to be installed now.

NO The explain function in batch mode is **not** to be installed now.

Only applicable for **new** users of explain.

EXCOLLID = 'DGOEX610' | 'value'

The collection ID of the DB2 PM Explain. A collection ID is a qualifier for a package ID. Where *value* is the collection ID used in your installation. Length of *value* is 1 to 15.

EXLOCATN = '*' | 'value'

This names the location of the database management system (DBMS) where the package resides, or defers that choice until run time. Use either a particular location name or an asterisk (*). Where:

value Is the location name used in your installation. Length of *value* is 1 to 15.

* Defers specifying a location name until run time.

EXOWNER = 'DB2PM' | 'value'

The name of the authorization ID of the package owner. Where *value* is the authorization ID used in your installation. Length of *value* is 1 to 8. An authorization ID must begin with a letter.

EXPLAN = 'DGOPMEX' | 'value'

The name of the DB2 PM explain plan. Where *value* is the plan name that is used in your installation. Length of *value* is 1 to 8. A plan name must begin with a letter.

Data collector installation parameters

DCCOLRD = 'NO' | 'YES'

Installation indicator: Use the data collector with the function Collect Report Data - Online Monitor for the workstation-front end. Where:

NO The collect report data function is **not** to be installed now.

YES The collect report data function is to be installed now.

DCHLQ = 'DGO.V6R1M0' | 'value'

The high-level qualifier of the cluster name of the data sets for history, exceptions, and collect report data for the data collector. Where *value* is the data set name that is used in your installation. Length of *value* is 1 to 44.

DCHOSTOM = 'YES' | 'NO'

Installation indicator: Use the data collector cross-memory interface to the Host (ISPF) Online Monitor. Where:

YES The Host (ISPF) Online Monitor is to be installed now.

NO The Host (ISPF) Online Monitor is **not** to be installed now.

DCTCPIP = 'NO' | 'YES'

Installation indicator: Use the data collector interface for TCP/IP connection with a workstation client. Where:

NO The Workstation Online Monitor for Windows NT is **not** to be installed now.

YES The Workstation Online Monitor for Windows NT is to be installed now.

Only applicable for the Workstation Online Monitor for Windows NT and for the DB2 Workstation Analysis & Tuning.

DCVOLVE = 'DGO001' | 'value'

The volume-serial identifier of the volume on which the data sets for history, exceptions, and collect report data are to be allocated. Where *value* is the volume you want to use. Length of *value* is 1 to 6.

Chapter 2. DASD storage requirements

DB2 PM libraries can reside on 3380 and 3390 DASD. Table 6 lists the total space that is required for each type of library.

Table 6. Total DASD space required by DB2 PM

Library type	Total space required
Target	80 cylinders
Distribution	65 cylinders

The following information applies to the tables that show the storage requirements for the data sets and libraries (Table 7 on page 18, Table 8 on page 18, Table 9 on page 19, Table 10 on page 19, Table 11 on page 19, and Table 12 on page 20):

- The data set size contains 15% extra space. You might wish to revise these numbers based on your additional function or service.
- IBM recommends the use of system-determined block size for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32 760, which is the most efficient from a performance and DASD-utilization perspective.

If you choose not to use a system-determined block size, use the block size and numbers of blocks that are specified to allocate the data sets. Data sets can be reblocked to a larger size. Note that the maximum allowable block size depends on the type of DASD on which the data set resides. For example, the block size of data sets on a 3350 DASD cannot exceed 19 069.

- Abbreviations used for the data set type are:
 - U** Unique data set used only by the FMIDs listed. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or program directories) need to be referenced for the data set size.
 - S** Shared data set used by more than the FMIDs listed. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables. If the data set already exists, it must have enough free space to accommodate the storage size that is given in this table.

If you currently have a previous release of this product installed in these libraries, the installation of this release deletes the old one and reclaims the space used by the old release and any service that had been installed. You can determine whether these libraries have enough space: delete the old release with a dummy function, compress the libraries, and compare the space requirements with the free space in the libraries.

The following table provides an estimate of the storage that is needed in the SMP/E data sets for DB2 PM. Add the estimates to those of any other programs and service being installed to determine the total additional storage requirements.

Table 7. Storage requirements for SMP/E data sets

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
SMPLOG	S	PS	U	510	600	9076	110	120	—
SMPLTS	S	PO	U	0	2100	6144	250	265	30
SMPMTS	S	PO	FB	80	500	8800	80	100	100
SMPPTS	S	PO	FB	80	1000	8800	400	450	500
SMPSCDS	S	PO	FB	80	20	8800	3	4	27
SMPSTS	S	PO	FB	80	20	8800	3	4	5

The following tables list the target and distribution libraries (data sets) and their attributes that are required to install DB2 PM - Try. Add the storage requirements of DB2 PM to the storage that is required by other programs having data in the same data set (library).

Table 8. Storage requirements for DB2 PM - Try target libraries

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
SDGODATA	S	PO	VB	9072	20	9076	2	2	5
SDGODBRM	S	PO	FB	80	70	0	10	10	10
SDGOEXEC	S	PO	FB	80	310	0	45	40	10
SDGOFORM	S	PO	FB	400	10	6000	2	2	5
SDGOINS0	S	PO	FB	80	100	0	20	15	21
SDGOLINK	S	PO	U	0	20	32760	2	2	5
SDGOLOAD	S	PO	U	0	3000	32760	500	460	30
SDGOSAMP	S	PO	FB	80	200	0	25	20	20
SDGOSLIB	S	PO	FB	80	20	0	5	5	5
SDGOSRC	S	PO	FB	80	20	0	2	2	5
SDGOWS01	S	PO	VB	256	3500	6233	275	255	30

Table 9. Storage requirements for DB2 PM - Try distribution libraries

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
ADGODATA	S	PO	VB	9072	20	9076	2	2	5
ADGODBRM	S	PO	FB	80	70	0	10	10	10
ADGOEXEX	S	PO	FB	80	310	0	45	40	10
ADGOFORM	S	PO	FB	400	10	6000	2	2	5
ADGOINS0	S	PO	FB	80	100	0	20	15	21
ADGOMOD0	S	PO	U	0	2500	32760	280	250	210
ADGOSAMP	S	PO	FB	80	200	0	25	20	20
ADGOSLIB	S	PO	FB	80	20	0	5	5	5
ADGOSRC	S	PO	FB	80	20	0	2	2	5
ADGOWS01	S	PO	VB	256	3500	6233	275	255	30

Table 10. Storage requirements for DB2 PM English target libraries

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
SDGOMENU	S	PO	FB	80	45	0	10	7	8
SDGOPENU	S	PO	FB	80	1920	0	250	220	175
SDGOTENU	S	PO	FB	80	95	0	12	10	5

Table 11. Storage requirements for DB2 PM English distribution libraries

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
ADGOMENU	S	PO	FB	80	45	0	10	7	8
ADGOPENU	S	PO	FB	80	1920	0	250	220	175
ADGOTENU	S	PO	FB	80	95	0	12	10	5

The following tables list the distribution libraries (data sets) and their attributes that are required to install DB2 PM - **Buy**. Add the storage requirements of DB2 PM to the storage that is required by other programs having data in the same data set (library).

Table 12. Storage requirements for DB2 PM - Buy distribution libraries

Library DDNAME	T Y P E	D S R G	R E C M	L R C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
ADGOMOD1	S	PO	U	0	248	32760	2	2	5

Chapter 3. Installing DB2 PM

This chapter describes the installation method and lists the steps to install the functions of DB2 PM.

To use the DB2 Installer feature to install DB2 PM, see the instructions in the README.TXT file on the “DB2 UDB for OS/390 Version 6 Workstation Solutions: DB2 Installer” CD-ROM.

Note the following:

- If you want to install DB2 PM into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMPCSI and the SMP/E control data sets.
- The job DGOJB1SM (optional) is generated in the data set *prefix.SDGOINS1*. This job is provided to help perform some or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries required for SMP/E processing have been defined in the appropriate zones.
- You can use the SMP/E dialogs instead of the generated jobs to accomplish the SMP/E installation steps.

Installing DB2 PM can require updates to system libraries and an IPL. Read “Installation step 10: Updating system libraries” on page 37 and “Installation step 12: Reviewing security requirements” on page 39 carefully before proceeding with the installation.

Review the DB2 authorization requirements prior to the installation. The GRANT statements are all contained within data definition language (DDL) member DGOJAUTH that is generated during “Installation step 2: Run the PM-ITool” on page 30 in the library *prefix.SDGOSAMP*.

The installation tools: SMP/E-ITool and PM-ITool

Installation tools, the SMP/E-ITool and the PM-ITool, support all tasks to install and adapt the product to the customer environment. The ITools are supplied with DB2 PM. They support the installation as follows:

- The SMP/E-ITool customizes all parts that are needed to run the SMP/E installation.
- The PM-ITool customizes all parts that are needed to run the product follow-on installation, for example, bind packages and plan. In addition, it customizes all parts of the product that are needed after DB2 PM was installed successfully.

How the SMP/E-ITool and the PM-ITool work

The SMP/E-ITool and the PM-ITool are unloaded from the distribution tape or cartridge to a data set named *prefix.CNTL* using an IEBCOPY job, where *prefix* is the data set high-level qualifier. The high-level qualifier recommended for DB2 PM is *DGO.V6R1M0*. It can be replaced by a qualifier of your choice.

The ITool samples are:

DGOJBGEN A job to customize the SMP/E installation jobs for DB2 PM Try

DGOJNGEN	A job to customize the SMP/E installation jobs for DB2 PM Buy and NLS
DGOJCGEN	A job to customize the product follow-on jobs
DGOJBREX	A REXX EXEC called by DGOJBGEN and DGOJNGEN
DGOJCREX	A REXX EXEC called by DGOJCGEN
DGOJBPAR	A parameter file that contains your parameters for SMP/E installation
DGOJCPAR	A parameter file that contains your parameters for product follow-on installation.

With the ITOOLS, several templates are unloaded to the *prefix.CNTL* data set. The SMP/E-ITool and the PM-ITool use them to build the installation jobs for the SMP/E installation and the follow-on installation.

When the ITOOLS are started, they use the parameter files DGOJBPAR, DGOJCPAR, and job templates as input. First, the ITOOLS check all parameters for validity and consistency. If the parameters are correct, the ITOOLS customize, depending on the installation parameters, certain job templates from the *prefix.CNTL* data set using ISPF file tailoring.

The customized installation jobs and the parameter files DGOJBPAR and DGOJCPAR are written to the output data set *prefix.SDGOINS1*, because all following invocations of any of the ITool jobs use the parameter file from the *prefix.SDGOINS1* data set. If the *prefix.SDGOINS1* data set does not exist, it is created.

For the SMP/E installation, the SMP/E-ITool writes a protocol of all parameters and, if found, error and warning messages to the data set *prefix.SDGOINS1*. The member name is PROTBASE for the DB2 PM Try installation and PROTFEAT for the DB2 PM Buy or NLS installation.

For the product follow-on installation, the PM-ITool writes a protocol of all parameters, and, if found, error and warning messages to the data set *prefix.SDGOINS1*. The member name is PROTCUST.

Installing DB2 PM Try

This section describes how to install DB2 PM Try.

SMP/E considerations for installing Try

This release of DB2 PM Try is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. You can use the SMP/E dialogs to perform the SMP/E installation steps.

SMP/E environment overview - Try

All DD statements that are required for the processing of the SMP/E installation jobs must be defined using DDDEFS.

Jobs are generated in the data set *prefix.SDGOINS1* to assist you in installing DB2 PM Try. The jobs are:

DGOJB2AL	Job to allocate target and distribution libraries
-----------------	---

DKOJB3ZO Job to define SMP/E DDDEFs
DKOJB4RE RECEIVE job
DKOJB5AP APPLY CHECK and APPLY job
DKOJB6AC ACCEPT CHECK and ACCEPT job.

SMP/E options subentry values - Try

The recommended values for SMP/E CSI subentries are shown in Table 13. Use of values lower than these can result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

Table 13. SMP/E options subentry values

SUB-ENTRY	Value	Comment
DSSPACE	200,200,600	3390 DASD tracks
PEMAX	9999	The SMP/E default is larger than what can be specified here.

SMP/E step 1: Unload the installation tool (ITool) - Try

Sample installation jobs are provided on the distribution tape to help you install DB2 PM. The following sample JCL copies the DB2 PM jobs from the tape. Add a job card and change the parameter values shown in italics to values that meet your site's requirements before you submit the job. Note that the sample job applies only to DASD environments that are not controlled by SMS.

```

//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=IBM.H0G9610.F6,UNIT=tunit,VOL=SER=0G9610,
// LABEL=(7,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=prefix.CNTL,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// DCB=*.STEP1.IN,SPACE=(8800,(160,15,10))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=IN,OUTDD=OUT
/*
  
```

Where:

tunit Is the unit value matching the product tape or cartridge.
prefix Is the high-level qualifier of the data set where the generated jobs are to reside. It must be the same name as you specify for the DB2PMHLQ parameter in the DKOJBPAR member (see "SMP/E step 2: Customize the parameter file - Try" on page 24). The low-level qualifier CNTL is mandatory in the *prefix*.CNTL data set name.
dasdvol Is the volume serial of the DASD device where the data set is to reside.
dunit Is the DASD unit type of the volume.

SMP/E step 2: Customize the parameter file - Try

Update the installation parameter file DGOJBPAR in data set *prefix*.CNTL according to the specifications in the SMP/E installation work sheet (refer to “How to fill in the installation work sheets” on page 6 and “Appendix B. Installation work sheet” on page 113). Each entry in the work sheet corresponds to a parameter definition line in the parameter file.

When you edit the parameter file DGOJBPAR:

- Use uppercase characters.
- You can insert comment lines, which must start with `--*`

For example, specify the following:

```
--*insert comments
```

- Do not delete any parameter lines.

During the first SMP/E installation of DB2 PM, the installation of DB2 PM Try FMID H0G9610 is mandatory. You can select additional FMIDs for this first run by setting the corresponding parameter in member DGOJBPAR to YES.

Table 14. Selectable FMIDs

Name	FMID	Installation Parameter
DB2 Workstation Analysis & Tuning & DB2 PM Try	H0G9610	INSTBASE=YES
DB2 PM English	J0G961E	INSTENU=YES
DB2 PM Japanese (Kanji)	J0G961J	INSTJPN=YES
DB2 PM Buy	J0G961X	INSTOPT=YES

To perform a test run of the SMP/E-ITool, specify `DRYRUN=YES`, in which case only parameter checking occurs without generating the customized installation jobs.

SMP/E step 3: Run the SMP/E-ITool - Try

Update the SMP/E-ITool job DGOJBGEN in data set *prefix*.CNTL. Adapt the job card and certain data set names as described in the job prologue.

Submit the SMP/E-ITool job DGOJBGEN. Check member PROTBASE in data set *prefix*.SDGOINS1. Make sure that the parameter values are those that are required for your specific environment. If parameter checking produces errors, correct the problem and resubmit the SMP/E-ITool job DGOJBGEN.

Set parameter `DRYRUN` to `NO` and submit the SMP/E-ITool job DGOJBGEN again. The job generates the following members in the *prefix*.SDGOINS1 data set:

- Several jobs (members DGOJB1SM, DGOJB2AL, DGOJB3ZO, DGOJB4RE, DGOJB5AP, and DGOJB6AC) to perform the DB2 PM Try SMP/E installation
- The SMP/E-ITool protocol (PROTBASE)
- The SMP/E-ITool installation parameter file (DGOJBPAR)
- The SMP/E-ITool job (DGOJNGEN), which is needed when you install DB2 PM Buy or NLS
- The PM-ITool job (DGOJCGEN)
- The PM-ITool installation parameter file (DGOJCPAR).

Check the job output for successful completion: the job must end with completion code 0. Check for any error and warning messages at the end of the protocol.

If parameter checking produces errors, the SMP/E-ITool does not start job tailoring and installation jobs are not generated. Correct the problem and resubmit the SMP/E-ITool job DGOJBGEN.

SMP/E step 4: Allocate distribution and target libraries - Try

Submit the job DGOJB2AL to allocate the SMP/E target and distribution libraries for DB2 PM.

Expected return codes and messages: This job completes with return code 0.

SMP/E step 5: Create DDDEF entries - Try

Submit the job DGOJB3ZO to define SMP/E DDDEFs for DB2 PM.

Expected return codes and messages: This job completes with return code 0 or return code 4.

SMP/E step 6: Run the RECEIVE job - Try

Submit the job DGOJB4RE to perform the SMP/E RECEIVE for DB2 PM.

Note: If you obtained DB2 PM for OS/390 as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the DB2 PM for OS/390 FMIDs as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the documentation included within the CBPDO.

Expected return codes and messages: This job completes with return code 0.

SMP/E step 7: Run the APPLY job - Try

Edit the job DGOJB5AP. Update it according to the instructions in the job. Submit the job to perform an SMP/E APPLY for DB2 PM.

Expected return codes and messages: This job completes with return code 0 if you specify MVSLEVEL=APPC, or with return code 4 if you specify MVSLEVEL=NOAPPC. In the latter case, the binder links the object modules **without** the non-DB2 PM modules (for example, ATBRFA2, ATBURA2, and so on). So, the linkage editor cannot resolve all external symbols and issues a warning (return code 4). No further action is required.

SMP/E step 8: Run the ACCEPT job - Try

Edit the job DGOJB6AC. Update it according to the instructions in the job. Submit the job to perform an SMP/E ACCEPT for DB2 PM.

The ACCJCLIN indicator in the distribution zone is set. If you load new distribution libraries, entries produced from JCLIN are saved in the distribution zone whenever a SYSMOD containing inline JCLIN is ACCEPTed. For more information on the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E manuals.

Expected return codes and messages: This job completes with return code 0.

SMP/E step 9: Receive and apply maintenance - Try

If PTFs containing replacement modules are being ACCEPTed, SMP/E ACCEPT processing link-edits and binds the modules into the distribution libraries. During this processing, the linkage editor or binder might issue messages documenting unresolved external references, resulting in a return code of 4 from the ACCEPT step. These messages can be ignored, because the distribution libraries are not executable and the unresolved external references do not affect the executable system libraries.

Installing DB2 PM Buy or English and Kanji panel libraries

This section describes how to install DB2 PM Buy or the English and Kanji panel libraries onto a DB2 PM Try installation.

SMP/E considerations

This release of DB2 PM is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs can be used to perform the SMP/E installation steps.

SMP/E environment overview

All DD statements that are required for the processing of the SMP/E installation jobs must be defined using DDDEFs.

Jobs are generated in the data set *prefix*.SDGOINS1 to assist you in installing DB2 PM. The jobs are:

DGOJx2AL	Job to allocate target and distribution libraries
DGOJx3ZO	Job to create SMP/E DDDEF entries
DGOJx4RE	RECEIVE job
DGOJx5AP	APPLY CHECK and APPLY job
DGOJx6AC	ACCEPT CHECK and ACCEPT job.

The *x* in the job name is the identifier for the FMIDs you are installing. Replace it as follows:

E	Jobs for DB2 PM English (FMID J0G961E)
J	Jobs for DB2 PM Japanese (FMID J0G961J)
O	Jobs for DB2 PM Buy (FMID J0G961X).

SMP/E step 1: Customize the parameter file - Buy

Update the parameter file DGOJBPARG in data set *prefix*.SDGOINS1 according to the specifications in the SMP/E installation work sheet (refer to “How to fill in the installation work sheets” on page 6 and “Appendix B. Installation work sheet” on page 113). Each entry in the work sheet corresponds to a parameter definition line in the parameter file.

Select the FMID that you want to install additionally into your SMP/E environment. Set the installation parameter of that FMID to YES.

The FMIDs for installations are:

Table 15. Possible FMIDs

Name	FMID	Installation Parameter
DB2 PM English	J0G961E	INSTENU=YES
DB2 PM Japanese (Kanji)	J0G961J	INSTJPN=YES
DB2 PM Buy	J0G961X	INSTOPT=YES

SMP/E step 2: Run the SMP/E-ITool - Buy

Submit the SMP/E-ITool job DGOJNGEN from the *prefix*.SDGOINS1 data set. The job was generated during the DB2 PM Try installation.

This job generates the following members in the *prefix*.SDGOINS1 data set:

- Several jobs (DGOJx2AL, DGOJx3ZO, DGOJx4RE, DGOJx5AP, and DGOJx6AC) to perform the DB2 PM Buy or NLS SMP/E installation
- The SMP/E-ITool protocol (member PROTFEAT).

Note: The jobs are only generated when you have specified DRYRUN=NO.

Check the job output for successful completion: the job must end with completion code 0.

In addition, check member PROTFEAT in data set *prefix*.SDGOINS1. Make sure that the parameter values are those needed for your specific environment. Check for any error and warning messages at the end of the protocol.

If parameter checking produces errors, the SMP/E-ITool does not start job tailoring and installation jobs are not generated. Correct the problem and resubmit the SMP/E-ITool job DGOJNGEN.

SMP/E step 3: Allocate distribution and target libraries

Submit the job DGOJx2AL to allocate the SMP/E target and distribution libraries.

Expected return codes and messages: This job completes with return code 0.

SMP/E step 4: Create DDDEF entries

Submit the job DGOJx3ZO to define SMP/E DDDEFs.

Expected return codes and messages: This job completes with return code 0 or return code 4.

SMP/E step 5: Run the RECEIVE job - Buy

Submit the job DGOJx4RE to perform the SMP/E RECEIVE.

Expected return codes and messages: This job completes with return code 0.

SMP/E step 6: Run the APPLY job - Buy

Edit the job DGOJx5AP. Update it according to the instructions in the job. Submit the job to perform an SMP/E APPLY.

Expected return codes and messages: This job completes with return code 0.

SMP/E step 7: Run the ACCEPT job - Buy

Edit the job DGOJx6AC. Update it according to the instructions in the job. Submit the job to perform an SMP/E ACCEPT.

Expected return codes and messages: This job completes with return code 0.

SMP/E step 8: Receive and apply maintenance - Buy

If PTFs containing replacement modules are being ACCEPTed, SMP/E ACCEPT processing link-edits and binds the modules into the distribution libraries. During this processing, the linkage editor or binder might issue messages documenting unresolved external references, resulting in a return code of 4 from the ACCEPT step. These messages can be ignored, because the distribution libraries are not executable and the unresolved external references do not affect the executable system libraries.

Installing the Application Programming Interface

This chapter describes how to install the Application Programming Interface (API) on various platforms. The following platforms are supported:

- Windows NT Version 4.0
- Solaris Version 5.6 or higher
- AIX(R) Version 4.3 or higher
- Linux 2.2 or higher
- OS/390 Version 2.7

Installing the API on Windows NT

To install the API on Windows NT, perform the following steps:

1. Using the File Transfer Program (FTP), download member DGOKANT in binary mode as file `c:\DGOKANT.exe` from data set *prefix.SDGOWS01* on the DB2 PM product tape.
2. Open the DOS prompt and enter `c:\dgokant.exe`.
3. In the displayed dialog, enter the target directory where the API should be installed, for example `C:\`.
4. Follow the path Start - Settings - Control Panel and open the System icon.
5. Switch to the page called Environment.
6. If you want to build your own monitoring application, search for INCLUDE under System Variables or User Variables and add
`;C:\db2pm\include`
to the end of the list (if you have specified a target directory different from `C:\`, then replace `C:\` by the path information you have specified as your target directory). If you cannot find the variable INCLUDE, add a new INCLUDE variable with
`C:\db2pm\include`
or the appropriate path you have specified.
7. Search for LIB under System Variables and add
`;C:\db2pm\lib`
to the end of the list (if you have specified a target directory different from `C:\`, then replace `C:\` by the path information you have specified as your target directory).
8. Search for PATH under System Variables and add
`;C:\db2pm\lib`

to the end of the list (if you have specified a target directory different from C:\, then replace C:\ by the path information you have specified as your target directory).

9. Reboot your workstation for the changes to take effect.

Installing the API on Unix (Linux, Solaris, AIX, OS/390)

To install the API on Unix, perform the following steps:

1. Log on as root.
2. Using the File Transfer Program (FTP), download member DGOKAUX in binary mode as file /tmp/DGOKAUX.tar.Z from data set *prefix*.SDGOWS01 on the DB2 PM product tape.
3. Using FTP, download member DGOKAINS in ASCII mode as file /tmp/install.sh from data set *prefix*.SDGOWS01 on the DB2 PM product tape.
4. Make the installation program executable by changing its attributes using the command `chmod 0755 /tmp/install.sh`.
5. Run the installation script by entering `/tmp/install.sh`.
6. If you want to build your own monitoring application, add `/usr/include/db2pm` to the INCLUDE environment variable. You are recommended to do this by adding the following line
`export INCLUDE=$INCLUDE:/usr/include/db2pm`
to your \$HOME/.profile file.

Installing the Workstation Online Monitor

The details of installing the workstation code for OS/2 and Windows NT are described in *DB2 PM Using the Workstation Online Monitor*.

How to set up the data collector for the Workstation Online Monitor is described in "Installation hints" on page 63.

Product follow-on installation

Batch jobs are generated to assist you in preparing the Online Monitor and explain processing (see data set *prefix*.SDGOINS1):

DGOJOMAU Job for DB2 privileges for the Host and Workstation Online Monitor

DGOJOMPK Job to bind packages for the Host and Workstation Online Monitor

DGOJEXAU Job for DB2 privileges for explain processing

DGOJEXCM Job to create or migrate DB2 views and tables for explain

DGOJEXQM Job to create QMF tables or views

DGOJEXPK Job to bind explain packages

DGOJBPLA Job to bind plan for Online Monitor and explain.

DDL members are provided to assist you in preparing explain processing (see data set *prefix*.SDGOSAMP):

DGOJAUTH SQL GRANT statements for DB2 privileges

DGOYCTAB Create explain tables for using explain in batch mode

DGOYCVx1 Create views

DGOYMGx1 Migrate views
DGOYMIGR Drop 4 tables
DGOYCOPY Drop views and create the tables including indexes
DGOYINDX Create indexes on the nonindexed catalog tables
DGOYxQMF Create QMF tables or views.

It is assumed that the DB2 system administrator performs the product follow-on installation.

Installation step 1: Customize the parameter file

Update the parameter file DGOJCPAR in data set *prefix*.SDGOINS1 according to the specifications in the work sheet for the product follow-on installation (refer to “How to fill in the installation work sheets” on page 6 and “Appendix C. Follow-on installation work sheet” on page 115). Each entry in the work sheet corresponds to a parameter definition line in the parameter file.

Change the job card of the parameter file DGOJBPAR in data set *prefix*.SDGOINS1 to the TSO user ID that you want to use.

When you edit the parameter files DGOJBPAR and DGOJCPAR:

- Use uppercase characters.
- You can insert comment lines, which must start with `--*`

For example, you must specify the following:

```
--*insert comments
```

- Do not delete any parameter lines.

To perform a test run of the PM-ITool, specify `DRYRUN=YES` in member DGOJBPAR, in which case only parameter checking occurs without generating the customized installation jobs.

Installation step 2: Run the PM-ITool

Submit the PM-ITool job DGOJCGEN in data set *prefix*.SDGOINS1. The job was generated during the DB2 PM Try SMP/E installation. Check the job output for successful completion: the job must end with completion code 0.

In addition, check member PROTCUST in data set *prefix*.SDGOINS1. Make sure that all the parameter values are those needed for your specific environment. If parameter checking produces errors, correct the problem and resubmit the PM-ITool job DGOJCGEN.

Set parameter `DRYRUN` to `NO` and submit the PM-ITool job DGOJCGEN again. Now the job generates the following members in the *prefix*.SDGOINS1 data set:

- Several jobs (members DGOJOMAU, DGOJOMPK, DGOJEXAU, DGOJEXCM, DGOJEXPK, DGOJEXQM, and DGOJBPLA) to perform the Host Online Monitor and explain functions
- The PM-ITool protocol (PROTCUST)
- Several jobs (members DGOJIVPA, DGOJIVPB, DGOJIVPC, and DGOJIVPD) for the installation verification procedure.

Also, the following members are generated in *prefix*.SDGOSAMP for later use:

- The DDL member for DB2 privileges (DGOJAUTH)

- Several jobs (members DGOVDCAS, DGOVDCC_x, DGOVDCCS, DGOVDCDD, DGOVDLK, and DGOVDCST) for customizing and starting the data collector.

Check the job output for successful completion. If parameter checking produces errors, the PM-ITool does not start job tailoring and installation jobs are not generated. Correct the problem and resubmit the PM-ITool job DGOJCGEN.

Installation steps 3 and 4: Prepare Online Monitor processing

Perform the installation steps 3 and 4.

Installation step 3: Grant DB2 privileges for the Online Monitor

For the Online Monitor, you need the following DB2 privileges:

- BINDADD
- PACKADM on collection DGOOM610
- SELECT on the following catalog tables:
 - SYSIBM.SYSDATABASE
 - SYSIBM.SYSDBRM
 - SYSIBM.SYSINDEXES
 - SYSIBM.SYSPACKAGE
 - SYSIBM.SYSPACKSTMT
 - SYSIBM.SYSPLAN
 - SYSIBM.SYSSTMT
 - SYSIBM.SYSTABLES
 - SYSIBM.SYSTABLESPACE
 - SYSIBM.SYSUSERAUTH

Submit the job DGOJOMAU to grant the DB2 privileges for the Online Monitor. Check the job output for successful completion.

GRANT statements to support these authorizations are also included in DDL member DGOJAUTH. Run the DDL member using SPUFI (or equivalent). Make sure that the SQL return code is 0 and a commit is performed.

Installation step 4: Bind Online Monitor packages for DB2

Submit the job DGOJOMPK to bind the Online Monitor packages. Check the job output for successful completion.

For each additional DB2 subsystem in which you intend to use the Online Monitor, change the DB2 subsystem ID and the DB2 high-level qualifier in the job DGOJOMPK and repeat this step. For subsystems which are members in a DB2 data-sharing group, it is sufficient to repeat this step for a single member of this group.

Installation steps 5 through 8: Prepare explain processing

Perform these steps only if you are planning to use the explain function of DB2 PM and the installation parameter EXINST=YES was specified. Otherwise go to “Installation step 9: DB2 bind plan” on page 37.

You can install explain processing by using one of the following:

- The DDL members using SPUFI (steps 5a–8a)
- The sample batch jobs (steps 5b–8b).

Prepare explain using DDL members

All DDL members are in the library *prefix.DGOSAMP*.

Installation step 5a: Grant DB2 privileges for the explain function: For the explain function, you need the following DB2 privileges:

- BINDADD
- PACKADM on collection DGOEX610
- SELECT on the following catalog tables:
 - SYSIBM.SYSCOLDIST
 - SYSIBM.SYSCOLUMNS
 - SYSIBM.SYSDATABASE
 - SYSIBM.SYSDBRM
 - SYSIBM.SYSFIELDS
 - SYSIBM.SYSINDEXES
 - SYSIBM.SYSINDEXPART
 - SYSIBM.SYSINDEXSTATS
 - SYSIBM.SYSKEYS
 - SYSIBM.SYSPACKAGE
 - SYSIBM.SYSPACKDEP
 - SYSIBM.SYSPACKLIST
 - SYSIBM.SYSPACKSTMT
 - SYSIBM.SYSPLAN
 - SYSIBM.SYSSTMT
 - SYSIBM.SYSSYNONYMS
 - SYSIBM.SYSTABLEPART
 - SYSIBM.SYSTABLES
 - SYSIBM.SYSTABLESPACE
 - SYSIBM.SYSTABSTATS

GRANT statements to support these authorizations are included in the DDL member DGOJAUTH. Run the DDL member using SPUFI (or equivalent). Make sure that the SQL return code is 0 and a commit is performed.

Installation step 6a: Create or migrate DB2 views and tables:

1. Set up explain tables for using the explain function in batch mode:

Perform this step only for **new** users of DB2 PM explain.

Edit the DDL member DGOYCTAB needs to replace the database name DSNDB04 with the name that is used at your installation.

Run the DDL member using SPUFI (or equivalent). Make sure that the SQL return code is 0 and a commit is performed.

For the respective DB2 authorization, run the DDL member DGOJAUTH. Run the DDL member using SPUFI (or equivalent). Make sure that the SQL return code is 0 and a commit is performed.

2. Create or migrate DB2 views and tables for explain:

DB2 PM explain processing uses views or table copies of the referenced DB2 catalog tables. You need to create these objects before you run the bind job.

Table 16 on page 33, Table 17 on page 34, and Table 18 on page 35 show which DDL members are required for explain processing in your DB2 environment. The name of the installation parameter for the DB2 version is EXDB2V. The column "Usage of catalog copies with additional indexes?" refers to these DB2 tables:

- SYSIBM.SYSKEYS
- SYSIBM.SYSSTMT
- SYSIBM.SYSDBRM
- SYSIBM.SYSFIELDS

You can create your own indexes directly on the DB2 catalog tables. The DDL member DGOYINDEX in the library *prefix.SDGOSAMP* is supplied for this purpose.

Table 16. Explain processing with DB2 Version 4.1

Explain in previous DB2 PM release used?	Copy of catalog already used?	Usage of catalog copies with additional indexes?	Sample DDL member in library SDGOSAMP	Comments	Member DGOJAUTH ¹ for DB2 privileges
EXIOLD	EXIOCO	EXIOCA	—	Name of installation parameter	—
No	—	No	DGOYCV41	Create views only	3
		Yes	DGOYCV41 DGOYINDEX	Create views and indexes on catalogs	3,6
Yes	No	No	DGOYMG41	Migrate views because of changed catalogs	3
		Yes	DGOYMG41	Migrate views because of changed catalogs	3,5
	DGOYCOPY		Drop 4 views and create 4 tables including indexes		
	Yes	No	DGOYMG41	Migrate views because of changed catalogs	3
			DGOYMIGR	Drop 4 tables	
Yes	Yes	Yes	DGOYMG41	Migrate views because of changed catalogs	3

Table 17. Explain processing with DB2 Version 5.1

Explain in previous DB2 PM release used?	Copy of catalog already used?	Usage of catalog copies with additional indexes?	Sample DDL member in library SDGOSAMP	Comments	Member DGOJAUTH ¹ for DB2 privileges
EXIOLD	EXIOCO	EXIOCA	—	Name of installation parameter	—
No	—	No	DGOYCV51	Create views only	3
		Yes	DGOYCV51 DGOYINDEX	Create views and indexes on catalogs	3,6
Yes	No	No	DGOYMG51	Migrate views because of changed catalogs	3
		Yes	DGOYMG51	Migrate views because of changed catalogs	3,5
	DGOYCOPY		Drop 4 views and create 4 tables including indexes		
	Yes	No	DGOYMG51	Migrate views because of changed catalogs	3
			DGOYMIGR	Drop 4 tables	
		Yes	DGOYMG51	Migrate views because of changed catalogs	3

Table 18. Explain processing with DB2 Version 6.1

Explain in previous DB2 PM release used?	Copy of catalog already used?	Usage of catalog copies with additional indexes?	Sample DDL member in library SDGOSAMP	Comments	Member DGOJAUTH ¹ for DB2 privileges
EXIOLD	EXIOCO	EXIOCA	—	Name of installation parameter	—
No	—	No	DGOYCV61	Create views only	3
		Yes	DGOYCV61 DGOYINDX	Create views and indexes on catalogs	3,6
Yes	No	No	DGOYMG61	Migrate views because of changed catalogs	3
		Yes	DGOYMG61	Migrate views because of changed catalogs	3,5
	DGOYCOPY		Drop 4 views and create 4 tables including indexes		
	Yes	No	DGOYMG61	Migrate views because of changed catalogs	3
			DGOYMIGR	Drop 4 tables	
		Yes	DGOYMG61	Migrate views because of changed catalogs	3

Note: ¹ The member DGOJAUTH in the library *prefix*.SDGOSAMP contains DDL for the DB2 privileges. The DDL member has several sections. This column specifies the sections that you can change and run to grant DB2 privileges.

When you have determined which members are required, change and run:

- The appropriate DDL members (DGOYCV41, DGOYCV51, DGOYCV61, DGOYMIGR, DGOYMG41, DGOYMG51, or DGOYMG61) to create or migrate views.

Edit the DDL member to:

- Control access to the views, in which case you must include predicates in the CREATE VIEW statements
- Choose to use synonyms as an alternative to views.

Run the DDL using SPUFI (or equivalent). Make sure that the SQL return code is 0 and that a commit is performed.

- The DDL member DGOYCOPY to drop the VIEWS and create the TABLES including indexes.

Edit the DDL member to:

- Replace the database name DSNDB04 with the name that is used at your installation
- Control access to the views, in which case you must include predicates in the CREATE VIEW statements
- Choose to use synonyms as an alternative to views.

Run the DDL using SPUFI (or equivalent). Make sure that the SQL return code is 0 and that a commit is performed.

- The DDL member DGOYINDEX to create indexes on the nonindexed catalog tables.

Edit the DDL member to:

- Change the columns that are used in the index
- Change the index names
- Add or remove indexes.

Run the DDL using SPUFI (or equivalent). Make sure that the SQL return code is 0 and that a commit is performed.

Installation step 7a: Create QMF tables or views:

- If QMF is installed on the target DB2 subsystem, edit the DDL member DGOYVQMF to choose to use synonyms as an alternative to views.

Run the DDL member using SPUFI (or equivalent). Make sure that the SQL return code is 0 and a commit is performed.

For DB2 authorization you need to run the DDL member DGOJAUTH.

- If QMF is not installed on the target DB2 subsystem, edit the DDL member DGOYCQMF to replace the database name DSNDB04 with the name used at your installation.

Run the DDL member using SPUFI (or equivalent). Make sure that the SQL return code is 0 and a commit is performed.

For DB2 authorization you need to run the DDL member DGOJAUTH.

Installation step 8a: Bind explain packages for DB2: Submit the job DGOJEXPK in the library *prefix*.SDGOINS1 to bind the explain packages. Check the job output for successful completion.

Prepare explain using sample batch jobs

All batch jobs are in the library *prefix*.SDGOINS1. Always check the output **before** submitting the next job.

Installation step 5b: Grant DB2 privileges for the explain function: Edit and submit the job DGOJEXAU to set up the DB2 authorization for explain processing. Refer to the instructions in the job. Check the job output for successful completion.

Installation step 6b: Create or migrate DB2 views and tables for explain: Edit and submit the job DGOJEXCM to create or migrate the DB2 views and tables for explain. Refer to the instructions in the job. Check the job output for successful completion.

DB2 PM for OS/390 explain processing uses views or table copies of the referenced DB2 catalog tables. Create these objects before you run the bind job.

Installation step 7b: Create QMF tables or views: Edit and submit the job DGOJEXQM to create the DB2 views or tables for QMF. Refer to the instructions in the job. Check the job output for successful completion.

Installation step 8b: Bind explain packages for DB2: Submit the job DGOJEXPK to bind the explain packages. Check the job output for successful completion.

Installation step 9: DB2 bind plan

Submit the job DGOJBPLA to bind the plan for Host and Workstation Online Monitor (DGOPMOM) or the explain function (DGOPMEX). Check the job output for successful completion.

Note

If you change any of the plan names, do the following:

1. Perform the task “Step 4: Customize the ISPF defaults for DB2 PM” on page 43.
2. Notify all DB2 PM batch users to specify this plan name in the PLANEXPLAIN option of the GLOBAL command whenever they use the EXPLAIN command.

Installation step 10: Updating system libraries

Perform these steps only if you plan to use the DB2 PM data collector with the Host Online Monitor. Refer to the appropriate MVS initialization and tuning publication for information on the syntax requirements for the SYS1.PARMLIB members.

This section describes:

- How to install a DB2 PM data collector
- How to update a previous version of the DB2 PM data collector.

For better understanding read the first part in any case.

Initial installation of the data collector

Update the following members in the SYS1.PARMLIB data set:

- IEFSSNxx

This member contains an entry for each MVS subsystem. DB2 PM adds one entry to this list of entries. Via this single entry, DB2 PM supports one or more data collectors on a single MVS system, regardless of the data collector release.

For example, if you plan to start two data collectors connected to two DB2 subsystems on a single MVS system, add only one entry in the IEFSSNxx member.

For each MVS system on which you plan to start a data collector, you need one DB2 PM entry in the IEFSSNxx member. Because the value for ENQNAME is used for enqueueing purposes on an MVS system level only, you can use the same ENQNAME on all your MVS systems.

Unique names must be used for each entry. The format of the entry for DB2 PM is:

```
SSNM,DGOVSINI,ENQNAME
```

Where:

SSNM Is the MVS subsystem name for DB2 PM. A value of DGOV is suggested. This name corresponds to the value in the PARM field of the EXEC statement of the data collector started-task JCL (see the sample member DGOVDCST in the library *prefix.SDGOSAMP*).

Note: If you change the default MVS subsystem name for DB2 PM, perform the task “Step 4: Customize the ISPF defaults for DB2 PM” on page 43.

DGOVSINI Is the name of the DB2 PM load module MVS calls during the master scheduler initialization.

ENQNAME Is the major name for the enqueue that DB2 PM issues when a data collector is active. The ENQNAME name cannot be shared between MVS systems. The name must consist of one to eight alphanumeric characters. If the name is omitted or not valid, DGOVENQN is assumed.

- APF authorization for DB2 PM libraries:
 - IEAAPFxx
This applies to systems that do **not** use the dynamic APF facility.
This member contains a list of program library names (DSNAMES) and corresponding volume serial numbers that require APF authorization. Add both the DB2 PM SDGOLINK and SDGOLOAD libraries to this list.
 - PROGxx
This applies to systems that use the dynamic APF facility.
This member contains a list of program library names (DSNAMES) and corresponding volume serial numbers that require APF authorization. Add both the DB2 PM SDGOLINK and SDGOLOAD libraries to this list.
- LNKLSTxx
This member contains the names of program libraries that are to be concatenated to SYS1.LINKLIB to form the system LNKLST concatenation. Add the DB2 PM SDGOLINK library to this list. You can also add the DB2 PM SDGOLOAD library. Because any data set that is added to the LNKLSTxx member must be cataloged in the master catalog of the system, you might need to change the high-level qualifier of those DB2 PM load libraries.
If you choose not to add the DB2 PM SDGOLINK library to the system LNKLST concatenation, you must copy the entire contents of that library to a library that is in the LNKLST concatenation.

If the data collector was already installed

Update the following members of the SYS1.PARMLIB data set:

- IEFSSNxx
This member contains a list of every MVS subsystem. There is no need to define another MVS subsystem for DB2 PM, so an IPL is not required.
- APF authorization for DB2 PM libraries:
 - IEAAPFxx
This applies to systems that do **not** use the dynamic APF facility.
Add both DB2 PM libraries SDGOLINK and SDGOLOAD to this list (an IPL is required).
 - PROGxx
This applies to systems that use the dynamic APF facility.
Add both DB2 PM libraries SDGOLINK and SDGOLOAD to this list (an IPL is not required).
- LNKLSTxx
Delete the old SDGOLINK in the system LNKLST member, add the new link library SDGOLINK to the system LNKLST concatenation, or replace the modules

in the system LNKSTxx member containing the DB2 PM entries. You should have only one release of DB2 PM in the system LNKST concatenation. You can use a STEPLIB to access other releases.

Installation step 11: IPL MVS

Except for the PROGxx member, the MVS system needs to be IPLed for the PARMLIB updates to take effect. Because the security modifications might also require an IPL, ensure that all system updates are done at the same time so that only one IPL needs to be scheduled.

Note

Depending on the version of the operating system, an IPL might not be required:

- If the operating system is MVS/ESA Version 5 or a subsequent release, you can activate the updates for IEFSSNxx dynamically by using the SETSSI command.
- If the operating system is OS/390 Version 1 Release 3 or a subsequent release, you can activate the updates for LNKSTxx dynamically by using the SETPROG LNKST command.

These commands are described in the system command reference for the respective operating system.

Installation step 12: Reviewing security requirements

Depending on your system software and on the functions you plan to use, you might need to make changes to your existing security arrangements. Review each of the following security considerations.

Online Monitor for host, workstation, and DB2 workstation analysis & tuning

To work with the Online Monitor (with or without the data collector), users need the following DB2 privileges:

- EXECUTE on the host online monitor plan (DGOPMOM).
- MONITOR1 privilege.
- MONITOR2 privilege for those users who need access to the currently running SQL statement using the thread detail function. Note that MONITOR2 privilege gives access to potentially sensitive data.
- TRACE and DISPLAY privilege for those users who need to use the collect report data function.

GRANT statements to support these authorizations are included in the DDL member DGOJAUTH in the library *prefix*.SDGOSAMP.

Explain

To work with either DB2 PM Online, batch or source explain, users need the following DB2 privileges:

- EXECUTE on the explain plan (DGOPMEX)
- SELECT on object DGO_SYSPACKAGE
- SELECT on object DGO_SYSDBRM.

GRANT statements to support these authorizations are included in the DDL member DGOJAUTH in the library *prefix*.SDGOSAMP.

The following authorizations are required in relation to the DB2 PLAN_TABLE:

- SELECT authority on the plan owner's PLAN_TABLE
For a static explain, the information is retrieved from the PLAN or PACKAGE owner's PLAN_TABLE.
- UPDATE authority on the PLAN_TABLE of the primary authorization
For dynamic explains, the explain results are inserted into the PLAN_TABLE belonging to the user performing the explain.
- CREATE or ALTER authority in the default database or a user-specified database
If the person executing the dynamic explain does not have a PLAN_TABLE, DB2 PM creates a PLAN_TABLE either in the default database in the case of batch explain or in a user-specified database or default database in the case of Online Monitor explain. CREATETAB authority in this database is therefore required. Furthermore, if the PLAN_TABLE does exist but is not concurrent with the release of DB2 being used in the explain job, DB2 PM alters the existing PLAN_TABLE to be consistent with the release of DB2 being run.

Programming Control Facility

If you use the Programming Control Facility (PCF) licensed program (Program Product 5798-CLW) or an equivalent, update the PCF command list with the names of DB2 PM modules invoked as TSO command processors. These modules are:

- DB2MEP
- DGOBMAIN
- DGOCMIBR
- DGOFMAIN
- DGOMCDB2
- DGOMHIST
- DGOMLOOK
- DGOMMAIN
- DGOMYX00
- DGOUHUGO
- DGOVMAIN

The update allows you to use these commands and prevents the error message IKJ56500I COMMAND xxxx NOT FOUND being issued.

Chapter 4. Customizing the setup for DB2 PM

This chapter describes how to:

- Change the name for temporary DASD storage
- Modify the DGOJINIT EXEC
- Activate DB2 PM source explain
- Customize the ISPF defaults for DB2 PM
- Add DB2 PM to the ISPF environment
- Customize the data collector installation jobs.

Step 1: Change the name for temporary DASD storage

In various parts of DB2 PM, the name SYSDA is used to allocate temporary DASD space. In the past, there was no way of changing SYSDA to a different identifier.

Since DB2 PM Version 5, however, DB2 PM allows you to specify a different name for SYSDA. If you specify a name other than SYSDA, it is used by the Online Monitor and the Batch Monitor for all dynamically allocated temporary space on the volumes with that unit name. The default value for the *unit* name is SYSDA.

Run the EXEC by entering the following command in ISPF option 6 (TSO Command Processor):

```
EXEC 'prefix.SDGOSAMP(DGOJUNIT)'
```

You are prompted:

Enter the new unit group name (1 - 8 characters).

If the change has been successful, the following message is displayed:

```
DGOJ030 The unit group has been successfully changed to  
'new_name'.
```

Note: Before starting the EXEC *prefix.SDGOSAMP(DGOJUNIT)*, make sure that the high-level qualifiers of the DB2 PM SDGOLOAD library are the same as the high-level qualifiers of the SDGOSAMP library. If you choose to add the DB2 PM SDGOLOAD library to the system LNKST concatenation, you must rename the high-level qualifiers of the SDGOLOAD to run the EXEC.

You must have the authority to update the *prefix.SDGOLOAD* library and the ZAP program when you activate the EXEC.

Step 2: Modify the DGOJINIT EXEC

This section applies to the Host Online Monitor of DB2 PM and does not involve end users unless they have their own copy of the EXEC.

1. The DGOJINIT EXEC exists in the DB2 PM target library *prefix.SDGOSAMP*. Before editing this EXEC, copy it into a library that is in your CLIST library concatenation.
2. There are four lines in this EXEC which might need changes. They are at the beginning of the EXEC and are delimited by comments indicating the start and the end of the section that can be modified.
3. If you have checked that your environment is correct, you can change the line:

```
checks = 1
```

to:

```
checks = 0
```

It is suggested, however, that this change be made **after** the installation verification procedure (IVP) has completed successfully.

4. If you have installed the Japanese NLS version, then change the line:

```
language = "ENU"
```

to:

```
language = "JPN"
```

5. Change the following statement to reflect the names you choose for the DB2 PM target libraries:

```
high_level_qualifiers = "DGO.V6R1M0"
```

For example, if the libraries begin with SYS1.DB2PM, then the statement would be changed to:

```
high_level_qualifiers = "SYS1.DB2PM"
```

6. GDDM(R) libraries:

- If your system is using GDDM, change the following statement to reflect the name of the GDDM symbol library:

```
gddm_symbol_library = "GDDM.V2R3M0.SGDDMSYM"
```

The name must be fully qualified.

If you intend to save graphs from within DB2 PM, add the appropriate ALLOC and FREE statements for ADMCDATA and ADMGDF as required. You might also need to change the ALLOC statement for ADMCFORM to concatenate a user format library.

- If your system is not using GDDM, change the following statement:

```
gddm_symbol_library = "GDDM.V2R3M0.SGDDMSYM"
```

to:

```
gddm_symbol_library = ""
```

7. Save the updated DGOJINIT EXEC.

Note: If you intend to use the Host Online Monitor, you need to allocate the DB2 load library corresponding to the version and release number of the DB2 subsystem to be monitored to ISPLLIB **before** starting your ISPF session. Alternatively, you can have the library in a STEPLIB, JOBLIB, or the system LNKST concatenation.

This EXEC is tested when you perform the installation verification procedures that are described in "Chapter 5. Verifying the installation" on page 47.

Step 3: Activate DB2 PM source explain

DGOJXPLS is a REXX EXEC in the DB2 PM library *prefix*.SDGOSAMP that can be used to start the DB2 PM source explain function.

To activate DB2 PM source explain, do the following:

1. Copy DGOJXPLS to the system EXEC or CLIST library that contains DGOJINIT.

2. Rename the copy of DGOJXPLS to EXPLAIN.

Step 4: Customize the ISPF defaults for DB2 PM

DGOJVARs is a REXX EXEC in the DB2 PM library *prefix*.SDGOSAMP that can be used to customize various defaults for the DB2 PM ISPF dialogs. Run the EXEC by entering the following command in ISPF option 6 (TSO Command Processor):

```
EXEC 'DGO.V6R1M0.SDGOSAMP(DGOJVARs)'
```

The panel in Figure 1 shows the parameters as shipped with DB2 PM for OS/390.

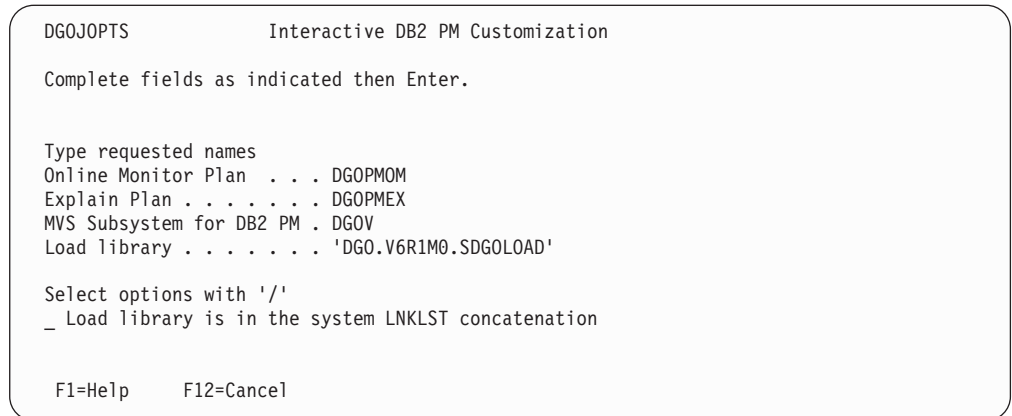


Figure 1. Interactive DB2 PM customization (DGOJOPTS) panel

Check the following parameters and customize them according to your installation requirements:

- The Online Monitor plan name
- The explain plan name
- The MVS subsystem name for DB2 PM for OS/390
- The load library name
- The load library in the system LNKLST concatenation.

Complete the panel fields and press **Enter**. If the customization has been successful, message DGOJ008 is displayed.

In the example shown in Figure 2 on page 44 the user changes the Online Monitor plan, the explain plan, and the load library name and specifies that the load library is in the system LNKLST concatenation.

```

DGOJOPTS          Interactive DB2 PM Customization

Complete fields as indicated then Enter.

Type requested names
Online Monitor Plan . . . DB2PM061
Explain Plan . . . . . DB2PMX61
MVS Subsystem for DB2 PM . DGOV
Load library . . . . . 'SYS1.SDGOLoad'

Select options with '/'
/ Load library is in the system LNKLST concatenation

F1=Help      F12=Cancel

```

Figure 2. Customizing the DB2 PM defaults

Step 5: Add DB2 PM to the ISPF environment

Note

This section is intended primarily for system programmers working with ISPF and TSO systems. Consult the programmers before making any changes to your ISPF or TSO environment.

You can add the following DB2 PM ISPF applications your environment:

- DB2 PM
- The data collector administrator dialog.

DB2 PM is for all users whereas the data collector administrator dialog is for personnel involved in the operation of data collectors.

To update the appropriate panels so that these applications can be started, do the following:

1. Select an appropriate ISPF menu panel.
For the DB2 PM application, choose a panel available to all users (for example, the ISPF/PDF main menu ISR@PRIM). For the data collector administrator, choose a panel available only to those users requiring that function.
2. Change the menu panel for the applications.
The associated ZSEL variable values for each application are:
 - For DB2 PM: CMD(%DGOJINIT)
 - For the data collector administrator: CMD(%DGOJINIT DGOVMAIN)
3. Ensure that the new version of the DGOJINIT EXEC is available in the active EXEC or CLIST library. DGOJINIT uses the TSO ALTLIB command to allocate and deallocate the EXEC library dynamically.

Step 6: Customize the data collector installation jobs

Sample jobs are provided to help you install and customize the data collector (see data set *prefix.SDGOSAMP*):

DGOVDCAS Sample job for user authorization address space

- DGOVDCCx** Sample job for collect report data address space
- DGOVDCCS** Sample job for data collector control statements
- DGOVDCDD** Sample job for data collector history and exceptions data sets and a data set for the collect report data started task
- DGOVDCLK** Sample job to link the data collector with APPC
- DGOVDCST** Sample job for the data collector started task.

The data collector parameters are described in detail in “Chapter 6. Customizing the data collector” on page 51.

This section describes the data collector started-task JCL, the user authorization address space, and the definition of data sets required for various data collector functions.

Before you can use a data collector, do the following:

1. Create job control statements in a system procedure library that runs the data collector as a started task. Use the sample member DGOVDCST as a basis for the data collector started-task JCL. The member name of this JCL can be any name other than that of the DB2 PM subsystem DGOV. This is a system restriction (refer to “Installation step 10: Updating system libraries” on page 37 for more information).

Edit member DGOVDCST. Check and change the DD statements for:

- STEPLIB

The DB2 PM and DB2 load libraries. If one or both of these data sets are in the link list, they can be omitted from this DD statement. This DD statement is optional.

If you plan to use the data collector parameter USEDB2AUTHEXIT=YES, activate the DD statement for the DSNEXIT library.

- SYSPRINT

All messages are written to this data set and sent to the console. This DD statement is required.

- DCPARMS

The parameters data set. This can be a sequential data set or a member of a partitioned data set. This DD statement is required. It is strongly recommended that the data set be protected from alteration by users to prevent them circumventing the security mechanism.

Use the sample member DGOVDCCS. This member contains sample control statements suitable for the first-time users of the DB2 PM data collector.

- HISTORY

The history VSAM data set. This data set contains data that is gathered by the data collector. This DD statement is only required for use with the HISTORY command.

- EVENTS

This data set contains data that is collected in response to specific exception events. This DD statement is only required for exception event processing.

2. Use the sample member DGOVDCAS as a basis for the user authorization address space JCL that is started automatically by the data collector started task if the data collector parameters APPC or TCPIP and SERVER are set to YES.

Edit member DGOVDCAS. Check and change the DD statements for:

- STEPLIB

The DB2 PM and DB2 load libraries. If one or both of these data sets are in the link list, they can be omitted from this DD statement. This DD statement is optional. The DSNEXIT library must be specified before the DB2 library.

- SYSPRINT

All messages are written to this data set and issued to the console. This DD statement is required.

3. If you intend to use history or exception-event processing, you need to define the data sets. You can use the sample member DGOVDCDD to define both history and exception event data sets.

Note: You need to define separate history and exception event data sets for each data collector.

Chapter 5. Verifying the installation

Several jobs are generated to help you verify the installation of DB2 PM (see data set *prefix.SDGOINS1*). The PM-ITool customizes these jobs:

DGOJIVPA	Verification job for batch reporting
DGOJIVPB	Verification job for the batch explain function
DGOJIVPC	Verification job for using the data collector with the Host Online Monitor
DGOJIVPD	Verification job for the data collector parameters.

Batch reporting

The procedure for testing batch reporting causes DB2 PM to produce various traces and reports.

Submit the job DGOJIVPA. The expected return code is zero.

Batch explain

The procedure for testing the batch explain function causes DB2 PM to produce an explain report.

Submit the job DGOJIVPB. The expected return code is zero.

When an explain request is processed, DB2 PM checks if a plan table exists for the primary authorization ID. If a plan table does not exist, DB2 PM creates it in the default database, and messages DGOY0100I and DGOY0102I are issued.

The DB2 authorizations required in conjunction with this step are described in "Explain" on page 39.

Data collector

Perform this step only if you are using the data collector with the Host Online Monitor.

1. Copy the member DGOJIVPC in the DB2 PM library *prefix.SDGOINS1* to a system procedure library.
2. Start the data collector using the MVS command `S procname` where *procname* is the name of the member into which DGOJIVPC was copied.

If the installation has been successful, message DGOV0006 is displayed on the console.

Host Online Monitor

Before you begin with this step, make sure that the panel identifier is displayed on the top left-hand corner of the panel. If it is not, type `PANELID` on the command line and press **Enter**. The panel name is now displayed.

Do the following:

1. Select the DB2 PM option from the appropriate ISPF panel.
2. Press **Enter**. Panel DGOFMENU is now displayed with a copyright notice in a window. The copyright dates must be 1985, 1998.
3. Select the Online Monitor on the DGOFMENU panel:
 - a. Type 3 in the input field to select *View online DB2 activity*.
 - b. Press **Enter**. The DB2 PM Online Monitor main menu (DGOMMENU) is displayed.

The first time you enter the Online Monitor, no subsystem is specified. If you try to use any of the Online Monitor functions before a DB2 subsystem has been specified, error message DGOM510 is displayed. You need to specify the DB2 subsystem to be monitored.

4. To specify a subsystem, perform the following from the DB2 PM Online Monitor main menu:
 - a. Type 4 in the input field to select *Options*.
 - b. Press **Enter**. The Options menu (DGOMDPMN) is displayed.
 - c. Type 1 in the input field to select *DB2 Subsystem*.
 - d. Press **Enter**.

If you are using a data collector, the DB2 Subsystems List window (DGOMDWSL) is displayed. Enter a slash (/) beside a data collector DB2 location.

If you are not using a data collector, the DB2 Subsystem window (DGOMDWS1) is displayed.
 - e. Press **Enter**. The DB2 subsystem ID has now been specified, and you are returned to the Options menu. Verify that the correct location name, subsystem ID, and DB2 version number are now displayed at the upper right-hand corner of the panel.
5. Press **F3** (Exit) to return to the DB2 PM Online Monitor main menu (DGOMMENU).
6. Press **F3** (Exit) to return to the DB2 PM main menu.
7. Press **F3** (Exit) to leave DB2 PM.
8. If you started the data collector in step "Data collector" on page 47, stop it with the MVS command `P procname`.

Final steps

The installation verification is now complete.

After the IVP has completed successfully, move the updated DGOJINIT to a system EXEC or CLIST library so that the users can access it.

Part 2. Customizing DB2 PM

Chapter 6. Customizing the data collector

This chapter describes the concepts of the data collector. It explains in detail the functions of the data collector and guides you on how to install and customize these functions.

Concepts of the DB2 PM data collector

The data collector runs as an OS/390 started-task address space. Additional OS/390 started-task address spaces may be started when you use functions like Collect report data or the APPC or TCP/IP server for the workstation-based Online Monitor.

The data collector connects to DB2 to get snapshot data about the DB2 performance and to send SQL statements or DB2 commands for execution by DB2 (see “Snapshot processing and DB2 commands” on page 70). In addition, it provides the following functions:

- Exception processing (“Exception” on page 78)
- Collection of history data (“History” on page 71)
- Handling of performance data for CP parallelism (“Collection of parallelism data” on page 89)
- Collect report data (“Collect report data” on page 82)
- Displaying data collector details and starting and stopping data collector traces (“Diagnose” on page 91).

You must adjust the data collector to the DB2 system to be monitored (see “DB2 adjustment” on page 66).

The data collector also provides the user exits:

- Exception processing exit
- User authorization exit.

If you want to use these exits, you must adjust the data collector as described in “Data collector authorization adjustment” on page 68.

The data collector provides the following interfaces for a DB2 PM client:

- The MVS subsystem interface for DB2 PM
Used for the host-based Online Monitor
- The APPC interface
Used for the workstation-based Online Monitor for OS/2
- The TCP/IP interface for single-user terminal sessions
Used for the workstation-based Online Monitor for Windows NT.
The interface is called **TCP/IP interface for single-user terminal sessions** because each TCP/IP connection to the data collector server is used by the DB2 PM workstation client for one user terminal only.

The data collector provides the following interface for the C-API¹:

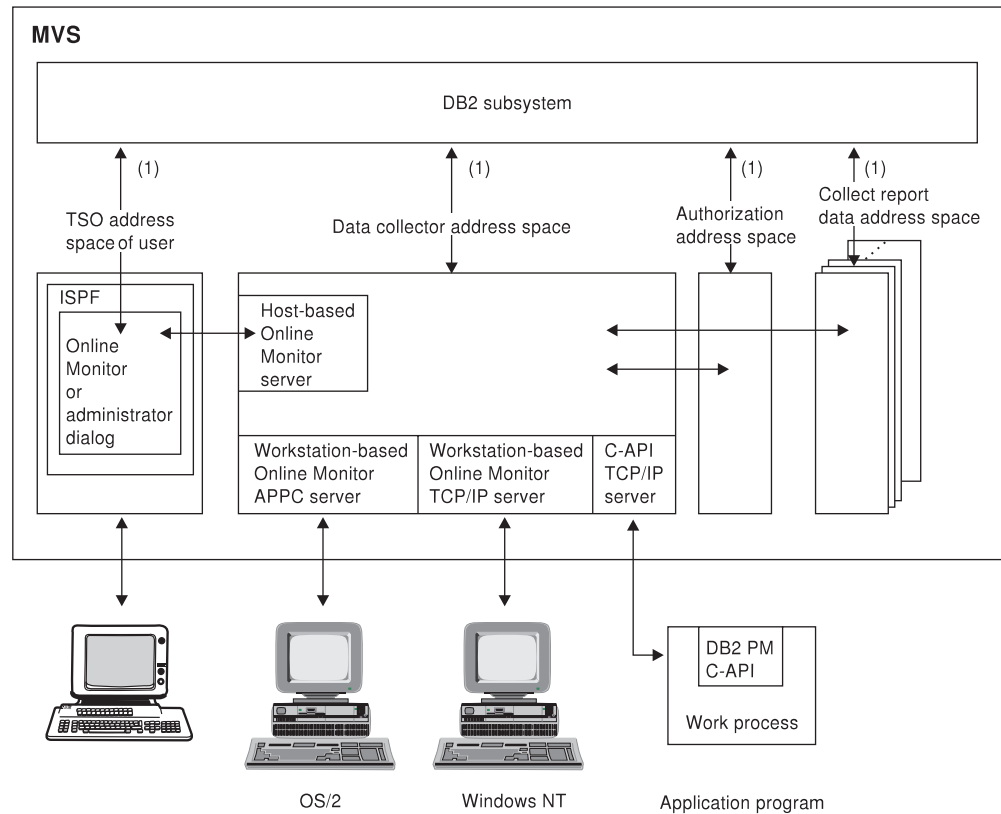
- The TCP/IP interface for multi-user terminal sessions

Used for the C-API.

The interface is called **TCP/IP interface for multi-user terminal sessions** because each TCP/IP connection to the data collector server issued by the C-API client can be used by one or more user terminals.

With the respective data collector *operation mode* you can start a data collector for workstation-based online monitoring, host-based online monitoring, C-API, or any combination of these.

Figure 3 shows the data collector in an MVS system with the attached clients. In addition, it shows the authorization address space that is started by the data collector when workstation-based online monitoring and the C-API is used and the address spaces for the collect report data (CRD) function that are started by the data collector when CRD is in use.



- (1) Connected to DB2 by using the DB2 call attachment facility (CAF) to issue:
- Instrumentation facility interface calls (IFI calls)
 - Commands
 - SQL statements

Figure 3. Data collector overview

1. The C-API is a DB2 PM provided interface, which allows an application program to gain access to the DB2 PM functions of the data collector. Refer to the *DB2 PM Data Collector Application Programming Interface Guide*, where the interface is described in detail.

For improved readability, the abbreviated term C-API is used in this document.

For information about online monitoring, refer to the *DB2 PM Online Monitor User's Guide* and to *DB2 PM Using the Workstation Online Monitor*.

How to customize the data collector

DB2 PM provides these means of customizing the data collector:

- The data collector startup parameters
- The data collector operator commands
- The DB2 PM administrator dialog.

Refer to “Appendix A. Data collector command interface summary” on page 105 for the overall syntax diagram and the syntax rules when using data collector startup parameters and data collector operator commands. The administrator dialog is described in the *DB2 PM Online Monitor User's Guide*.

Data collector operation modes

You can customize the data collector to support one or more of the following interfaces that determine the operation mode of the data collector:

- Host-based Online Monitor
- Workstation-based Online Monitor and C-API
 - Using an APPC server (for workstation-based Online Monitor only)
 - Using a TCP/IP server for single-user terminal sessions (for workstation-based Online Monitor only)
 - Using a TCP/IP server for multi-user terminal sessions (for C-API only).

Set the operation mode by using the startup parameters before the data collector is started. You cannot change the data collector setup dynamically while the data collector is running. Use the parameter `HOSTOLM` for the host-based Online Monitor and the parameter `SERVER` for the workstation-based Online Monitor and the C-API.

Host-based Online Monitor support

Host-based Online Monitor clients are connected to the data collector via the DB2 PM MVS subsystem interface. You must set up the DB2 PM MVS subsystem interface during the initial installation of the data collector (refer to “Initial installation of the data collector” on page 37).

In addition, set up the support for the communication between the address spaces of the data collector and those of the host-based Online Monitor clients. Do this by specifying HOSTOLM=YES in the data set member that contains the startup parameters for the data collector.

The installation of the host-based Online Monitor support allows you to use the DB2 PM administrator dialog panel. You can change data collector parameter settings while the data collector is active. For more information about the administrator dialog panel, refer to the *DB2 PM Online Monitor User's Guide*.

Authorization

Data collector authorization

To enable this function, the privilege set of the process must include the following:

- Access to a DB2 Version 6, Version 5, or Version 4 subsystem
- EXECUTE privilege on the Online Monitor plan

(The default plan name is DGOPMOM unless it was changed during installation.)

- MONITOR1 privilege
- Display trace privilege.

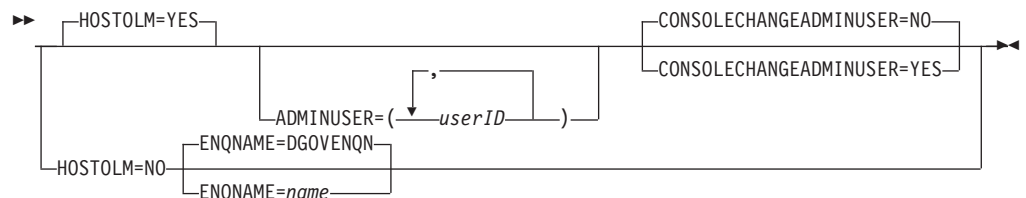
The following authorizations are recommended:

- MONITOR2 privilege or SYSADM authority if access to the currently processed SQL statement is needed.

Note

Granting MONITOR2 privilege allows access to potentially sensitive data, that is, the SQL statement being processed.

Syntax diagram of startup parameters



Syntax diagram of operator commands



Parameter description

The following list shows the options for the host-based Online Monitor support. The options are shown in the order in which they appear in the syntax diagram:

HOSTOLM=*value*

Used to specify whether the cross-memory interface to the host (ISPF) Online Monitor is to be started, where *value* is one of the following:

- YES** Cross-memory interface is to be started. You can abbreviate this value to "Y". This is the default.
- NO** Cross-memory interface is not to be started. The DB2 PM subsystem specification in the startup member for the data collector is ignored. You can abbreviate this value to "N".

This parameter cannot be changed from the console.

ADMINUSER=(*userID*,...)

Used to specify the administrator users for the data collector parameters, where *userID* is a TSO user ID. Administrator users are authorized to access the administrator dialog panels. Refer to the *DB2 PM Online Monitor User's Guide* for a detailed description on how to administrate the data collector.

Changing this parameter from the console is possible only when `CONSOLECHANGEADMINUSER=YES` was specified. In this case, it replaces the current list of users.

You can abbreviate this parameter to "A".

CONSOLECHANGEADMINUSER=*value*

Used to specify whether the user ID of the administrator user can be changed from the console, where *value* can be one of the following:

- YES** The administrator users can be specified from the console. You can abbreviate this value to "Y".
- NO** The administrator users cannot be specified from the console. This is the default. You can abbreviate this value to "N".

This parameter cannot be changed from the console.

You can abbreviate this parameter to "CCAU".

ENQNAME=*name*

Used to specify the major name for the enqueue that DB2 PM issues when a data collector is active, where *name* must be a term of 1 to 8 characters. If this parameter is not specified, the default value `DGOVENQN` is used.

If `HOSTOLM=YES` was specified or the specification of `HOSTOLM` was omitted, `ENQNAME` is ignored.

The specification of this parameter is optional.

This parameter cannot be changed from the console.

Installation hints

For information about the installation of the data collector refer to “Initial installation of the data collector” on page 37.

Usage notes

- Running the system without host-based Online Monitor support
If you want to use only the workstation-based Online Monitor and the C-API, you do not have to set up the DB2 PM MVS subsystem interface and the respective communication support. In this case, specify HOSTOLM=NO in the startup member. The DB2 PM subsystem specification in the startup member for the data collector is ignored.
- Internal buffer sizes
The data collector uses a buffer size of up to 1 MB for responses to requests that are passed via the host-based Online Monitor. The maximum of 1 MB is an internal limit. It is not customizable.

Examples

In these examples, the following setup is made:

- Set up the communication that is required for the host-based Online Monitor support.
- Users ABC, MONROE, and ADM1 are authorized to work with the administrator dialog panel.
- The administrator user IDs cannot be changed from the console.

```
*****  
* Set up Host Online Monitor  
*****  
HOSTOLM=YES  
ADMINUSER=(ABC,MONROE,ADM1)  
CONSOLECHANGEADMINUSER=NO
```

or

```
*****  
* Set up Host Online Monitor  
*****  
HOSTOLM=Y  
A=(ABC,MONROE,ADM1)  
CCAU=N
```

Workstation-based Online Monitor and C-API support

The data collector provides an APPC server for OS/2-based Online Monitor clients, a TCP/IP server, which supports single-user terminal sessions for Windows NT-based Online Monitor clients, and a TCP/IP server, which supports multi-user terminal sessions for the C-API. You can customize the data collector to start:

- No server
- Either the APPC or the TCP/IP server for single-user terminal sessions
- TCP/IP for multi-user terminal sessions
- All types of servers.

The infrastructure for the data collector server support is established when you specify SERVER=YES in the startup member. The respective servers are started when you specify APPC=YES, TCPIP=YES, or both, depending on your installation needs.

Authorization

If you specify SERVER=YES, the data collector starts an additional address space (referred to as DB2 PM authorization address space in this document) with the name specified with the AUTHASN parameter. It must be the name of the procedure in SYS1.PROCLIB that specifies the first program to run in the new address space.

The DB2 PM authorization address space is used to run requests from users of the workstation-based Online Monitor and C-API with DB2 standard authorization (via grant, revoke) as well as with DB2-provided external authorization (for example, RACF(R)). The authorization for the DB2 PM authorization address space is changed when the data collector creates and uses the accessor environment element (ACEE) for the end user before connecting to the DB2 call attachment facility (CAF) interface. The ACEE is generated with the user ID or group ID that is specified on the DB2 PM workstation logon panel or by invoking the pmLogon() function of the C-API.

Data collector authorization

To enable this function, the privilege set of the process must include the following:

- Access to a DB2 Version 6, Version 5, or Version 4 subsystem
- EXECUTE privilege on the Online Monitor plan
(The default plan name is DGOPMOM unless it was changed during installation.)
- MONITOR1 privilege
- Display trace privilege.

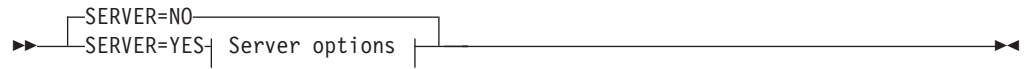
The following authorities are recommended:

- MONITOR2 privilege or SYSADM authority if access to the currently processed SQL statement is needed.

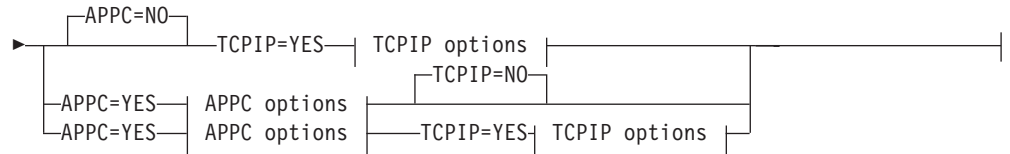
Note

Granting MONITOR2 privilege allows access to potentially sensitive data, that is, the SQL statement being processed.

Syntax diagram of startup parameters



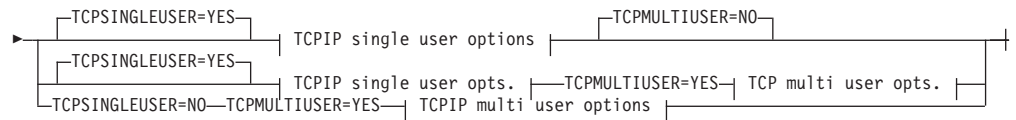
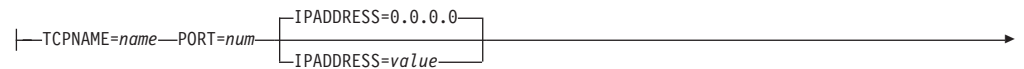
Server options:



APPC options:



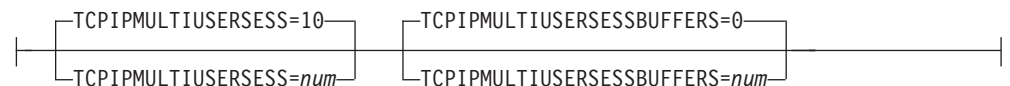
TCPIP options:



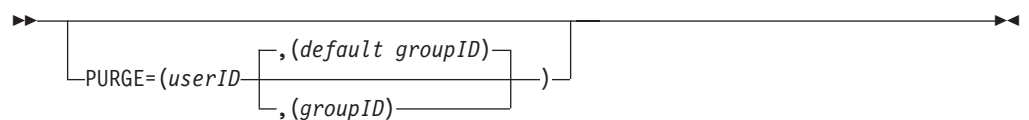
TCPIP single user options:



TCPIP multi user options:



Syntax diagram of operator commands



Parameter description

The following list shows the options for the workstation-based Online Monitor. The options are shown in the order in which they appear in the syntax diagram:

SERVER=*value*

Used to specify whether the DB2 PM server function is to be started, where *value* can be one of the following:

- YES** DB2 PM server function is to be started. You can abbreviate this value to "Y".
- NO** DB2 PM server function is not to be started. This is the default. You can abbreviate this value to "N".

If APPC=YES or TCPIP=YES was specified, SERVER=YES is set also. If both APPC=NO and TCPIP=NO were specified, SERVER=NO is set also.

This parameter cannot be changed from the console.

AUTHORIZATIONADDRESSSPACENAME=*name*

Used to specify the name of the procedure in the SYS1.PROCLIB that is to run, where *name* must consist of 1 to 8 characters. The first character must be alphabetic or special (#, \$, or @). The other characters can be alphabetic, special, or numeric.

This parameter is used only if SERVER=YES, APPC=YES, or both were specified.

This parameter cannot be changed from the console.

You can use the sample member DGOVDCAS in the DB2 PM library SDGOSAMP as a basis for the data collector parameters.

You can abbreviate this parameter to "AUTHASN".

APPC=*value*

Used to specify whether the APPC interface is to be started, where *value* can be any of the following:

- YES** APPC is to be started. You can abbreviate this value to "Y".
- NO** APPC is not to be started. You can abbreviate this value to "N". This is the default.

If APPC=YES or TCPIP=YES was specified, SERVER=YES is set also. If both APPC=NO and TCPIP=NO were specified, SERVER=NO is set also.

This parameter cannot be changed from the console.

APPCSESS=*num*

Used to specify the maximum number of parallel APPC sessions supported by the data collector, where *num* can have any value from 1 to 10.

If this parameter is not specified, the default value is 4.

This parameter is used only if SERVER=YES, APPC=YES, or both were specified.

This parameter cannot be changed from the console.

SYMDEST=*name*

Used to specify the symbolic destination name used by the data collector for the APPC/MVS interface, where *name* is the symbolic destination name with a length of 8 characters.

This parameter is used only if SERVER=YES, APPC=YES, or both were specified.

This parameter cannot be changed from the console.

TCPIP=*value*

Used to specify whether the TCP/IP server is to be started, where *value* can be one of the following:

YES The TCP/IP server is to be started. You can abbreviate this value to "Y".

NO The TCP/IP server is not to be started. This is the default. You can abbreviate this value to "N".

If TCPIP=YES or APPC=YES was specified, SERVER=YES is set also. If both TCPIP=NO and APPC=NO were specified, SERVER=NO is set also.

This parameter cannot be changed from the console.

TCPNAME=*name*

Used to specify the name of the TCP/IP address space you want to connect to, where *name* must be a term of 1 to 8 characters. For example, in an installation with a TCP/IP test system and a TCP/IP production system, you can use the TCPNAME parameter to select the system you want to use.

The specification of this parameter is mandatory.

This parameter cannot be changed from the console.

PORT=*num*

Used to specify the port number that is to be used for the TCP/IP server, where *num* is a 16-bit number. The specification of PORT is mandatory if TCPIP=YES was specified.

This parameter cannot be changed from the console.

For more information about ports and TCP/IP, refer to *TCP/IP Tutorial and Technical Overview* and *ITSC - A Beginner's Guide to MVS TCP/IP Socket Programming*.

IPADDRESS=*value*

Used to specify the IP address, where the DB2 PM-TCP/IP server is to accept incoming requests.

If the DB2 PM TCP/IP server runs on a multihomed host, only one network interface can be selected for incoming requests. (An IP host can have several IP addresses. In IP terms, such a host is called a multihomed host.)

To accept incoming requests on all available network interfaces, *value* must be set to binary zeros (0.0.0.0). If this parameter is not specified, the default value is 0.0.0.0.

This parameter cannot be specified from the console.

TCPSINGLEUSER=*value*

Used to specify whether single-user terminal TCP/IP sessions should be supported by the data collector.

YES Single-user terminal TCP/IP sessions are supported by the data collector.

This is the default.

NO Single-user terminal TCP/IP sessions are not supported by the data collector.

TCPIPSESS=*num*

Used to specify the maximum number of parallel TCP/IP sessions supported by the data collector, where *num* can be any value from 1 to 10.

If this parameter is not specified, the default value is 4.

All connect requests that exceed *num* are rejected.

This parameter cannot be changed from the console.

TCPMULTIUSER=*value*

Used to specify whether multi-user terminal TCP/IP sessions should be supported by the data collector.

YES Multi-user terminal TCP/IP sessions are supported by the data collector.

NO Multi-user terminal TCP/IP sessions are not supported by the data collector.

This is the default.

TCPIPMULTIUSERSESS=*num*

Used to specify the maximum number of multi-user terminal TCP/IP sessions supported by the data collector, where *num* can be any value in the range of 1 to 100.

If this parameter is not specified, the default value is 0.

All connect requests that exceed *num* are rejected.

You can abbreviate this parameter to "TCPMUS".

TCPIPMULTIUSERSESSBUFFERS=*num*

Used to specify the number of buffers to be preallocated by the data collector for all multi-user terminal TCP/IP sessions, where *num* can be any value in the range of 1 to 100.

If this parameter is not specified, the default value is 0, which indicates that one buffer is to be preallocated for each multi-user terminal TCP/IP session.

If you specify a *num* value for TCPIPMULTIUSERSESSBUFFERS that is higher than the *num* value for TCPIPMULTIUSERSESS, then it is reduced to the *num* value for TCPIPMULTIUSERSESS.

Each buffer is allocated in a size of 1 MB of main storage.

You can abbreviate this parameter to "TCPMUSB".

PURGE=(*userID*(,*groupID*))

Used to release user representations in the user authorization address space and to cancel all APPC sessions available for that user. A user is identified by *userID* (user ID) and *groupID* (group ID).

One user can be specified for a PURGE parameter. The specification of the user ID on the first position is mandatory. The specification of the group ID on the second position is optional. If not specified, the default group is used.

This parameter is used only when specified from the console.

Installation hints

- **APPC setup**

This section describes the setup for APPC/MVS that is necessary for the data collector APPC server to establish APPC sessions.

Defining side information

Side information contains the translation of a symbolic destination name that can be used by an APPC/MVS server when it registers to receive inbound conversations. The DB2 PM APPC/MVS Server uses a symbolic destination name for registering the server. Specify the SYMDEST parameter in the data set member for data collector startup parameters with the symbolic destination name value as specified for the DB2 PM APPC/MVS server side information.

The following example uses the symbolic destination name DGOS1. The startup parameter is SYMDEST=DGOS1.

The following sample job shows how the side information is added. It is based on the JCL example for the APPC/MVS administration utility provided by MVS, which is available in SYS1.SAMPLIB(ATBUTIL).

```
/*
//*****
//* IN THIS EXAMPLE, SIDE INFORMATION CALLED DGOS1 IS ADDED TO
//* THE SIDE INFORMATION FILE SYS1.APPCSI. WHEN ADDING SIDE
//* INFORMATION, THE SIDE INFORMATION KEY PRECEDES THE SIDE
//* INFORMATION. A DEFAULT OF TYPRUN=RUN IS ASSUMED.
//*****
//STEP07 EXEC PGM=ATBSDFMU
//SYSPRINT DD SYSOUT=*
//SYSSDLIB DD DSN=SYS1.APPCSI,DISP=SHR
//SYSSDOUT DD SYSOUT=*
//SYSIN DD *
        SIADD
                DESTNAME(DGOS1)
                TPNAME(DGOVAM)
                MODENAME(SNASVCMG)
                PARTNER_LU(LocalACB)
```

The TPNAME **DGOVAM** must also be specified by the workstation client to run a successful allocate. MODENAME(SNASVCMG) was used as recommended by APPC/MVS. PARTNER_LU(LocalACB) contains the local APPC/MVS server LU name.

Defining a local LU to APPC/MVS

In MVS, you can define a local LU by an LUADD statement in an APPCPMxx SYS1.PARMLIB member.

The following is an example of a VTAM(R) LU definition:

```
LUADD ACBNAME (LocalACB)
        NOSCHED
        TPDATA(SYS1.APPCTP)
        TPLEVEL(SYSTEM)
SIDEINFO DATASET(SYS1.APPCSI)
```

APPC/MVS server LUs must be defined as NOSCHED LUs to be able to receive inbound conversations.

The SIDEINFO statement specifies the VSAM key-sequenced data set (KSDS) where side information entries are stored.

Defining an APPC logon mode in the VTAM logon mode table

You can find a sample logon table called ISTINCLM in SYS1.SAMPLIB. The workstation-based Online Monitor uses #INTER logon mode.

The following shows the #INTER logon mode table-entry definition:

```
*****
*          LOGMODE TABLE ENTRY FOR RESOURCES CAPABLE OF ACTING      *
*                               AS LU 6.2 DEVICES                      *
*****
#INTER  MODEENT LOGMODE=#INTER,FMPROF=X'13',TSPROF=X'07',           *
        ENCR=B'0000',SSNDPAC=7,RUSIZES=X'F7F7',                     *
        SRCVPAC=7,PSNDPAC=7,APPNCOS=#INTER                          *
```

In addition, for applications APPC/MVS requires at least one logon mode entry other than SNASVCMG. To create an additional logon mode, copy SNASVCMG and rename it.

For an explanation of the parameters in SNASVCMG, refer to the *VTAM for MVS/ESA Resource Definition Reference*.

Defining the local LU to VTAM with an APPL definition statement

When VTAM is initialized, LUs are activated based on information contained in SYS1.VTAMLST. An APPC/MVS LU that communicates across a VTAM network must be defined to both VTAM and MVS.

The following shows a sample APPL definition statement added to a SYS1.VTAMLST member:

```
IPVAMAPN APPL ACBNAME=localACB,          APPLID FOR ACB          C
        APPC=YES,                          APPC SUPPORT            C
        PARSESS=YES,                        LOGON MODE Table FOR APPL C
        MODETAB=MyModeTb,                   SECURITY=CONVERSATION
```

Usage notes

- Running the system without host-based Online Monitor support

If you want to use only the workstation-based Online Monitor and C-API, you do not have to set up the DB2 PM MVS subsystem interface and the respective communication support. In this case, specify HOSTOLM=NO in the startup member. The DB2 PM subsystem specification in the startup member for the data collector is ignored.

- Diagnose functions

The workstation-based Online Monitor and C-API provide data collector diagnose functions that can be used for control and maintenance purposes. These diagnose functions are described in “Diagnose” on page 91.

- Internal buffer sizes

The data collector uses a buffer size of up to 1 MB for responses to requests that are passed via the workstation-based Online Monitor and C-API. The maximum of 1 MB is an internal limit. It is not customizable.

Examples

The data collector is customized to start the APPC server, the TCP/IP server for single-user terminal sessions, and the TCP/IP server for multi-user terminal sessions. The name of the procedure in the SYS1.PROCLIB used to start the authorization address space is DGOVDCAS. The APPC server is customized to allow four parallel sessions, the TCP/IP server for single-user terminal sessions is customized to allow six parallel sessions, and the TCP/IP server for multi-user terminal sessions is customized to allow 50 parallel sessions preallocating one buffer for each session.

For APPC customization, the symbolic destination name is DGOS1.

For TCP/IP customization, the PORT number is 6561. TCP/IP runs in address space TCPIP, accepting incoming requests from all IP network interfaces.

```
*****
*Establish workstation-based Online Monitor and          *
*C-API infrastructure                                   *
*****
SERVER=YES
AUTHORIZATIONADDRESSSPACENAME=DGOVDCAS
*
*****
*Start APPC server                                     *
*****
APPC=YES
APPCSESS=4
SYMDEST=DGOS1
*
*****
*Global TCP/IP definitions                             *
*****
TCPIP=YES
TCPNAME=TCPIP
PORT=6561
IPADDRESS=0.0.0.0
*
*****
*Start TCP/IP server for single-user terminal sessions  *
*used for workstation-based Online Monitor client      *
*****
TCPSINGLEUSER=Y
TCPIPSESS=6
*
*****
*Start TCP/IP server for multi-user terminal sessions  *
*used for C-API                                       *
*****
TCPMULTIUSER=Y
TCIPMULTIUSERSESS=50
TCIPMULTIUSERSESSBUFFERS=0
```

DB2 adjustment

The following specifications are necessary to adjust the data collector to the DB2 system that is to be monitored.

Besides the specification of the DB2 plan name and the DB2 subsystem ID, you can issue DB2 commands to start, for example, DB2 traces.

Operation mode

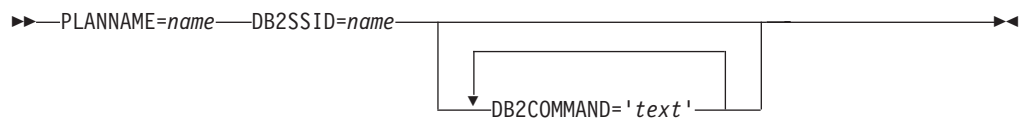
This function is available for all operation modes.

Authorization

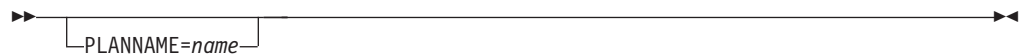
Data collector authorization

In addition to the authorization for the respective data collector operation mode, the privilege set of the process must include DB2 authority for any DB2 command issued via the data collector startup parameter DB2COMMAND.

Syntax diagram of startup parameters



Syntax diagram of operator commands



Parameter description

The following list shows the options for the DB2 adjustment. The options are shown in the order in which they appear in the syntax diagram:

PLANNAME=name

Used to specify the plan name of the Online Monitor (which has to be of the same release level as the data collector), where *name* is the DB2 plan name.

This parameter can be specified from the console.

You can abbreviate this parameter to "P".

DB2SSID=name

Used to specify the DB2 subsystem ID that the data collector is to monitor, where *name* is the DB2 subsystem name.

Note: This is not the DB2 data-sharing group name.

This parameter cannot be changed from the console.

You can abbreviate this parameter to "D".

DB2COMMAND='text'

Used to specify a DB2 command to be processed whenever the data collector connects to a DB2 subsystem, where *text* is the DB2 command.

You can specify this parameter more than once.

This parameter cannot be changed from the console.

You can abbreviate this parameter to "DC".

Usage note

Note that the DB2 MONITOR trace must be started before you can use any functions depending on the data collector, except in the case of exception event processing.

Examples

Start the data collector for the DB2 subsystem D561. The plan name is DGOPMOM. Start the MONITOR trace to use other functions besides exception event processing. Give a status of the started DB2 traces.

```
*****  
* Prepare DB2 Adjustments *  
*****  
PLANNAME=DGOPMOM  
DB2SSID=D561  
*  
DB2COMMAND='START TRACE(MON) CLASS(*)'  
DB2COMMAND='DISPLAY TRACE(*)'
```

Data collector authorization adjustment

Data collector authorization adjustment is based on the DB2 authorization exit activated with the data collector startup parameter USEDB2AUTHEXIT and the user authorization exit activated with the data collector startup parameter USEUSERAUTHEXIT.

Operation mode

USEDB2AUTHEXIT is available for host-based Online Monitor support.
USEUSERAUTHEXIT is available for all operation modes.

The following describes both exits:

DB2 authorization exit

During connection to a DB2 system, the primary and secondary authorization IDs of a user determine the user's authority (for example, MONITOR1 or MONITOR2). You can obtain the primary authorization ID and a list of the secondary authorization IDs in one of these ways:

- Use the authorization routine supplied by DB2 PM. This routine uses the authorization ID in the MVS control block and the secondary authorization IDs returned by RACF (if installed).
- The DB2 system provides an exit point for an authorization routine in connection processing. It performs crucial steps in the assignment of values to the primary, secondary, and SQL IDs. You must have an authorization routine for this exit. DB2 provides the default routine DSN3@ATH for connections. For more information about the exit and connection routines refer to the section on connection and sign-on routines in the *IBM DB2 Universal Database Server for OS/390 Version 6 Administration Guide*.

User authorization exit

In general, DB2 PM relies on the DB2 security scheme. In particular, each Online Monitor user needs the authorities MONITOR1 or MONITOR2. DB2 does not provide the capability to restrict the authority to specific areas, for example, statistics data only or specific threads only.

The DB2 PM user authorization exit is designed to provide your installation with such a capability. When the exit is used, the Online Monitor user does not need MONITOR1 or MONITOR2 authority any longer. The exit is in full control of the authorization. Data is requested under data collector authorization and is passed to the exit. The authorization can be defined for the type of data requested and, in case of thread data, for each thread.

The interface is described in detail in "Chapter 7. Customizing and activating user exits" on page 97.

Syntax diagram of startup parameters



Parameter description

The following list shows the options for the data collector authorization adjustment:

USEDDB2AUTHEXIT=*value*

Used to specify whether the DB2 authorization exit or the supplied DB2 PM authorization exit is called, where *value* can be any of the following:

- NO** The supplied DB2 PM authorization exit is called. This is the default. You can abbreviate this value to "N".
- YES** The DB2 authorization exit is called. You can abbreviate this value to "Y".

This parameter cannot be changed from the console.

You can abbreviate this parameter to "UDAE".

For further information about how DB2 checks authorization, see the *IBM DB2 Universal Database Server for OS/390 Version 6 Administration Guide*.

USEUSERAUTHEXIT=*value*

Used to specify whether the user exit routine DGOVUUAЕ is called, where *value* can be any of the following:

- NO** The DB2 PM authorization is used. This is the default. You can abbreviate this value to "N".
- YES** The user-modifiable exit routine DGOVUUAЕ is called. You can abbreviate this value to "Y".

This parameter cannot be changed from the console.

You can abbreviate this parameter to "UUAЕ".

Installation hints

The following installation hints apply:

For USEDDB2AUTHEXIT

Use the job DSNTIJEX to assemble and link the DSN3@ATH exit. Both the job and the exit are supplied by DB2 in the SDSNSAMP library. Store the linked exit into a data set. This data set must be the first entry in the STEPLIB of the data collector started-task JCL.

For USEUSERAUTHEXIT

Use the job DGOVJUAЕ to assemble and link-edit the user authorization exit DGOVUUAЕ. Both the job and the exit are supplied in the SDGOSAMP library. Be aware that DGOVUUAЕ is a user-modifiable routine, which may have been changed in your installation.

Examples

Customize the data collector to activate the user authorization exit.

```
*****  
* Activate User Authorization Exit *  
*****  
USEUSERAUTHEXIT=YES  
*
```

Snapshot processing and DB2 commands

The data collector provides the means for gathering thread activity data as well as statistics data. In addition, DB2 commands issued by the workstation-based Online Monitor and C-API are passed to DB2. All of these functions are available when the data collector is active and do not require customization.

Operation mode

This function is available for all operation modes.

Authorization

Data collector authorization

The authorization for the respective data collector operation mode is required.

End-user authorization

The following description applies only if you do not use the user authorization exit. If the user authorization exit is active, the description provided under "Data collector authorization adjustment" on page 68 applies.

The privilege set of the end user must include the following:

- EXECUTE privilege on the Online Monitor plan
(The default plan name is DGOPMOM unless it was changed during installation.)
- MONITOR1 privilege
- MONITOR2 privilege or SYSADM authority if access to the currently processed SQL statement is needed
- DB2 authority for any DB2 commands the end user can issue
- SELECT privilege on the following catalog tables:
 - SYSIBM.SYSDATABASE
 - SYSIBM.SYSDBRM
 - SYSIBM.SYSINDEXES
 - SYSIBM.SYSPACKAGE
 - SYSIBM.SYSPACKSTMT
 - SYSIBM.SYSPLAN
 - SYSIBM.SYSSTMT
 - SYSIBM.SYSTABLES
 - SYSIBM.SYSTABLESPACE
 - SYSIBM.SYSUSERAUTH

Note

Granting MONITOR2 privilege allows access to potentially sensitive data, that is, the SQL statement being processed.

History

The data collector provides a function for the collection of statistics, thread activity, and system-parameter data. This function is called history and is started with the data collector startup parameter HISTORY=YES.

You can monitor the collected data by using the DB2 PM host-based Online Monitor, the workstation-based Online Monitor, or the C-API.

The DB2 data is gathered at intervals and is stored in either a VSAM data set or a data space. When the data set or data space is full, the data is written to the beginning again, overwriting the earliest data gathered.

The period of time where the recorded history data is available is limited by the collection interval, the size of the data space or data set, the amount of historical data to be maintained, and the thread-history qualification definitions.

Operation mode

This function is available for all operation modes.

Authorization

Data collector authorization

The authorization for the respective data collector operation mode is required.

End-user authorization

The following description applies only if you do not use the user authorization exit. If the user authorization exit is active, the description provided under “Data collector authorization adjustment” on page 68 applies.

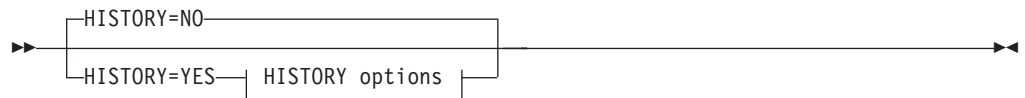
The privilege set of the end user must include the following:

- MONITOR1 privilege
- MONITOR2 privilege or SYSADM authority if access to the currently processed SQL statement is needed
- DB2 authority for any DB2 commands the end user can issue.

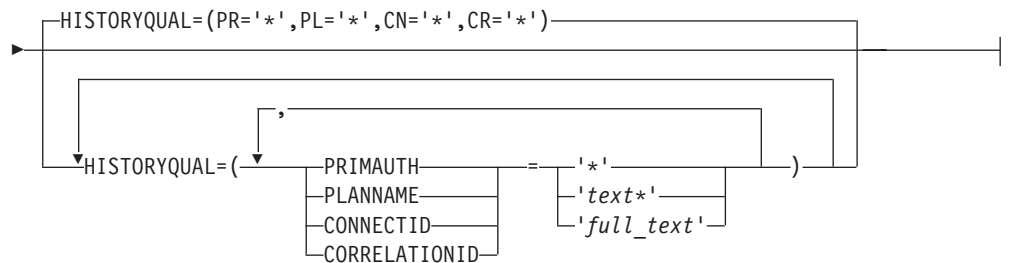
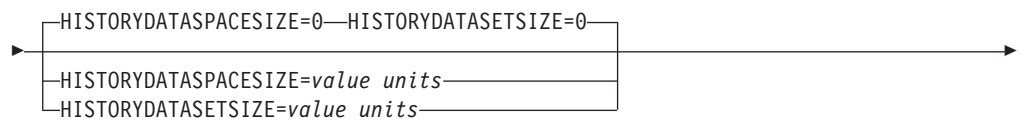
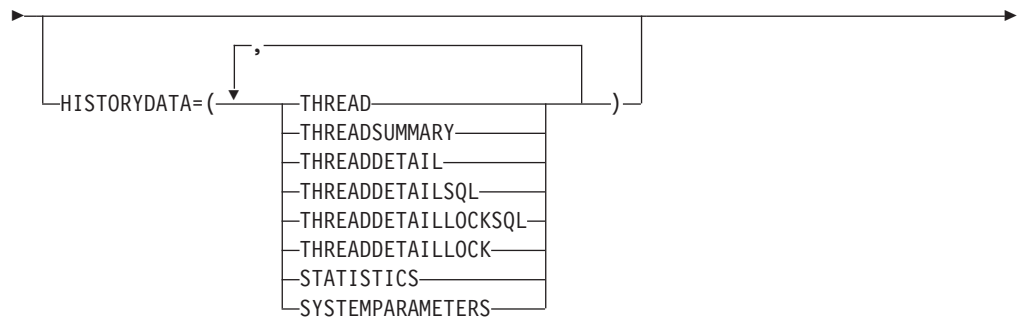
Note

Granting MONITOR2 privilege allows access to potentially sensitive data, that is, the SQL statement being processed.

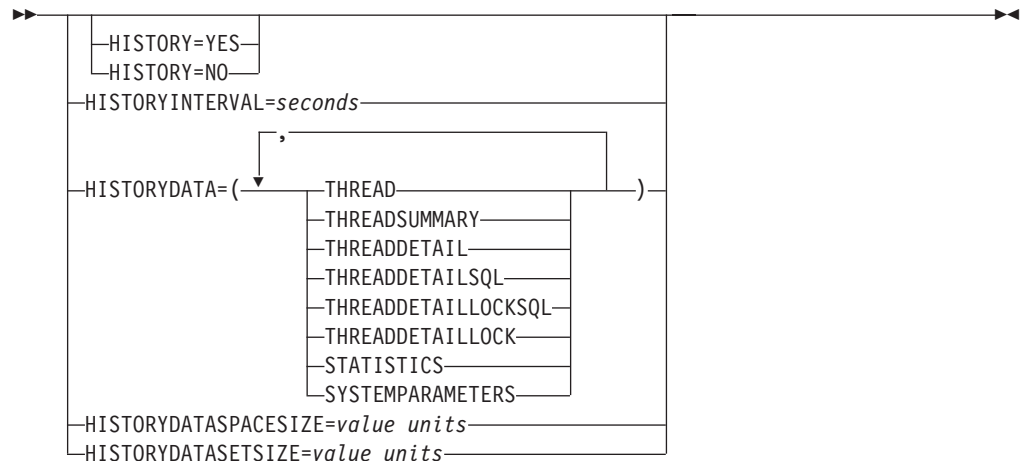
Syntax diagram of startup parameters



HISTORY options:



Syntax diagram of operator commands



Parameter description

The following list shows the options for the history function. The options are shown in the order in which they appear in the syntax diagram:

HISTORY=*value*

Used to specify whether history data is to be collected, where *value* can be any of the following:

YES History data is collected. You can abbreviate this value to “Y”.

NO History data is not collected. This is the default. You can abbreviate this value to “N”.

This parameter can be changed from the console.

You can abbreviate this parameter to “H”.

HISTORYINTERVAL=*seconds*

Used to specify how often the data collector gathers data for later viewing, where *seconds* is the interval. This value can be from 0 to 86 400 seconds (one day). If this value is 0, no data is gathered.

If this parameter is not specified, the history interval defaults to 0.

This parameter can be changed from the console.

You can abbreviate this parameter to “HI”.

HISTORYDATA=(*value,value,value,...***)**

Used to specify the types of data to be gathered and stored by the data collector for later viewing with the Online Monitor HISTORY command, where *value* can be any of the following:

THREAD All thread activity information is gathered. You can abbreviate this value to “T”.

THREADSUMMARY

Thread summary information is gathered. You can abbreviate this value to “TS”.

THREADETAIL

Thread summary and thread detail information is gathered. You can abbreviate this value to "TD".

THREADETAILSQL

Thread summary, thread detail, and SQL information is gathered. You can abbreviate this value to "TDS".

THREADETAILLOCKSQL

All thread activity information is gathered. You can abbreviate this value to "TDLS".

THREADETAILLOCK

All thread activity except for SQL information is gathered. You can abbreviate this value to "TDL".

STATISTICS DB2 statistics information is gathered. You can abbreviate this value to "S".

SYSTEMPARAMETERS

System parameters information is gathered. You can abbreviate this value to "SP".

If this parameter is not specified, no data types are gathered.

This parameter can be changed from the console.

You can abbreviate this parameter to "HD".

HISTORYDATASPACE*SIZE=value units*

Used to specify the size of the history data space.

The syntax for this parameter is the same as that of the HISTORYDATASETSIZE parameter, except that the HISTORYDATASPACE parameter has a maximum value of 524 287 pages.

If this parameter is not specified, the history data space size defaults to 0.

This parameter can be changed from the console.

You can abbreviate this parameter to "HPSZ".

Specify HISTORYDATASPACE only if you want to store history data in a data space, and do not specify HISTORYDATASETSIZE in this case.

HISTORYDATASETSIZE*=value units*

Used to specify the maximum size of the history data set, where *value* is the size of the data set and *units* is the units of the value. The *units* can be any of the following:

- P** The value is specified in pages. This is the default.
- K** The value is specified in kilobytes. This value is rounded up to the next multiple of 4 KB.
- M** The value is specified in megabytes.

All of the following examples refer to the same amount of storage:

```
HISTORYDATASETSIZE=256
HISTORYDATASETSIZE=256P
HISTORYDATASETSIZE=1M
HISTORYDATASETSIZE=1024K
```

You cannot specify a maximum history data set size that is less than the amount of data currently in the data set. The maximum value for this parameter must be less than or equal to the defined maximum size of the VSAM data set. If you want to increase the size of an existing history data set, you must first delete and redefine it.

If this parameter is not specified, the history data set size defaults to 0.

This parameter can be changed from the console.

You can abbreviate this parameter to "HDSZ".

Specify HISTORYDATASETSIZE only if you want to store history data in a data set, and do not specify HISTORYDATASPACE SIZE in this case.

HISTORYQUAL=(qualifier='text',qualifier='text',...)

Used to specify the history qualification parameters for thread data gathered by the data collector, where *qualifier* can be any of the following:

PRIMAUTH Primary authorization ID qualifier. You can abbreviate this value to "PR".

PLANNAME Plan name qualifier. You can abbreviate this value to "PL".

CONNECTID Connection ID qualifier. You can abbreviate this value to "CN".

CORRELATIONID

Correlation ID qualifier. You can abbreviate this value to "CR".

The *text* can contain an asterisk (*) as a wildcard.

You can specify any or all of the qualifiers for this parameter. Any qualifiers not specified default to an asterisk (*), which matches all text. Specify the HISTORYQUAL parameter once for each history qualification required.

Thread data is collected once for each matching history qualification. Be aware that this has an impact on the space requirements. If a thread matches more than one history qualification, multiple thread data is collected, and problems might occur when viewing past data (for example, threads are displayed twice).

If this parameter is not specified, the history qualifications default to asterisks (*), which matches all threads.

This parameter cannot be specified from the console.

You can abbreviate this parameter to "HQ".

Installation hints

The following installation hints apply:

- Allocation of history data set

If you intend to use history with a data set, you need to define a history data set and put a HISTORY DD statement in the data collector JCL. The job

DGOVDCDD for defining the data set is provided in the data set *prefix.SDGOSAMP*. The HISTORY DD statement is described in “item HISTORY” on page 45.

- Storage estimates for history data set and history data space

The data collector issues one data-gathering request (DB2 IFI READS request) for each of the following:

- HISTORYDATA=(STATISTICS) or HISTORYDATA=(SYSTEMPARAMETERS), or both, when requested
- For each HISTORYQUAL specified, if thread data gathering was requested. (At least one HISTORYQUAL is passed to the data collector, if thread data gathering was requested.)

A DB2 response to each history-data gathering request can have a size of 0–4 MB (0–256 blocks of 4 KB). The actual size returned depends on the scope of information that you requested.

So, calculate the data space or data set size as follows:

$$\text{Number of 4 KB blocks} = i * ((\text{stat_sysprm_size}) + (\text{thread_size} * \#\text{tq}))$$

Where:

i Number of intervals that you want to store in the data set or data space.

stat_sysprm_size

Size in 4 KB blocks of expected statistics or system parameter data returned by DB2. If statistics and system parameter data is not to be gathered, insert 0.

thread_size

Size in 4 KB blocks of expected thread data returned by DB2. If thread data is not to be gathered, insert 0.

#tq

Number of HISTORYQUALs specified.

The following is an example of history data set calculation:

You want to record a 10 hour history sequence with an interval of one minute. 4 KB of statistics and system parameter data and 100 KB of thread data are expected to be returned by DB2. The storage calculation looks like this:

$$\text{Number of 4 KB blocks} = i * ((\text{stat_sysprm_size}) + (\text{thread_size} * \#\text{tq}))$$

==>

$$15600 \text{ blocks} = 600 * (1 \text{ block} + (25 \text{ blocks} * 1))$$

Where:

i = 60 minutes * 10 hours = 600 intervals
stat_sysprm_size = 4 KB = 1 block
thread_size = 100 KB = 25 blocks

Because storage in this data set is allocated on a basis of 4 KB blocks, the storage is used to the optimum. Only a few records returned for each qualification do not contain data.

Whenever a data set or data space is full, a message is issued by the data collector and data is written to the beginning of the data set or data space again, overwriting the earliest data gathered. These messages indicate the rate at which

the data is being replaced. If your data is being replaced too quickly, then you might consider defining a larger data set.

Usage notes

- Administration of history adjustments
Some data collector history parameters can be changed via the administrator user dialog while the data collector is running. Refer to the section about the administrator user in the *DB2 PM Online Monitor User's Guide* for more information.
- Unload history data set
Sample JCL is provided which unloads the history VSAM data set created by the data collector so that you can use this data as input to batch Record Trace for problem determination. This JCL is provided in the SDGOSAMP library as member DGOMMJCL. Note that this member is provided only as an example and may need to be changed as required by your installation. You can only unload the history data sets using this JCL.
- Internal buffer sizes
A DB2 response to each history-data gathering request, initiated by the interval timer, can have a size of 0–4 MB (0–256 blocks of 4 KB). The actual size returned depends on the scope of information that you requested. The maximum of 4 MB is an internal limit for history data gathering requests. It is not customizable.
For responses to end-user requests to gather history data the data collector uses a buffer size of up to 1 MB. The maximum of 1 MB is an internal limit for gathering history data for the end user. It is not customizable.
History qualifications that return more than 4 MB of data result in a DB2 warning that indicates that the request was partially completed, but the return area was not large enough to accommodate all the output. In that case, refine the granularity of the history qualification to cause the data collector to issue several data-gathering requests instead of one. This spreads the amount of data returned by DB2 over several data-gathering requests.

Examples

This example specifies that data is collected for threads with a primary authorization ID of USERT003, threads with a primary authorization ID starting with USERT1 and a plan name of DGOPMOM, and threads with a primary authorization ID starting with USERT2 and a connection ID of DB2CALL.

```
*****  
* Start History infrastructure  
*****  
HISTORY=YES  
HISTORYDATA=(STATISTICS,THREAD)  
HISTORYDATASETSIZE=16M  
HISTORYINTERVAL=60  
*  
*****  
* Qualify Collection  
*****  
HISTORYQUAL=(PRMAUTH='USERT003')  
HISTORYQUAL=(PRMAUTH='USERT1*',PLANNAME='DGOPMOM')  
HISTORYQUAL=(PRMAUTH='USERT2*',CONNECTID='DB2CALL')  
*
```

Exception

The administrator controls Online Monitor exception-processing functions via the Exception Processor panel, either on a workstation or in a host session. The use of the Exception Processor panel is described in the *DB2 PM Online Monitor User's Guide*. For some of the exception-processing functions the data collector must be active:

- Periodic exception processing for workstation-based Online Monitor clients
- Periodic exception processing for host-based Online Monitor clients, if exceptions are to be processed while you are not logged on
- Exception event processing
- Exception-processing user exit for both periodic and event processing.

For exception event processing, use the EXCEPTIONEVENT startup parameter to specify which events are to be processed when the exception-processing function is activated.

Operation mode

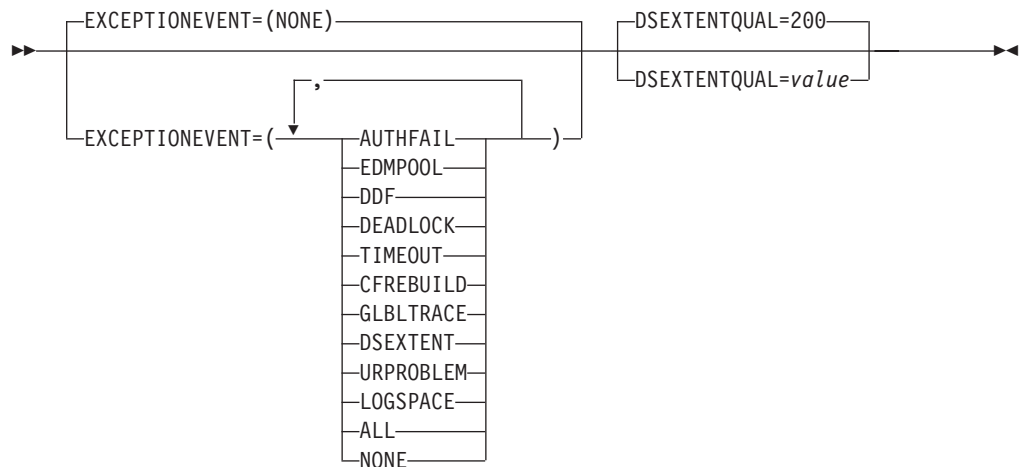
This function is available for all operation modes.

Authorization

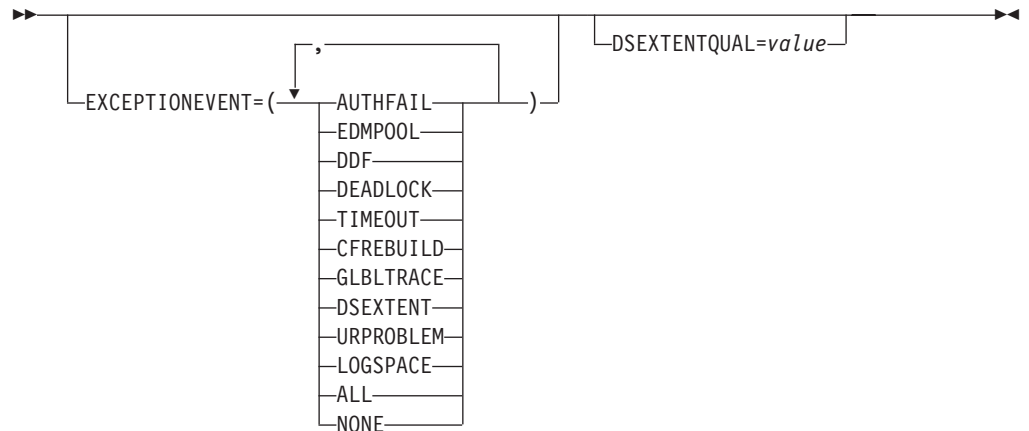
Data collector authorization

In addition to the authorization for the respective data collector operation mode, the privilege set of the process must include the DB2 privilege to start and stop DB2 traces.

Syntax diagram of startup parameters



Syntax diagram of operator commands



Parameter description

The following list shows the options for exception processing:

EXCEPTIONEVENT=(*value,value,value,...*)

Used to specify which exception events the data collector is to process, where *value* can be any of the following:

- | | |
|------------------|--|
| AUTHFAIL | The following trace is started for the collection of authorization failure events:
START TRACE(AUDIT) CLASS(1) DEST(OPx) |
| EDMPOOL | The following trace is started for the collection of EDM pool full events:
START TRACE(MON) CLASS(30) DEST(OPx) IFCID(31) |
| DDF | The following trace is started for the collection of thread commit indoubt events:
START TRACE(STAT) CLASS(4) DEST(OPx) |
| DEADLOCK | The following trace is started for the collection of deadlock events:
START TRACE(STAT) CLASS(3) DEST(OPx) |
| TIMEOUT | The following trace is started for the collection of timeout events:
START TRACE(STAT) CLASS(3) DEST(OPx) |
| CFREBUILD | The following trace is started for the collection of coupling facility rebuild events:
START TRACE(STAT) CLASS(4) DEST(OPx) |
| GLBLTRACE | The following trace is started for the collection of all entered DB2 commands:
START TRACE(PERFM) CLASS(30) DEST(OPx) IFCID(90) |
| DSEXTENT | The following trace is started for the collection of data set extension events:
START TRACE(STAT) CLASS(3) DEST(OPx) |
| URPROBLEM | The following trace is started for the collection of UR problem events: |

START TRACE(STAT) CLASS(3) DEST(OPx)

LOGSPACE The following trace is started for the collection of log space shortage events:

START TRACE(STAT) CLASS(3) DEST(OPx)

ALL All of the above traces are started.

NONE Any traces previously started by this parameter are stopped.

This parameter can be changed from the console.

You can abbreviate this parameter to "EE".

DSEXTENTQUAL=*value*

Used to specify the number of extensions that must be exceeded before an event exception is reported, where *value* can be any positive integer. The default value is 200.

This parameter is ignored if neither DSEXTENT nor ALL is specified for EXCEPTIONEVENT.

This parameter can be changed from the console.

You can abbreviate this parameter to "DSXQ".

Usage note

If this parameter is specified in the parameter data set, the traces specified by this parameter are started during data collector startup. If this parameter is specified from the console, any traces previously started with this parameter are stopped, and the new traces are started. At data collector shutdown, all traces previously started by this parameter are stopped.

Installation hints

If you intend to use exception event processing, define an exception-event data set and put an EVENTS DD statement in the data collector JCL.

Member DGOVDCDD in the DB2 PM library SDGOSAMP contains a job that defines an event data set. The member DGOVDCDD was generated by running the PM-ITool.

Examples

To enable detection of thread commit indoubt events, specify:

```
*****  
* Exception event specifications *  
*****  
*  
CRD1=YES  
EXCEPTIONEVENT=(DDF)
```

To enable detection of EDM pool full events, timeout events, and coupling facility rebuild events, specify:

```
*****  
* Exception event specifications *  
*****  
*  
EXCEPTIONEVENT=(EDMPool,TIMEOUT,CFREBUILD)
```


If you want to start all available traces, specify:

```
*****  
* Exception event specifications *  
*****  
*  
EXCEPTIONEVENT=(ALL)
```

Collect report data

The collect report data (CRD) function for workstation-based Online Monitor users is an optimized version of the host-based collect report data function.

Like the host-based collect report data function, it is used to gather data for specific DB2 PM batch reports. The data can be used to generate reports or traces or as input for exception profiling.

The collect report data function runs each CRD request in a separate MVS address space (in this document called CRD address space) to fulfill the DB2 recommendations for collecting data via the IFI command READA. It allows the system programmer to assign a high dispatching priority to the CRD address space to minimize trace-data loss. The dispatching priority can be specified independently of the data collector dispatching priority. You can find the DB2 recommendations for avoiding trace-data loss in the section on programming for the Instrumentation Facility Interface (IFI) in the *IBM DB2 Universal Database Server for OS/390 Version 6 Administration Guide*.

Address spaces

When you specify CRDn=YES, the data collector allows the start of a CRD address space with the name specified in CRDADDRESSSPACENAME=*name* (the same name as the name of the procedure in SYS1.PROCLIB that specifies the first program to run in the new address space).

A sample job for the data collector started task is provided with the product (member DGOVDCST in the data set *prefix*.SDGOSAMP). For a description of the sample job and how to use it, refer to “Step 6: Customize the data collector installation jobs” on page 44.

A CRD address space is started by the data collector in response to a CRD request received from the workstation-based Online Monitor client and is released if collect report data has finished processing. The data collector address space in which the collect report data function is running can start up to eight CRD address spaces. The number of CRD address spaces is limited to eight, which is the number of OP buffers provided by DB2.

Important: Specifying COLLECTCPUPARALLEL=YES as well as EXCEPTIONEVENT with any other value than NONE reduces the number of available OP buffers. Both functions need one DB2 OP buffer for internal processing. So, if both parameters are specified, a maximum of six OP buffers are free.

If other processes in your environment use DB2 OP buffers, this also reduces the number of CRD address spaces running in parallel.

For the CRD address space, the authorization is changed from data collector authorization to user authorization (authorization of a workstation-based Online Monitor user) to avoid a DB2 security violation and to allow the CRD function to store the collected IFI data into an MVS SAM data set (BSAM/QSAM) that is owned by a workstation-based Online Monitor user.

Data management

As DASD operations are always slower than operations in storage, it is not possible to solve the problem of lost trace data completely. The CRD data management was redesigned to minimize the loss of trace data:

- Short-term data peaks are smoothed out by using a data space as working storage that compensates the difference in the data flow when data is transferred from storage to DASD.
- Basic traffic is increased by using a VSAM linear data set that is filled with the data stored in the data space.

One CRD address space can use one data space and one VSAM linear data set.

The VSAM linear data set runs under data collector authorization.

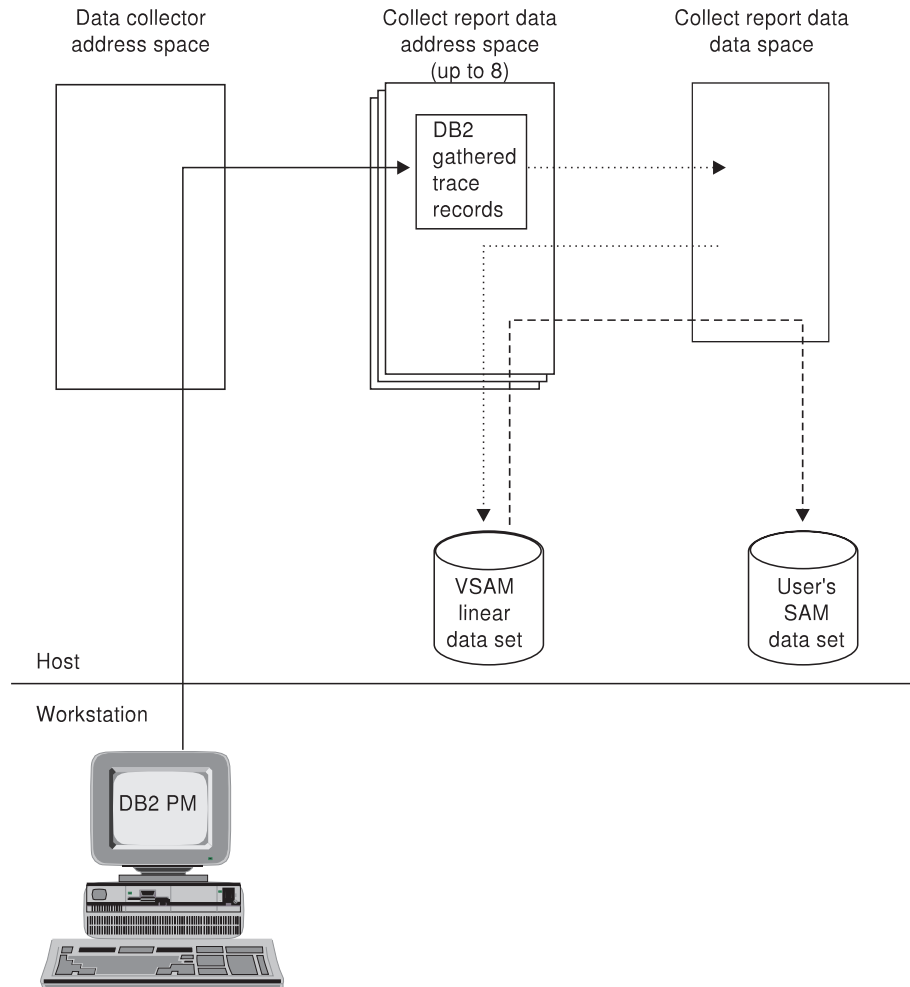


Figure 4. CRD data management

When the collect report data process stops receiving IFI trace data from DB2, all data stored in the VSAM linear data set is copied to the SAM data set.

Low volume CRD

Depending on the expected DB2 trace-data traffic, the collect report data function can be customized to:

- Run without working storage for the CRD data space and without a VSAM linear data set
- Run with working storage for the CRD data space and without a VSAM linear data set

- Run without working storage for the CRD data space and with a VSAM linear data set.

If no VSAM linear data set was specified, DB2 trace data is written directly to the CRD user's DASD.

Note that running a low volume version of collect report data increases the loss of DB2 trace data.

Figure 5 shows the low volume CRD.

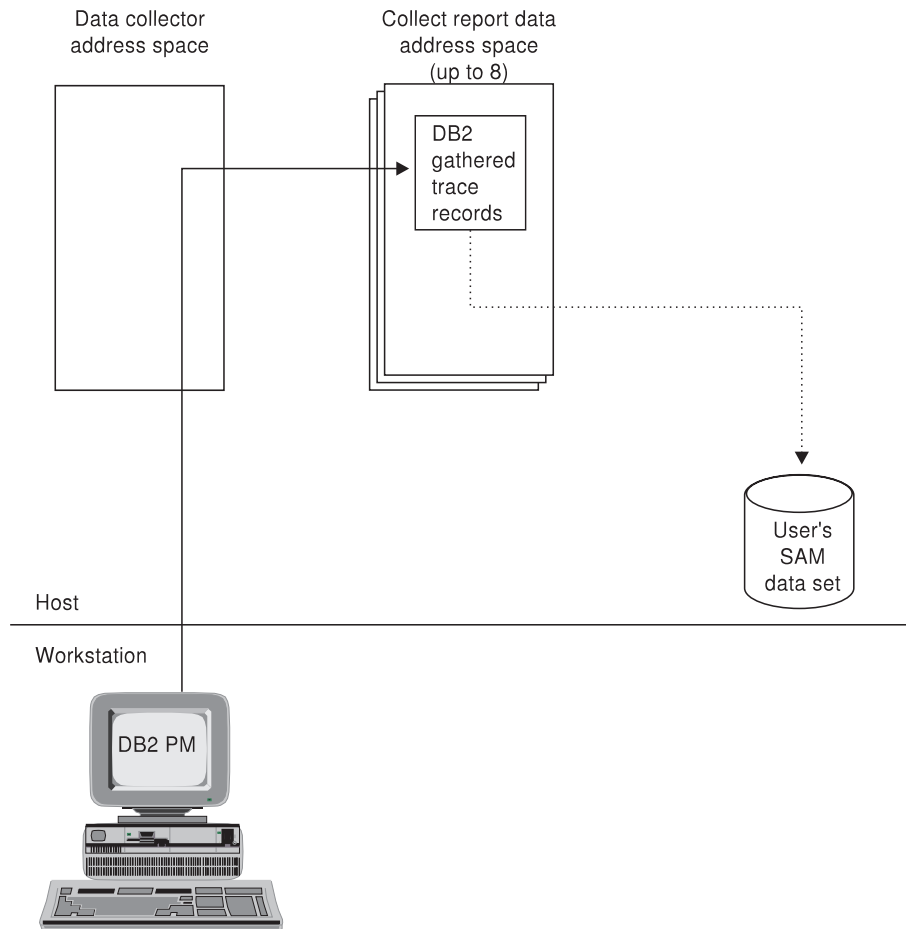


Figure 5. Low volume CRD

Running CRD with exception stop conditions

Specifying exception stop conditions causes collect report data to process the VSAM linear data set in wraparound mode. That is, when the data set is full, the data is written to the beginning again, overwriting the earliest data gathered. This allows the administrator to analyze an administrator-definable amount of past data for an appropriate exception event.

Running CRD with exception stop conditions causes DB2 PM to write the records in reversed chronological order to the CRD user's DASD. The latest records are written first to avoid their loss when the user's DASD is

smaller than the VSAM linear data set. The chronological order is recovered later, when batch reporting is invoked with the global command option PRESORTED = NO.

If no VSAM linear data set was specified, no wrap of the data set specified by the user occurs.

Operation mode

This function is available for the workstation-based Online Monitor support.

Authorization

Data collector authorization

The authorization for the respective data collector operation mode is required.

End-user authorization

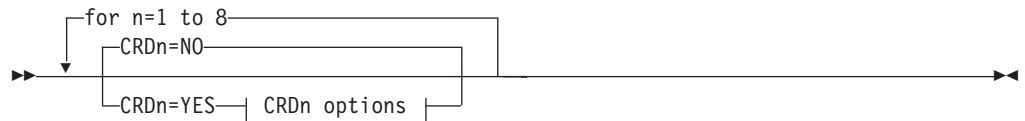
The privilege set of the end user must include the following:

- Display trace privilege
- DB2 privilege to start and stop DB2 traces
- MONITOR1 privilege
- MONITOR2 privilege or SYSADM authority if access to the currently processed SQL statement is needed.

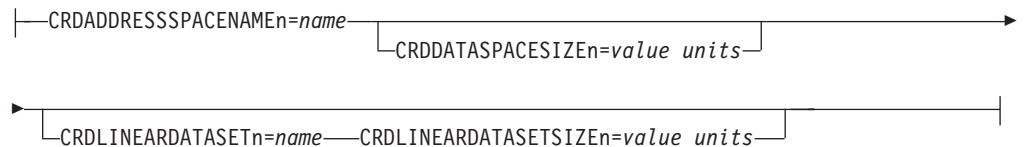
Note

Granting MONITOR2 privilege allows access to potentially sensitive data, that is, the SQL statement being processed.

Syntax diagram of startup parameters



CRDn options:



Parameter description

The following list shows the options for the collect report data function. The options are shown in the order in which they appear in the syntax diagram:

CRDn=*value*

Used to specify whether the *n*th started task for the collect report data function is available, where *n* is the number of the started task and can have a value of 1 to 8, and *value* can be any of the following:

YES The started task is available. You can abbreviate this value to "Y".

NO The started task is not available. This is the default. You can abbreviate this value to “N”.

This parameter cannot be changed from the console.

CRDADDRESSPACENAME n =*name*

Used to specify the *name* of the procedure in the SYS1.PROCLIB that is to run if CRD n =YES was specified. *n* is the number of the started task and can have a value of 1 to 8. This number must correspond to the number of the started task for the CRD function.

The name of the procedure must consist of 1 to 8 characters. The first character must be alphabetic or special (#, \$, or @); other characters can be alphabetic, special, or numeric.

The specification of this parameter is mandatory and used only if CRD n =YES was specified.

This parameter cannot be changed from the console.

You can abbreviate this parameter to “CRDASN n ”.

CRDDATASPACE SIZE n =*value units*

Used to specify the maximum size of the data space for each CRD address space. *n* is the number of the started task the data space is assigned to. This number must correspond to the number of the started task for the CRD function. *value* is the size of the data space, and *units* is the unit of the value.

n can have a value of 1 to 8.

The *units* can be any of the following:

- P** The value is specified in pages. This is the default.
- K** The value is specified in kilobytes. Value is rounded up to the next multiple of 4 KB.
- M** The value is specified in megabytes.

For *value*, the following applies:

- A maximum data space size of 524 287 pages can be specified.
- The minimum value accepted is 4 MB. If a value was specified less than 4 MB, it is rounded up to 4 MB.
- The default is 0. 0 indicates that no data space is used for DB2 trace-data working storage.

All of the following examples refer to the same amount of storage:

```
CRDDSS1=256  
CRDDSS2=256P  
CRDDSS3=8M  
CRDDSS4=1024K
```

This parameter cannot be changed from the console.

You can abbreviate this parameter to “CRDDSS n ”.

This parameter is used only if CRD n =YES was specified.

The job DGOVDCDD for defining the data space is provided in the data set *prefix*. SDGOSAMP.

CRDLINEARDATASET*n=name*

Used to specify the *name* of the VSAM linear data set for each CRD started task. *n* is the number of the started task the VSAM linear data set name is assigned to and can have a value of 1 to 8. This number must correspond to the number of the started task for the CRD function.

If this parameter is not specified, the CRD *n*th started task does not use a VSAM linear data set for DB2 trace data working storage.

The *name* has to be specified following the TSO naming conventions.² It can have a maximum length of 44 characters.

This parameter cannot be changed from the console.

You can abbreviate this parameter to "CRDLDS*n*".

This parameter is used only if CRD*n*=YES was specified.

The job DGOVDCDD for defining the data set is provided in the data set *prefix*. SDGOSAMP.

CRDLINEARDATASIZESIZE*n=value units*

Used to specify the maximum size of the VSAM linear data set for each CRD address space. *n* is the number of the started task the VSAM linear data set is assigned to, *value* is the size of the VSAM linear data set, and *units* is the unit of the value.

n can have a value of 1 to 8. This number must correspond to the number of the started task for the CRD function.

The *units* can be any of the following:

- P** The value is specified in pages. This is the default.
- K** The value is specified in kilobytes. Value is rounded up to the next multiple of 4 KB.
- M** The value is specified in megabytes.

For *value*, the following applies:

- The minimum value accepted is 4 MB. If a value was specified less than 4 MB, it is rounded up to 4 MB.
- The default values are:
 - 4 MB when CRDLDS*n* was specified
 - 0 when CRDLDS*n* was not specified. This indicates that no VSAM linear data set is used for DB2 trace-data working storage.

This parameter cannot be changed from the console.

You can abbreviate this parameter to "CRDLDS*n*".

All of the following examples refer to the same amount of storage:

```
CRDDSS1=256  
CRDDSS2=256P  
CRDDSS3=8M  
CRDDSS4=1024K
```

2. Naming conventions for TSO data sets:

A data set name consists of one or more fields. Each field consists of one through eight alphanumeric characters and must begin with an alphabetic (or special) character. The special characters \$, @, and # are accepted as the first character in a data set name.

A data set name that consists of more than one field is a "qualified" data set name. The fields in a qualified data set name are separated by periods.

This parameter is used only if CRDn=YES is specified.

Installation hints

How to allocate the data sets for collect report data is described in “Step 6: Customize the data collector installation jobs” on page 44. This section also describes the sample jobs provided in *prefix.SDGOSAMP*.

Examples

This example shows how to customize a data collector for at least three parallel CRD processes. The first CRD address space is customized for high DB2 trace data traffic. For this reason, a working storage of 100 MB and a VSAM linear data set of 200 MB are defined. The second CRD address space is defined with a working storage of 20 MB for less DB2 data traffic and the third one is defined as low volume CRD.

```
*****  
* Collect report data specifications *  
*****  
*  
CRD1=YES  
CRDASN1=DGOVDCC1  
CRDDSS1=100M  
CRDLSS1=200M  
CRDLDS1=D01PMO.DC.CRD1  
*  
CRD2=YES  
CRDASN2=DGOVDCC2  
CRDDSS2=20M  
*  
CRD3=YES  
CRDASN3=DGOVDCC3
```

Collection of parallelism data

The data that the Online Monitor shows for threads exploiting utility parallelism or query CP parallelism comes from different sources:

- The originating task
- All currently active parallel tasks
- 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 data collector if it has been set up to do so (COLLECTCPUPARALLEL=YES or CCP=YES).

If your DB2 system exploits query CP parallelism, this enables the data 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.

Operation mode

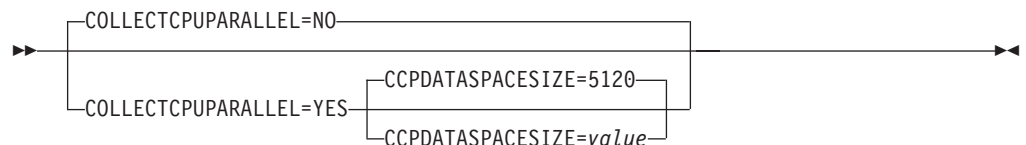
This function is available for all operation modes.

Authorization

Data collector authorization

In addition to the authorization for the respective data collector operation mode, the privilege set of the process must include the DB2 privilege to start and stop DB2 traces.

Syntax diagram of startup parameters



Parameter description

The following list shows the options for the collection of parallelism data. The options are shown in the order in which they appear in the syntax diagram:

COLLECTCPUPARALLEL=*value*

Used to activate or deactivate the collection of query CP parallelism data, where *value* can be any of the following:

- YES** Query CP parallelism data is to be collected. You can abbreviate this value to "Y".
- NO** Query CP parallelism data is not to be collected. This is the default. You can abbreviate this value to "N".

If NO is specified, performance data for threads exploiting query CP parallelism is not correctly shown by the Online Monitor.

This parameter cannot be changed from the console.

You can abbreviate this parameter to "CCP".

CCPDATASPACE*SIZE=value*

Used to specify the size of the CCP data space, where *value* is the number of page units. This data space is needed when query CP parallelism is active.

One page has 4 096 bytes. The default value is 5 120 pages, which corresponds to 20 MB. A 20 MB data space can hold information for 500 threads, each with an average of five parallel tasks.

This parameter is used only if COLLECTCPUPARALLEL=YES was specified.

This parameter cannot be changed from the console.

You can abbreviate this parameter to "CCPDSS".

Examples

Establish collection of parallelism data:

```
*****  
* Establish Collection of Parallelism Data *  
*****  
CCP=YES  
CCPDSS=5120  
*
```

Diagnose

The data collector provides the DISPLAY command to show various data collector details. You can use it to view the current data collector startup parameters, the status of APPC or TCP/IP sessions, the data collector users, or the data collector administrator list.

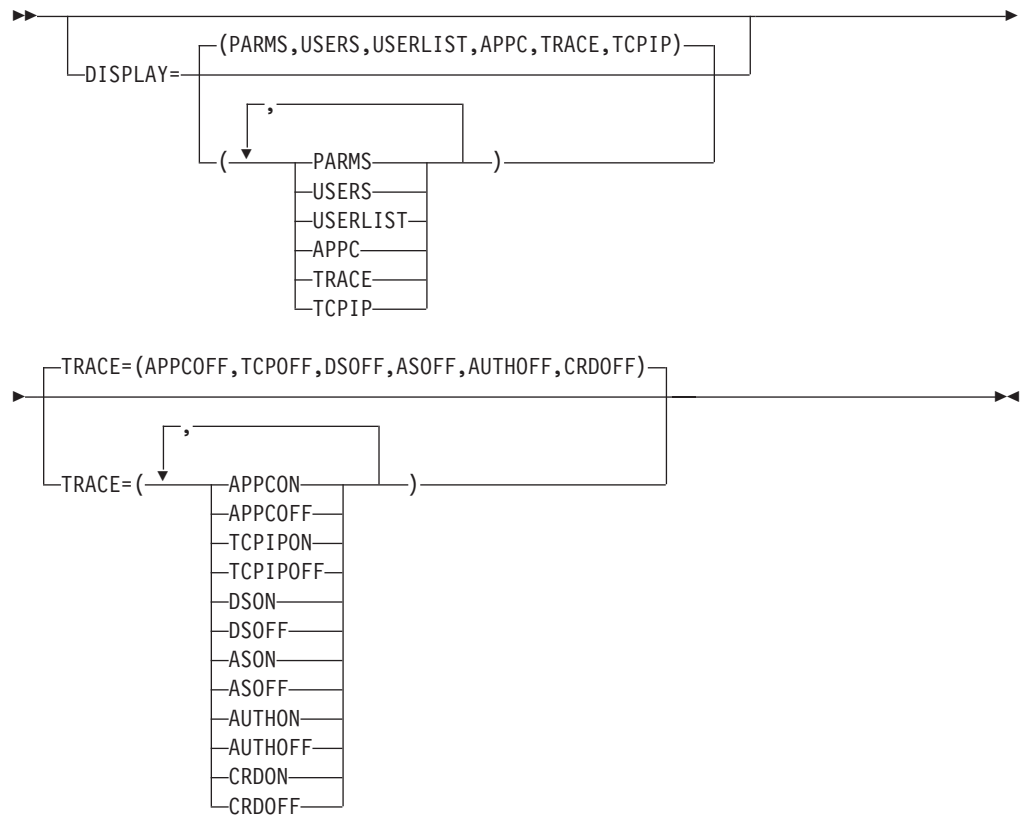
The TRACE command is used to start and stop internal data collector traces on request of IBM support services. The trace output is used by the IBM maintenance location for problem analysis.

Authorization

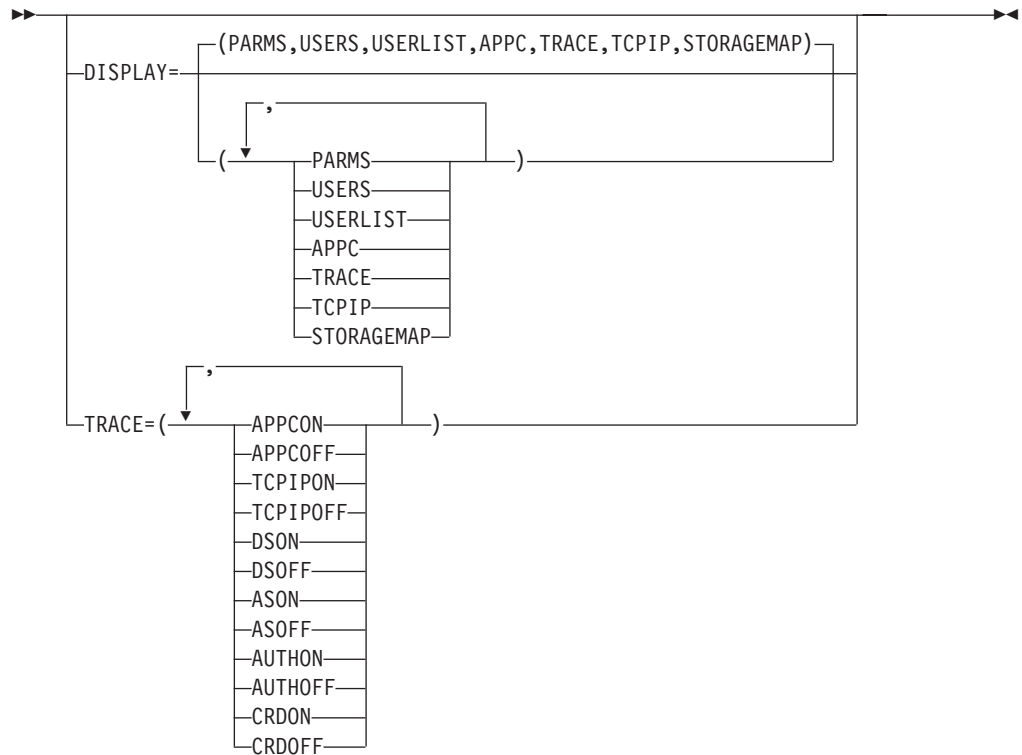
Data collector authorization

The authorization for the respective data collector operation mode is required.

Syntax diagram of startup parameters



Syntax diagram of operator commands



Parameter description

The following list shows the options for the diagnose function:

DISPLAY=(*value,value,value,...*)

Used to view various data collector details from the console, where *value* can be any of the following:

- PARMS** Show data collector parameters. You can abbreviate this parameter to "P".
- USERS** Show data collector users and users in the User Authorization Address Space. You can abbreviate this parameter to "U".
- USERLIST** Show current administrator users. You can abbreviate this parameter to "UL".
- APPC** Show the current status of all APPC sessions. This value is used only when specified from the console. You can abbreviate this parameter to "A".
- TRACE** Show the current status of all data collector internal traces. You can abbreviate this parameter to "T".
- TCPIP** Shows the operator the status of all TCP/IP server sessions that are currently specified. You can abbreviate this parameter to "TCP".
- STORAGEMAP** Shows the allocated virtual storage in the authorized address space gathered by the functions Snapshot Store and User Data. The Snapshot Store function is used by the C-API only. You can abbreviate this parameter to "SM".

If you specify DISPLAY without any values, all details are shown on the console.

This parameter can be changed from the console.

You can abbreviate this parameter to "DI".

TRACE=(value,value,value,...)

Used to start and stop internal data collector traces, where *value* can be any of the following:

APPCON	Starts the data collector internal trace of component APPC.
APPCOFF	Stops the data collector internal trace of component APPC. This is the default.
TCPIPON	Starts the data collector internal trace of component TCP/IP.
TCPIPOFF	Stops the data collector internal trace of component TCP/IP. This is the default.
DSON	Starts the data collector internal trace of component Data Server.
DSOFF	Stops the data collector internal trace of component Data Server. This is the default.
ASON	Starts the data collector internal trace of component Application Services.
ASOFF	Stops the data collector internal trace of component Application Services. This is the default.
AUTHON	Starts the data collector internal trace of component Authorized Address Space.
AUTHOFF	Stops the data collector internal trace of component Authorized Address Space. This is the default.
CRDON	Starts the data collector internal trace of component Collect Report Data.
CRDOFF	Stops the data collector internal trace of component Collect Report Data. This is the default.

Trace output is written to the SYSPRINT data set, which is used by the IBM maintenance location for problem analysis.

This parameter can be changed from the console.

Examples

The following examples show:

- Example 1: DISPLAY=(PARMS) command
- Example 2: DISPLAY=(APPC) command
- Example 3: DISPLAY=(TCPIP) command
- Example 4: DISPLAY=(USERLIST) command
- Example 5: TRACE=(APPCON) command
- Example 6: DISPLAY=(STORAGEMAP) command

Example 1: DISPLAY=(PARMS) command

The DISPLAY=(PARMS) command shows the operator the current data collector startup parameters. The data collector gathers data from DB2 subsystem D461.

	DGOV0029I	D461	DISPLAY COMMAND OUTPUT BEGINS
	DGOV0032I	D461	CURRENT PARAMETERS
DB2 adjustment	DGOV0033I	D461	DB2SSID=D461
	DGOV0034I	D461	PLANNAME=PMOMDEV
	DGOV0035I	D461	USEDDB2AUTHEXIT=NO
	DGOV0036I	D461	CONSOLECHANGEADMINUSER=NO
	DGOV0067I	D461	DB2COMMAND='-START TRACE(MON) CLASS(1,2,3,7,8)'
	DGOV0067I	D461	DB2COMMAND='-DISPLAY TRACE(*)'
	DGOV1400I	D461	HOSTOLM=YES
	DGOV1136I	D461	SERVER STARTED=YES
	DGOV1137I	D461	- AUTHORIZATION ADDRESS SPACE NAME=D461DCXA
	DGOV0084I	D461	APPC=YES
	DGOV0085I	D461	- SYMBOLIC DESTINATION NAME=DGOD461
	DGOV0086I	D461	- MAXIMUM NUMBER OF PARALLEL SESSIONS=4
Operation mode	DGOV1301I	D461	TCP/IP=YES
	DGOV1304I	D461	- IP ADDRESS OF SERVER=0.0.0.0
	DGOV1303I	D461	- PORT NUMBER=6461
	DGOV1311I	D461	- TCPNAME=TCPIP
	DGOV1333I	D461	- SINGLE USER TERMINAL SESSIONS=YES
	DGOV1302I	D461	MAXIMUM NUMBER OF PARALLEL SESSIONS=6
	DGOV1334I	D461	- MULTI USER TERMINAL SESSIONS=YES
	DGOV1302I	D461	MAXIMUM NUMBER OF PARALLEL SESSIONS=50
	DGOV1335I	D461	MAXIMUM NUMBER OF PRE-ALLOCATED BUFFERS=0
		DGOV0043I	D461
	DGOV0044I	D461	HISTORYINTERVAL=60
	DGOV0045I	D461	STATISTICS IS BEING COLLECTED
	DGOV0049I	D461	THREAD SQL TEXT IS BEING COLLECTED
	DGOV0050I	D461	THREAD SUMMARY IS BEING COLLECTED
History	DGOV0051I	D461	THREAD DETAIL IS BEING COLLECTED
	DGOV0053I	D461	THERE ARE 1 HISTORY QUALIFICATIONS ACTIVE.
	DGOV0053I	D461	PRIMAUTH PLANNAME CONNECTION ID CORRELATION NAME
	DGOV0054I	D461	* * * *
	DGOV0055I	D461	HISTORYDATASPACE=0 PAGES
	DGOV0056I	D461	HISTORYDATASETSIZE=72000 PAGES
Collection of parallelism data	DGOV0106I	D461	CCP=NO
	DGOV1423I	D461	COLLECT REPORT DATA:
	DGOV1420I	D461	- CRD1=YES
	DGOV1424I	D461	ADDRESS SPACE NAME=D461DCX1
	DGOV1421I	D461	DATA SPACE SIZE=25600 PAGES
	DGOV1422I	D461	VSAM LINEAR DATA SET=D01PMO.STI.CRD1
	DGOV1484I	D461	VSAM LINEAR DATA SET SIZE=51200 PAGES
Collect report data	DGOV1420I	D461	- CRD2=NO
	DGOV1420I	D461	- CRD3=NO
	DGOV1420I	D461	- CRD4=NO
	DGOV1420I	D461	- CRD5=NO
	DGOV1420I	D461	- CRD6=NO
	DGOV1420I	D461	- CRD7=NO
	DGOV1420I	D461	- CRD8=NO
		DGOV0093I	D461
	DGOV0094I	D461	- APPC TRACE=OFF
	DGOV0098I	D461	- DATA SERVER TRACE=OFF
Diagnose	DGOV1135I	D461	- AUTHORIZATION ADDRESS SPACE TRACE=OFF
	DGOV1148I	D461	- APPLICATION SERVICES TRACE=OFF
	DGOV1300I	D461	- TCP/IP TRACE=OFF
	DGOV1458I	D461	- COLLECT REPORT DATA TRACE=OFF
	DGOV0057I	D461	DISPLAY COMMAND OUTPUT ENDS

Example 2: DISPLAY=(APPC) command

The DISPLAY=(APPC) command shows the operator the current status of all APPC sessions, if any. For example, the output for a data collector monitoring the DB2 subsystem D421 may look like the following:

DGOV0029I	D421	DISPLAY COMMAND OUTPUT BEGINS
DGOV0087I	D421	APPC SESSION INFORMATION - BEGIN
DGOV0090I	D421	SESSION# STATUS UID PARTNER-LU
DGOV0091I	D421	1 ACT XYZ DEIBMFD.FDV8460A
DGOV0091I	D421	2 ACT XYZ DEIBMFD.FDV8460A
DGOV0091I	D421	3 ACT MONROE DEIBMFD.FDV6320A
DGOV0091I	D421	4 INACT

```

DGOV0091I D421      5      PEND
DGOV0091I D421      6      INACT
DGOV0088I D421 APPC SESSION INFORMATION - END
DGOV0057I D421 DISPLAY COMMAND OUTPUT ENDS

```

User XYZ and MONROE are processed as active clients by the data collector. User XYZ is connected twice. Session 5 is still processing a client's deallocation or waits for a new client to be connected.

Example 3: DISPLAY=(TCPIP) command

The DISPLAY=(TCPIP) command shows the operator the current status of all TCP/IP sessions, if any. For example, the output for a data collector monitoring the DB2 subsystem SE11 may look like the following:

```

DGOV0029I SE11 DISPLAY COMMAND OUTPUT BEGINS
DGOV1324I SE11 TCP/IP SESSION INFORMATION - BEGIN
DGOV1326I SE11  SESSION      STATUS  UID      PORT      TCP/IP-ADDRESS
DGOV1327I SE11      1          ACT     ABC      00000401  9.164.156.192
DGOV1327I SE11      2          ACT     ABC      00000402  9.164.156.192
DGOV1327I SE11      3          INACT                    0.0.0.0
DGOV1327I SE11      4          INACT                    0.0.0.0
DGOV1325I SE11 TCP/IP SESSION INFORMATION - END
DGOV0057I SE11 DISPLAY COMMAND OUTPUT ENDS

```

User ABC is processed as active client by the data collector. User ABC is connected twice.

Example 4: DISPLAY=(USERLIST) command

The DISPLAY=(USERLIST) command was issued to show the current data collector administrators. The output may look like the following:

```

DGOV0029I D461 DISPLAY COMMAND OUTPUT BEGINS
DGOV0037I D461 CURRENT ADMIN USERS
DGOV0038I D461 USERID BCD
DGOV0038I D461 USERID ABC
DGOV0057I D461 DISPLAY COMMAND OUTPUT ENDS

```

User BCD and ABC are data collector administrators.

Example 5: DISPLAY=(STORAGEMAP) command

The DISPLAY=(STORAGEMAP) command shows the operator the allocated virtual storage in the DB2 PM authorization address space for the functions Snapshot Store and User Data. For example, the output for a data collector monitoring the DB2 subsystem S512 might look like the following:

```

DGOV1141I S512 AUTHORIZATION ADDRESS SPACE INFORMATION - BEGIN
DGOV1152I S512 STORAGE MAP FOR USER 'USER1 ', GROUP 'MYGROUP ',
DGOV1153I S512 PROFILE 'DB2PMTEST ':
DGOV1155I S512 - STORE-ID  BUFFER1  BUFFER2      TOTAL
DGOV1156I S512      1          38F      5DE          96D
DGOV1156I S512      3          945      945          128A
DGOV1156I S512      4          366      36A          6D0
DGOV1156I S512      8          0        5DE          5DE
DGOV1154I S512 - 00000000 BYTES ALLOCATED FOR USER DATA
DGOV1157I S512 TOTAL FOR THIS PROFILE = 000028A5 BYTES
DGOV1152I S512 STORAGE MAP FOR USER 'USER1 ', GROUP 'MYGROUP ',
DGOV1153I S512 PROFILE 'DB2PMTEST1 ':
DGOV1154I S512 - 00100000 BYTES ALLOCATED FOR USER DATA
DGOV1157I S512 TOTAL FOR THIS PROFILE = 00100000 BYTES
DGOV1158I S512 TOTAL FOR AUTHORIZED ADDRESS SPACE = 001028A5 BYTES
DGOV1142I S512 AUTHORIZATION ADDRESS SPACE INFORMATION - END

```

Example 6: TRACE=(APPCON) command

The TRACE=(APPCON) command was issued on request of the IBM Maintenance location. The operator can use the DISPLAY=(TRACE) command to show the current status of the data collector internal trace.

```
DGOV0029I D461 DISPLAY COMMAND OUTPUT BEGINS
DGOV0093I D461 DATA COLLECTOR INTERNAL TRACE STATUS:
DGOV0094I D461 - APPC TRACE=ON
DGOV0098I D461 - DATA SERVER TRACE=OFF
DGOV1135I D461 - AUTHORIZATION ADDRESS SPACE TRACE=OFF
DGOV1148I D461 - APPLICATION SERVICES TRACE=OFF
DGOV1300I D461 - TCP/IP TRACE=OFF
DGOV1458I D461 - COLLECT REPORT DATA TRACE=OFF
DGOV0057I D461 DISPLAY COMMAND OUTPUT ENDS
```

Chapter 7. Customizing and activating user exits

User exits are predefined exit points in an IBM-supplied program at which a user-written routine can be given control. On completion of the user-written routine, control is returned to the IBM-supplied program.

DB2 PM supports the following user exits:

- Exception processing exit
- User authorization exit.

Exception processing exit

This user exit handles periodic exceptions and event exceptions. You can activate or deactivate it from the Exception Processor panel with the Host Online Monitor (as described in *DB2 PM Online Monitor User's Guide*) or from the Exception Processing window with the Workstation Online Monitor (as described in *DB2 PM Using the Workstation Online Monitor*).

The exception processing exit is implemented as an asynchronous task. It is provided as a load module named DGOMEPT, which contains the modules DGOMEPT, DGOMUPXT, and DGOVQUEU.

Module DGOMEPT is posted whenever the periodic exception task or the event exception task detects an exception condition. It receives the queued exception log file records using the services of module DGOVQUEU and calls the user exit routine DGOMUPXT.

In SDGOSAMP, DB2 PM provides a sample of the exception processing exit, called DGOMUPXT, which issues a message to the operator. The message text varies depending on whether the situation is an event exception or a periodic exception. For a description of the different formats of this message, see message number DGOV0100I in the *DB2 PM Messages* manual.

You can change DGOMUPXT according to your needs, for example, to examine the type of exception and perform an action necessary to handle the situation.

The exception processing exit runs in the data collector address space as a subfunction of periodic exception processing. Therefore, the exit remains active even if the administrator exits DB2 PM for as long as periodic exception processing remains active in the data collector address space.

Generating a NetView alert

If you want to generate a NetView generic alert for the exception message, you can do this by using the sample CLIST DGOMSPXT, which is provided in SDGOSAMP. In this case you must update the NetView automation table and add the CLIST to a NetView DSICLD concatenated data set. The following example shows how you can update the NetView automation table:

```
*****  
*   ENTRY FOR DB2 PM EXCEPTION MESSAGE PROCESSING   *  
*****
```

```

SYN %AOFINGOP1% = 'AUTO';
IF MSGID='DGOV0100I' & TEXT=MESSAGE
    THEN EXEC (CMD('DGOMSPXT' MESSAGE)
    ROUTE (ONE %AOFINGOP1%));

```

You can change the sample CLIST DGOMSPXT according to your installation.

Customization and activation of the exception processing exit

To customize and activate the exception processing exit, perform the following steps:

1. Change (in Assembler language) the user exit routine DGOMUPXT according to the needs of your installation. For further details on running this user exit, such as the layout of the input area or the parameter list that is passed along in register 1, refer to the description contained in the source code of the exit.
2. Rather than using your own JCL, it is recommended that you use DGOMJPXT, which is supplied in SDGOSAMP, to assemble and link-edit the user exit routine you have modified. The execution of DGOMJPXT includes SMP/E RECEIVE and APPLY. This way you keep track of your modifications, which is helpful in case future changes of the product affect this function.

During the assembly of the user exit routine, macro DGOFELGD is accessed, which is also supplied in SDGOSAMP. Take a look at the expansion of this macro as it contains the field names used to map the exception log file record.

3. Stop and restart the data collector to activate the new load module.
4. Activate the exception processing exit using the Exception Processor panel.

User authorization exit

In general DB2 PM relies on the DB2 security scheme. Each Online Monitor user needs the authorities as described under *DB2 PM Online Monitor User's Guide*, in particular MONITOR1 or MONITOR2 privilege is required. DB2 does not provide the capability to restrict the authority to specific areas, for example, statistics data only or specific threads only.

The DB2 PM user authorization exit is designed to provide your installation with such a capability. When the exit is used, the Online Monitor user does not need MONITOR1 or MONITOR2 any longer. The exit is in full control of the authorization. The authorization can be defined for the type of data requested and, in case of thread data, for each thread.

The user authorization exit is an extension of the data collector. Therefore, you must start the data collector to take advantage of the user authorization exit. It works for both, the host Online Monitor and the workstation Online Monitor.

The authorization handling of the exit supersedes the DB2 authorizations. This means, if a user has MONITOR1 or MONITOR2 privilege, but the exit denies access to the data of a certain thread, the user cannot see this thread using the Online Monitor.

If the user authorization exit or the data collector fails, security falls back to DB2 authorizations. If, in such a situation, a user has no MONITOR1 or MONITOR2 privilege and if the Online Monitor authorizations are usually handled by the exit, the user cannot see any data. This ensures that there is no security exposure in case the user exit or the data collector fails.

When the exit is active, each Online Monitor user still needs access to DB2 and EXECUTE authority for the online monitor plan.

The user authorization exit is implemented as an asynchronous task and runs in the data collector address space. It is provided as a load module named DGOVMUAE, which contains, among others, the object module DGOVUAE. This is the compiled exit routine that you can modify.

To activate this user exit, stop the data collector (unless it has already been stopped before). Now set the data collector parameter USEUSERAUTHEXIT to "YES" and start (or restart) the data collector. To deactivate this user exit, stop the data collector, set the data collector parameter USEUSERAUTHEXIT to "NO", and restart the data collector.

If the user authorization exit is active, module DGOVMUAE is posted for each request for:

- Statistics data
- System parameters data
- Thread data
- SQL statement text.

This happens during the decision phase of the user exit. In addition, module DGOVMUAE is posted once during data collector startup (initialization phase) and once when the data collector is shut down (cleanup phase). DB2 PM provides a sample of DGOVUAE in SDGOSAMP. You can change module DGOVUAE to satisfy the needs of your installation.

The user exit is called synchronously when handling an Online Monitor request, that is, its performance adds directly to the user response time. It is, therefore, important that its performance is optimal. To avoid operations that impact performance, for example, allocate storage or read data from disk, you can set up and initialize an exit environment when the data collector is started, and use this environment whenever the exit is called. The exit environment can be set up when DGOVUAE gets control for the first time during data collector startup (initialization phase). You may also wish to clean up the user exit environment on completion of the exit, for example, free previously allocated storage. You can do this when DGOVUAE receives control during data collector shutdown (cleanup phase).

To maintain your own storage area during the processing of the user exit, a pointer is provided, which you can set during the initialization phase. Once this pointer is set, it is passed to the user exit routine each time this routine is posted during the decision phase and ultimately during the cleanup phase.

User exit parameters

The user authorization exit receives the following parameters from the calling program:

Function

The following user exit functions are always passed to the user exit to indicate which processing phase is currently active:

- INITIALIZE
- DECIDE
- CLEAN_UP

Pointer

The user exit can set and use this pointer. It is always passed to the user exit. It can be used to point to the user-maintained storage area.

Request type

It indicates which data is to be authorized. The following request types are possible:

STAT For statistics data (IFCIDs 1, 2, and 254)

SYSP For system parameters data (IFCIDs 106, 202, and 230)

THSU For thread data (IFCID 147 and 148)

SQL For SQL statement text (IFCID 124).

The request type is passed to the exit only during the decision phase. Note that the SQL statement text is only requested for threads for which the user has been authorized.

User ID

The user ID that issued the request. The user ID is passed to the exit only during the decision phase.

Additional pointer

For request type THSU, an additional pointer is passed to the exit routine during the decision phase. This pointer points to a copy of the DB2 correlation header. The correlation header provides information about the thread being requested. Use the DB2 data mapping macro DSNDQWHC in SDSNMACS to interpret the data.

Return codes

To pass the authorization status from the user authorization exit back to the calling program, use an appropriate return code. The return code is interpreted as follows:

RC 0 The user is authorized, and the requested data is passed to the user.

RC 4 The user is not authorized, and the requested data is not passed to the user.

RC 8 The user authorization exit detected an irrecoverable error. The data collector deactivates the exit. A message is written to the console. Standard DB2 PM authorization applies from now on.

Any other return code is treated as RC 8.

Usage notes

The following functions should be used with care:

Viewing past data (history)

The history function does not use the user authorization exit when collecting data. All collected data is stored in the history data set. Although the display history data function uses the user authorization exit, a user could still unload the history data set. Because the unload function does not use the user authorization exit, the authorization checking could be bypassed. Use your security management product, such as RACF, to control access to the history data set.

Exception processing

There are three basic types of exception processing: display exception processing, periodic exception processing, and exception event processing.

While display exception processing and periodic exception processing use the authorizations specified in the user authorization exit, exception event processing does not use them.

Customization and activation of the user authorization exit

To customize and activate the user authorization exit, perform the following steps:

1. Change (in Assembler language) the user exit routine DGOVUUAE according to the needs of your installation.
2. Rather than using your own JCL, you are recommended to use DGOVJUAE, which is supplied in SDGOSAMP, to assemble and link-edit the user exit routine you have modified. The execution of DGOVJUAE includes SMP/E RECEIVE and APPLY. This way you keep track of your modifications, which is helpful in case future changes of the product affect this function.
3. Stop the data collector.
4. Activate the user authorization exit by setting the data collector parameter USEUSERAUTHEXIT to "YES".
5. Restart the data collector.

Part 3. Appendixes

Appendix A. Data collector command interface summary

This chapter explains the syntax rules for specifying data collector startup parameters. It describes how to operate the data collector and how to work with the operator commands. It also summarizes the startup parameters and operator commands that are recognized by the data collector.

Data collector startup parameters

Use the data collector startup parameters to customize the data collector to your needs. These parameters are used only when the data collector is started.

A sample job for data collector control statements is provided with the product (member DGOVDCCS in data set *prefix*.SDGOSAMP). This member is described in on page 45 in “Step 6: Customize the data collector installation jobs” on page 44.

Syntax rules for specifying data collector startup parameters

This section describes the extended syntax rules that apply when you specify data collector startup parameters:

1. For data collector parameters that can contain only one value, the syntax is:
KEYWORD=LITERAL
2. For data collector parameters that can contain multiple values, the syntax is:
KEYWORD=(LITERAL,LITERAL,...)
3. Each keyword begins on a new line and cannot exceed more than one line.
4. Lines beginning with an asterisk (*) are interpreted as comment lines.
5. If a parameter that may not be specified more than once is specified several times, an error message is issued, and the data collector is shut down.
6. The following restrictions apply when you select the operation mode. DB2 PM supports the operation modes HOSTOLM or SERVER, or both.
If you specify HOSTOLM=NO and SERVER=NO, an error message is displayed at data collector startup, and the data collector is shut down. Specifying HOSTOLM=NO and SERVER=NO would cause the data collector to provide no external interface at all.
7. Depending on the setting of a high-level parameter, some lower-level parameters might not be applicable. In this case, the specification of lower-level parameters is accepted but the settings are ignored by the data collector. For example, if you specify HISTORY=NO, the data collector ignores the parameters HI, HD, HDSZ, HPSZ, and HQ.

Figure 6 on page 106 shows the global parameter hierarchy for the data collector.

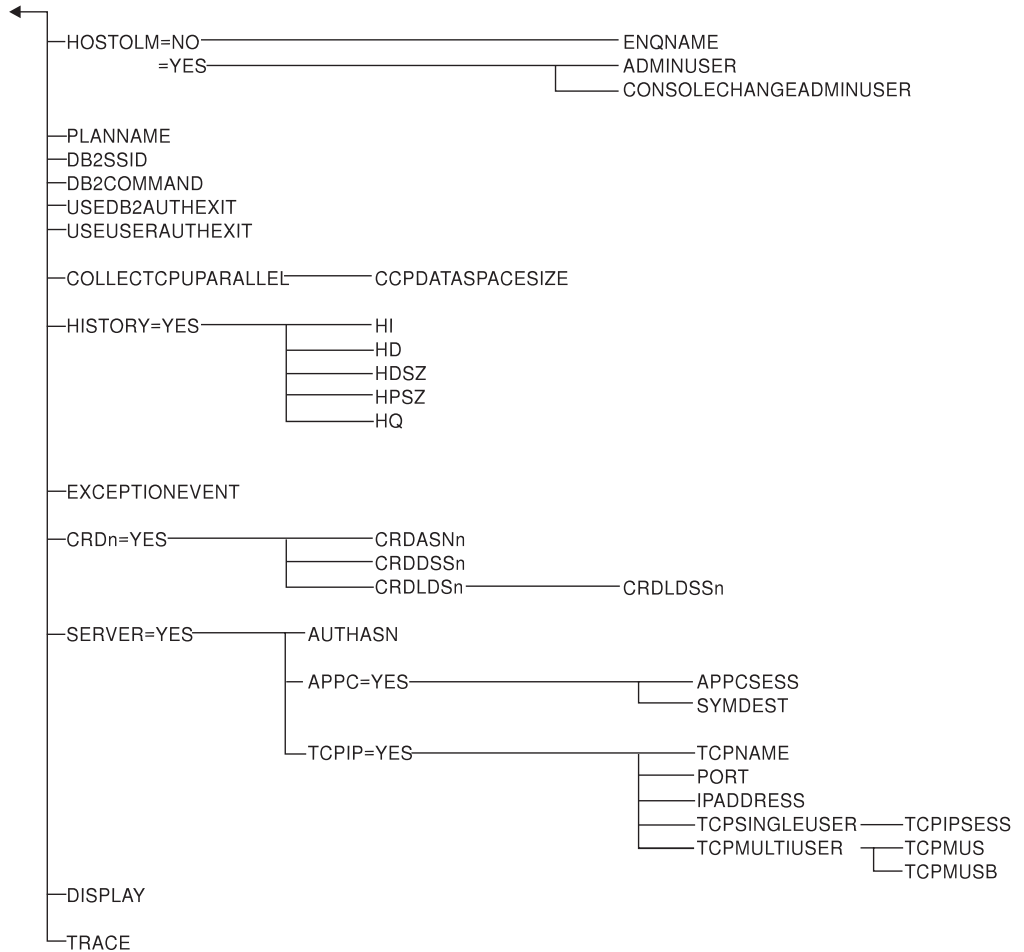
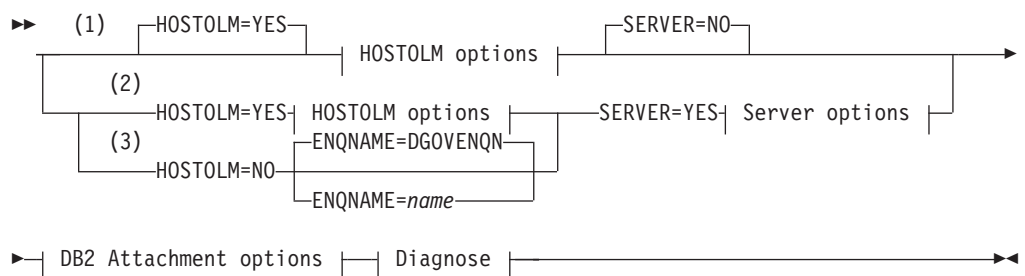


Figure 6. Global parameter hierarchy

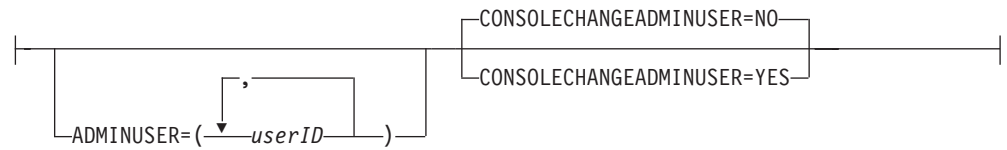
Summary of startup parameters



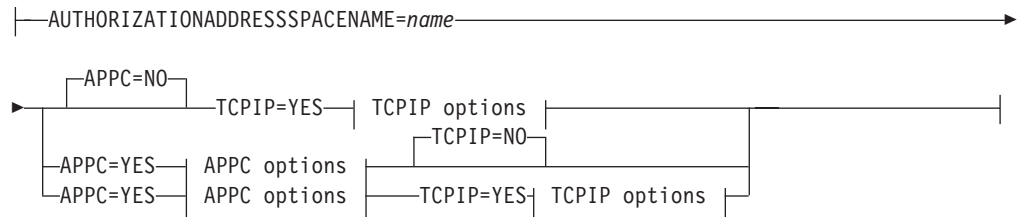
Notes:

- 1 In this operation mode, the data collector supports only the DB2 PM Online Monitor function.
- 2 In this operation mode, the data collector supports the DB2 PM Online Monitor function and the DB2 PM Workstation Online Monitor function.
- 3 In this operation mode, the data collector supports only the DB2 PM Workstation Online Monitor function.

HOSTOLM options:



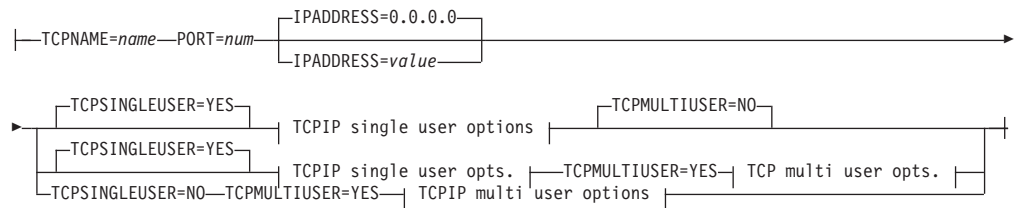
Server options:



APPC options:



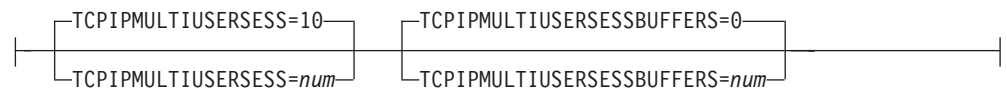
TCPIP options:



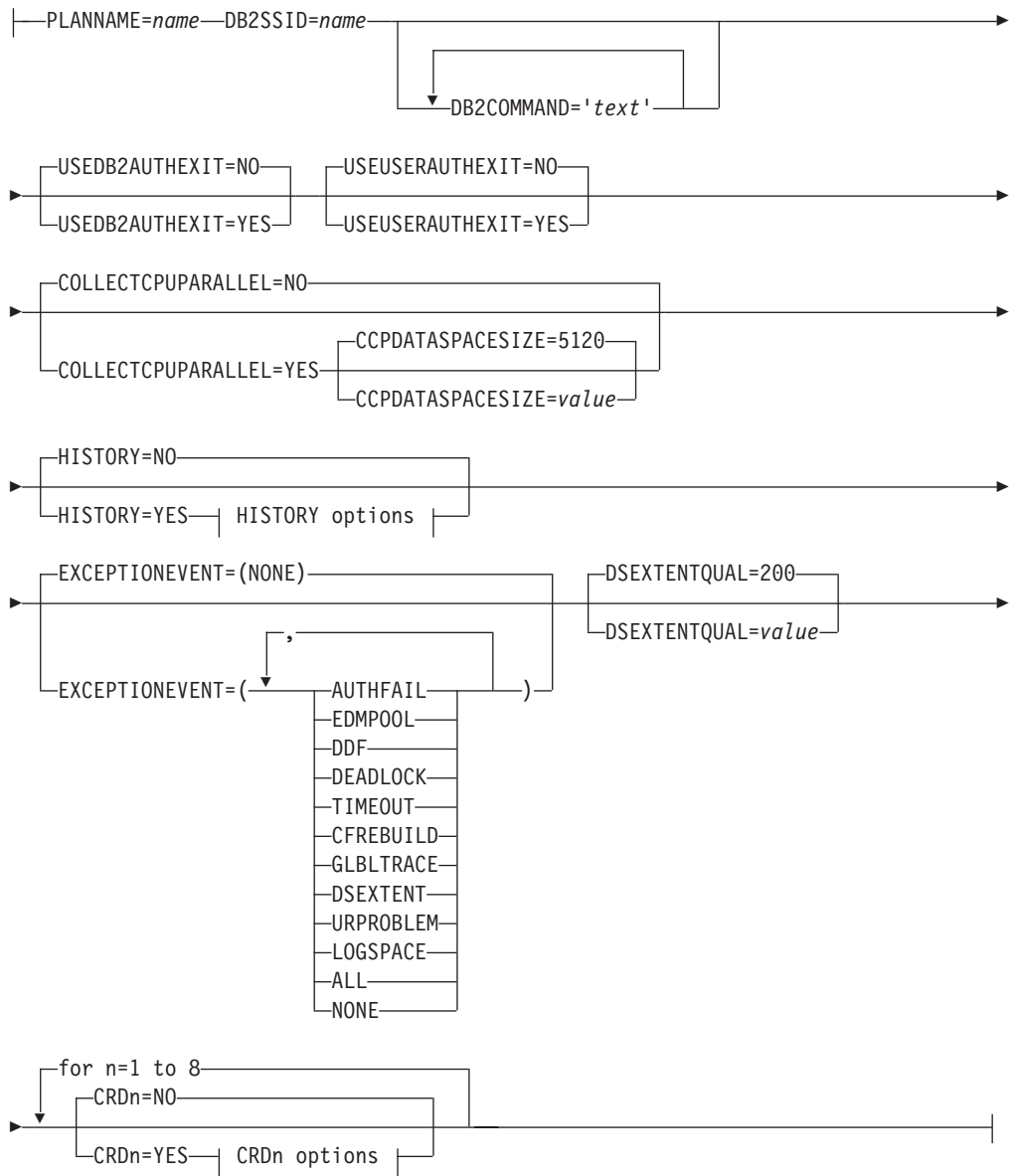
TCPIP single user options:



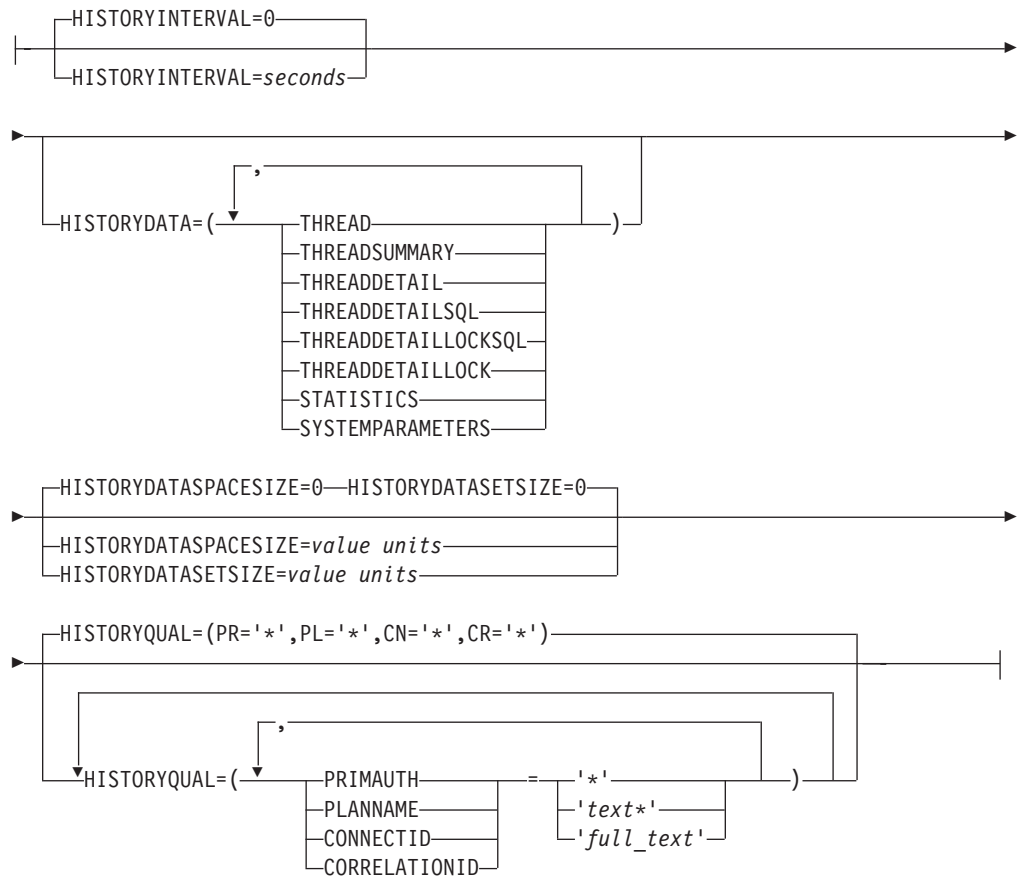
TCPIP multi user options:



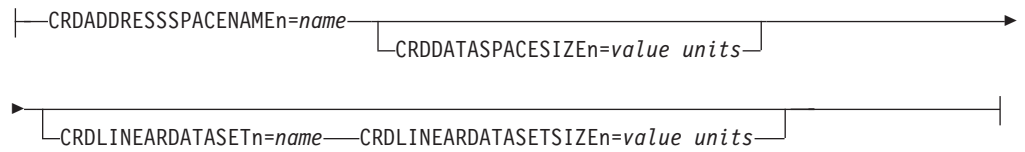
DB2 Attachment options:



HISTORY options:



CRDn options:



Diagnose:



Data collector operator commands

Use the data collector operator commands to customize the data collector while it is running.

Operating the data collector

This section describes the MVS commands for starting, stopping, and modifying the data collector from the console.

Starting the data collector

To start a data collector for a DB2 subsystem, issue the MVS start command as follows:

```
S procname,parms
```

Where *procname* is the name of the JCL member in the system PROCLIB concatenation.

Modifying data collector parameters

To change a data collector parameter from the console (that is, to issue a data collector operator command), issue the MVS modify command as follows:

```
F procname,param
```

Where *procname* is the name of the JCL member in the system PROCLIB concatenation, and *param* is the data collector parameter you want to issue. Note, however, that not all data collector parameters can be modified. Following are some examples of issuing data collector operator commands:

- To stop history data collection:
F DB2PM,H=N
- To display current data collector parameters:
F DB2PM,DI=(P)
- To display the current status of all APPC sessions:
F DB2PM,DISPLAY=(APPC)
- To change the history collection interval to one minute:
F DB2PM,HI=60

Stopping the data collector

To stop a data collector, issue the MVS stop command as follows:

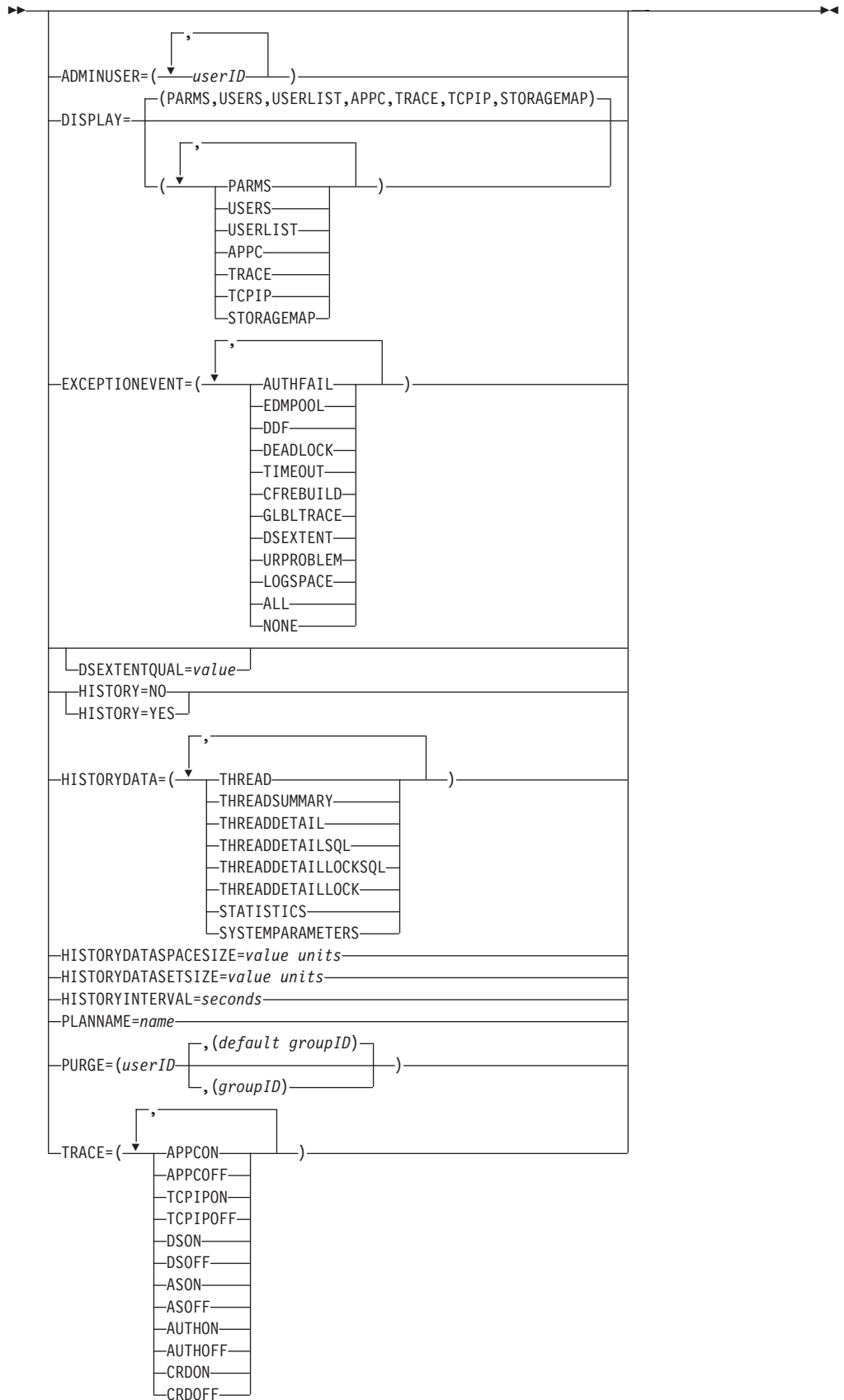
```
P procname
```

Where *procname* is the name of the JCL member in the system PROCLIB concatenation.

Note: You might experience a delay when stopping the data collector.

Summary of operator commands

The following syntax diagram summarizes the commands that can be issued by the operator:



Appendix B. Installation work sheet

Table 19. Global generation parameters

ITool parameter name	Installer label	IBM default value	User value
DRYRUN	-	'YES'	

Table 20. JOB-specific parameters

ITool parameter name	Installer label	IBM default value	User value
JOBLIN1	-	'//*'	
JOBLIN2	-	'//*'	
JOBLIN3	-	'//*'	
JOBLIN4	-	'//*'	
JOBLIN5	-	'//*'	
JOBLIN6	-	'//*'	
JOBOUTC	Job output class	'*'	
SMS	DFSMS installed	'NO'	
STORCLAS	Storage class	'NONE'	
TUNIT	DB2 PM is to be loaded from tape unit	'3480'	
WDSK	Work disk unit	'SYSALLDA'	

Table 21. Global parameters

ITool parameter name	Installer label	IBM default value	User value
APPCLIB	APPC link library	'SYS1.CSSLIB'	
ASSNAME	Assembler name	'ASMA90'	
BLKFB	BLKFB	0	
BLKU	BLKU	32760	
DB2PMHLQ	DB2 PM - Prefix	'DGO.V6R1M0'	
INSTBASE	Base feature (DB2 PM Try)	'YES'	
INSTENU	English	'YES'	
INSTJPN	Japanese	'NO'	
INSTOPT	Permanent usage (DB2 PM Buy)	'YES'	
ISPMLIB	Message library	'SYS1.ISPMLIB'	
ISPLIB	Panel library	'SYS1.ISPPLIB'	
ISPTLIB	Table library	'SYS1.ISPTLIB'	
LKEDNAME	Linkage editor name	'HEWLH096'	
MVSLEVEL	APPC supported	'NOAPPC'	

Table 22. SMP/E-specific parameters

ITOOL parameter name	Installer label	IBM default value	User value
CSIDISP	CSI disposition	'NEW'	
DCSIHLQ	Distribution zone CSI - Prefix	'DGO.V6R1M0'	
DCSIVOL	Distribution zone CSI - Volume	'DGO001'	
DISTUNIT	DB2 PM distribution libraries - Unit	'SYSALLDA'	
DISTVOL	DB2 PM distribution libraries - Volume	'DGO001'	
DSPREFIX	Relfiles - Prefix	'DGO.V6R1M0'	
DZONE	Distribution - Zone name	'DGOD610'	
GCSIHLQ	Global zone CSI - Prefix	'DGO.V6R1M0'	
GCSIVOL	Global zone CSI - Volume	'DGO001'	
RELFILES	Relfiles allocation	'AUTO'	
RELUNIT	SMP/E relfiles data sets - Unit	'SYSALLDA'	
RELVOL	SMP/E relfiles data sets - Volume	'DGO001'	
SMPUNIT	SMP/E control data sets - Unit	'SYSALLDA'	
SMPVOL	SMP/E control data sets - Volume	'DGO001'	
TARGUNIT	DB2 PM target libraries - Unit	'SYSALLDA'	
TARGVOL	DB2 PM target libraries - Volume	'DGO001'	
TCSIHLQ	Target zone CSI - Prefix	'DGO.V6R1M0'	
TCSIVOL	Target zone CSI - Volume	'DGO001'	
TZONE	Target - Zone name	'DGOT610'	

Appendix C. Follow-on installation work sheet

Table 23. Online Monitor installation parameters

ITool parameter name	Installer label	IBM default value	User value
DB2EXIT	DB2 exit library	'DSN610.SDSNEXIT'	
DB2LOAD	DB2 load library	'DSN610.SDSNLOAD'	
DB2PLAN	DB2 plan name for DSNTIAD	'DSNTIA61'	
DB2RUNL	DB2 application load library	'DSN610.RUNLIB.LOAD'	
DB2SUBS	Enter the name of the subsystem with which you want to work	'DSN1'	
OMCOLLID	Collection ID - Online Monitor bind parameters	'DGOOM610'	
OMOWNER	Package owner - Online Monitor bind parameters	'DB2PM'	
OMPLAN	Plan name - Online Monitor bind parameters	'DGOPMOM'	

Table 24. Explain installation parameters

ITool parameter name	Installer label	IBM default value	User value
EXINST	Use explain?	'YES'	
EXIDB2V	DB2 version installed	'6.1'	
EXIOLD	Explain in prior DB2 PM release	'NO'	
EXIOCO	Copy of catalog already used	'NO'	
EXIOCA	Usage of catalog copies with additional indexes	'NO'	
EXIQMF	QMF installed on the target DB2 subsystem	'YES'	
EXIUBAT	Explain function in batch	'YES'	
EXCOLLID	Collection ID - Explain bind parameters	'DGOEX610'	
EXLOCATN	Location - Explain bind parameters	'*'	
EXOWNER	Package owner - Explain bind parameters	'DB2PM'	
EXPLAN	Plan name - Explain bind parameters	'DGOPMEX'	

Table 25. Data collector installation parameters

ITool parameter name	Installer label	IBM default value	User value
DCCOLRD	Collect report data	'NO'	
DCHLQ	Prefix - History and exception event	'DGO.V6R1M0'	
DCHOSTOM	Host Online Monitor support	'YES'	
DCTCPIP	TCP/IP host server support	'NO'	
DCVOLSE	Volume - History and exception event	'DGO001'	

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Glossary

The following terms and abbreviations are defined as they pertain to DB2 PM. This glossary does not include terms defined in the prerequisite DB2 manuals. If you do not find the term you are looking for, refer to the index, to the glossary of *IBM DB2 Universal Database Server for OS/390 Version 6 Administration Guide* or to the *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994.

A

accounting by DB2 PM identifier graphs. Graphs provided by IRF graphics. The graphs show plots representing values of selected DB2 PM identifiers.

accounting by field identifier graphs. Graphs provided by IRF graphics. The graphs show plots representing values of selected DB2 fields.

accounting data. Data that provides summary information about DB2 resource use. Accounting data is used to summarize DB2 local and distributed activity associated with the execution of specified application plans, detect potential problem areas within DB2, track resource use on a regular basis, and identify DB2 threads that fail to meet certain user-specified criteria.

accounting report set. A set of DB2 PM reports providing information about DB2 resource activity associated with DB2 applications.

accounting trace data. DB2 trace data that provides summary information about DB2 resource use.

ACE. A DB2 PM identifier denoting agent control element address.

administrator user. A TSO user with the authority to access the administrator dialog panels, where data collector parameters can be altered.

agent control element address (ACE). The absolute hexadecimal address of the DB2 agent control element for the thread. The ACE provides identification for each thread, and can be used to select records for a particular thread. Note that an ACE address can be reused after a thread terminates.

allied thread. A DB2 PM term for a thread that originates and terminates at the same location without requesting data from any other locations.

allied-distributed thread. A DB2 PM term for a thread that originates and terminates at the same location and that requests data from at least one other location.

audit report set. A set of DB2 PM reports that provide a means of tracking DB2 resource access. The audit reports include information on who performed an audited action, when it was performed, and what auditable DB2 objects were involved. The reports can be used to track DB2 resource access, identify potential security breaches and violations, and track granting and revoking of DB2 privileges.

audit trace data. DB2 trace data that identifies resource users, persons issuing use authorization to others, and possible security violations against audited DB2 tables.

AUTHID. A DB2 PM identifier denoting authorization ID.

AUTO command. Used to refresh and redisplay the current thread activity or statistics panel periodically.

auto display. A function that refreshes and redisplay the current thread activity or statistics panel periodically.

B

background processing. The execution of low-priority jobs when higher-priority programs are not using the system resources. In TSO, a background job is entered through the SUBMIT command or through SYSIN. Contrast with foreground processing.

BOUNDARY option. An option of the GLOBAL command and the REDUCE subcommand that specifies the starting time of the intervals used to summarize records in the reduction process, by indicating a number of minutes past the hour.

C

CLASS. A DB2 PM identifier denoting trace class.

CODES option. An option of the DUMP and TAPECOPY commands used to define code values for records to be processed.

COLLECT command. Used to access the collect report data facility.

collect report data. An option used to gather data for specific DB2 PM batch reports.

collect task. A task that has been configured to start and stop DB2 traces for collecting specific DB2 instrumentation data and directing this data to a data set. Up to four independent collect tasks can be configured and started using the collect report data facility.

CONNECT. See *connection ID*.

connection ID (CONNECT). A DB2 PM identifier derived from the connection ID of the correlation header. This is the type of subsystem used to interface with DB2, such as CICS(R), TSO, or IMS(TM).

connection type (CONNTYPE). An identifier showing the type of connection for an associated thread.

CONNTYPE. See *connection type*.

CONVERT. A DB2 PM function to change SAVE data sets into sequential data sets suitable for use by the DB2 load utility. See also *save-file utility*.

correlation ID. An identifier consisting of two fields: the correlation name and the correlation number. It is used primarily by CICS and IMS. For some connection types the correlation number is blank. DB2 PM defaults to an 8-byte correlation name, followed by a 4-byte correlation number. You can specify a different translation using the CORRDATA member of the DPMPARMS data set. See also *correlation name*, *correlation number*, and *correlation translation*.

correlation name (CORRNAME). An identifier assigned to a task. This value is a subset of the correlation ID. Its meaning varies with the connection type. See also *correlation ID*.

correlation number (CORRNMBR). An identifier assigned to a task. This field is a subset of the correlation ID. Its meaning varies with the connection type. See also *correlation ID*.

correlation translation. A DB2 PM function that interprets the information contained in the correlation ID. See *correlation ID*, *correlation name*, *correlation number*, and *correlation translation data set*.

correlation translation data set. A DB2 PM data set used to define and interpret the use of the correlation ID for processing within DB2 PM reports and panels. See also *correlation ID*.

CORRNAME. See *correlation ID*.

CORRNMBR. See *correlation ID*.

D

DATABASE. A DB2 PM identifier denoting the name of the DB2 database.

database access thread (DBAT). A DB2 PM term for a thread that performs work at the request of an allied-distributed or DBAT-distributed thread originating at another location.

database identifier (DBID). A decimal identifier of a database.

DATASET. A DB2 PM identifier consisting of the 8-character name of the active log, the archive log, or the bootstrap data set.

DBAT. A DB2 PM identifier denoting database access thread.

DBAT-distributed. A DB2 PM term for a DBAT that requests work from another location.

DB2 instrumentation facility. A DB2 facility that controls and collects DB2 monitoring, auditing, performance, accounting, statistics, and serviceability (global) data. Synonymous with *DB2 trace facility*.

DB2 location. The name assigned to the DB2 subsystem. This name is unique within a set of subsystems that can communicate with each other. See also *local location*.

DB2 trace facility. Synonym for *DB2 instrumentation facility*.

DB2ID. A DB2 PM identifier denoting DB2 subsystem ID. Synonymous with *SUBSYSTEMID*.

DB2 PM command language. A set of commands and subcommands used to control DB2 PM processing.

DB2 PM identifier. A DB2 PM term for an identifier that specifies various attributes of the object upon which DB2 PM is reporting. Used by DB2 PM to group data, order reports, and include or exclude specific data.

DB2 PM logs. Reports that provide summarized information about events during DB2 PM execution. See *exception log*, *message log*, *job summary log*, *IFCID frequency distribution log*, and *DPMLOG*.

DDNAME option. An option specifying the DDNAME of a data set. With REPORT and TRACE subcommands, the option is used to specify the data set where the report or trace is written; with the SAVE and FILE subcommands, it is used to specify the destination data set to which the save data is written; with RESTORE, it is used to specify the data set from which restored data is read.

DELTA command. Used to invoke delta processing mode for viewing system-wide statistics in time slices.

delta processing mode. A statistics processing mode that reports field values in time slices.

delta record. A data structure describing the activity of a DB2 subsystem over a specific period of time.

delta value. A counter value found in a DB2 PM statistics delta record representing activity in a DB2 system over the time period described by the delta record.

DIAGNOSE command. Used to access diagnostic view.

diagnostic view. A function used to analyze a thread's performance data, and to view an online diagnosis of the principal constraints acting on the thread.

display exception list. A list that contains a brief description of each exception condition that was detected by the display exception processor.

display exception processing. An Online Monitor subtask used to check for exception conditions while viewing DB2 activity on the screen.

DISTDD option. An option of the GLOBAL command used to specify the DDNAME for the frequency distribution data set.

DISTRIBUTE command. An auxiliary command used to calculate frequency distributions for selected fields. The results can be viewed or printed using the graphics function of the IRF.

DPMLOG. A DB2 PM log that contains messages about DB2 PM processing.

DPMOUT. The DB2 PM output data set. DB2 PM generates the output data using SMF or GTF data as input. The DPMOUT data set contains data converted to a standardized format, sorted, and written to a format that can be used to create DB2 PM reports, traces, and data sets.

DPMPARMS. A DB2 PM data set that contains information about customized functions.

Dump Name option. An option of the DUMP command used to specify a name to be printed on the dump.

DUMP processing. A DB2 PM function used to provide a printout of an input data set in dump format. All records on the input data set, a selected range of records, or specific record types can be used.

E

exception DPMOUT data set. A data set containing DB2 instrumentation records (in DPMOUT format) with at least one field in exception status. The data set can be used as input to the Batch record trace or statistics trace.

exception event processing. An Online Monitor subtask used to monitor the DB2 subsystem for the presence of particular events.

exception log. A log presenting a list that identifies DB2 accounting and statistics records with at least one field outside user-specified limits.

exception log file data set. A sequential data set suitable for use by the DB2 load utility. The data set contains a listing of accounting and statistics exception records identical to the listing in the exception log. See *exception log*.

exception processing. Reporting that provides a means to identify DB2 threads and statistics intervals with fields that contain exceptional values. It is used to highlight problems in the DB2 subsystem and in threads causing performance problems. Exception processing is performed against accounting and statistics instrumentation data.

exception profiling. A DB2 PM function that automatically sets exception threshold values to the exception threshold data set. The values are based on user-specified criteria and instrumentation data from a particular DB2 site.

exception reports and traces. Reports and traces that are obtained using the EXCEPTION option of the accounting or statistics REPORT or TRACE subcommands. Exception reports and traces can have different layouts. See also *exception processing*.

exception threshold data set. A data set used to define exception thresholds for statistics and accounting field IDs.

EXEC command. A command that instructs DB2 PM to execute the commands in a job stream.

EXEC option. An option of the DUMP and TAPECOPY commands used to define the DDNAME of the input data set.

EXPLAIN command. Used to invoke the explain function. Explain is a function that describes the access paths and processing methods chosen by DB2 for a given SQL statement.

explain report set. A set of DB2 PM reports containing access path information and catalog information.

F

FIELD. A DB2 PM identifier for a field in the instrumentation record and comparison value, as defined using the FIELD command.

FIELD command. An auxiliary command used to locate exception conditions for individual DB2 records.

The command can only be used with the record trace INCLUDE/EXCLUDE options.

FIELDID option. An option of the DISTRIBUTE command used to specify the keyword for the field.

FILE processing. A DB2 PM function used to format accounting, audit, and statistics data and store it in sequential data sets suitable for use with the DB2 load utility.

foreground. In TSO, the environment in which programs are swapped in and out of main storage so that terminal users can share processing time. Contrast with background.

frequency distribution data set. Distribution data set generated as a result of the DISTRIBUTE command.

frequency distribution graph. A graph provided by the IRF graphics. It shows the distribution of a given field's data over user-defined ranges.

FROM/TO option. An option that defines the range of record timestamps processed by DB2 PM. FROM specifies the starting date and time; TO specifies the finishing date and time. The option can be used with the GLOBAL command and the REDUCE, REPORT, TRACE, and FILE subcommands.

G

GLOBAL command. An auxiliary command used as a primary filter for input records, and to specify default values for parameters within the other DB2 PM subcommands.

global parameters function. Used to set the DB2 subsystem ID and the plan name for an Online Monitor session, specify output data sets, and establish defaults for the autodisplay function.

graphics processing. A capability provided by DB2 PM that allows creation of graphs representing statistics, accounting, or frequency distribution information based on previously reduced data. Graphics are part of the Interactive Report Facility.

GROUP. A DB2 PM identifier that specifies the name of a Data Sharing Group.

GROUP command. An auxiliary command that can be used to specify up to ten values of one DB2 PM identifier type.

H

high water mark. A status value found in a DB2 trace record representing the highest value of some aspect of a DB2 system over a period starting when DB2 was started and ending at the timestamp of the trace record.

HISTORY command. Used to recall and view thread activity, statistics, and system parameters data (IFC records) previously collected by the data collector.

I

I/O activity report set. A set of DB2 PM reports reflecting reads, writes, and other I/O activities performed throughout the DB2 subsystem. The reports are used to track I/O volumes and service times and to summarize I/O activity for the active log, archive log, BSDS, the buffer pool manager, and the EDM pool manager.

ICU. Interactive Chart Utility.

IDENTIFIERS option. An option of the DISTRIBUTE command used to specify the DB2 PM identifiers used in collecting distribution data.

IFCID. A DB2 PM identifier denoting instrumentation facility component identifier.

IFCID frequency distribution log. A DB2 log presenting a count of input and processed records by IFCID, and the percentage of the total number of trace records that each IFCID represents.

INCLUDE/EXCLUDE option. An option used to select records from an input data set. INCLUDE is used to define a list of DB2 PM identifier values that are included in DB2 PM processing, and EXCLUDE to define a list of DB2 PM identifier values that are excluded from processing. The option is available with the GLOBAL command and the REDUCE, REPORT, TRACE, and FILE subcommands.

INPUTDD option. An option of the GLOBAL command used to specify the DDNAME of the input data set.

INSTANCE. A DB2 PM identifier that is part of the LUWID for distributed activity, and can be used to match the activity performed by DBATs, DBAT-distributed threads, and allied-distributed threads.

instance number. A DB2 PM identifier consisting of a unique number assigned to a thread involved in distributed activity. It is used to match an allied-distributed thread to its database access threads.

Interactive Chart Utility (ICU). A charting utility of the graphical data display manager (GDDM).

Interactive Report Facility (IRF). A DB2 PM facility that allows request for reports through a set of menus and interactive panels. The IRF also creates and submits control statements for background generation of DB2 PM reports.

INTERVAL command. Used to invoke Interval mode for viewing an accumulation of statistics data from a specified time.

INTERVAL identifier. A DB2 PM identifier used in accounting and statistics report sets to order data according to the reduction intervals.

INTERVAL option. An option of the GLOBAL command and the REDUCE subcommand that defines the time interval for consolidating records.

interval processing mode. The statistics processing mode that displays an accumulation of statistics data from a specified time.

IRF. Interactive Report Facility.

J

job summary log. A DB2 PM log providing a summary of events during DB2 PM execution. It provides information about the detection of DB2 START/STOP commands, report set reduction interval completion, SAVE and RESTORE subcommand completion by report set, and major errors and messages.

L

LAYOUT option. An option of the accounting and statistics REPORT and TRACE subcommands used to specify the layout of the report and the amount of detail.

LEVEL option. An option of the REPORT, TRACE, and FILE subcommands used to specify the type of report or trace, and the amount of detail.

LIMITS option. An option of the DISTRIBUTE command used to specify the limits of the ten ranges for frequency distribution.

LIST command. An auxiliary command used to define a named list of DB2 PM identifier values. A list can contain up to ten members of one DB2 PM identifier type.

local location. The location that is the focus of the report (the location indicated in the report header). See also *LOCATION*.

LOCATION. A DB2 PM identifier denoting the name assigned to a subsystem. See also *local location*.

locking report set. A set of DB2 PM reports and traces providing lock suspension, lock timeout and deadlock information.

lockout. DB2 PM uses this term as an aggregate name for both timeout and deadlock.

LOOK command. Used to invoke the Look Selections menu, or to select certain exception processing and trace facility functions.

M

MAINPACK. A DB2 PM identifier used to identify the first or last package or DBRM in a plan. MAINPACK is used in the accounting report set.

MAXDUMP option. An option of the DUMP command used to define the length of dump in bytes.

MEMBER. A DB2 PM identifier that specifies the name of a member in a Data Sharing Group.

merged report. Reports and traces that include, in the same report, the local and distributed activity associated with each thread. Information is provided for allied threads created at the local site, allied-distributed threads created at the local site, and DBATs performed remotely on behalf of allied-distributed threads created at the local site. Merged reports are available in the accounting and SQL activity report sets.

message log. A DB2 PM log that lists messages about DB2 PM internal sort.

MIGRATE. A DB2 PM function to change SAVE data sets produced by previous releases into the current release format. See also *save-file utility*.

monitor data. DB2 trace data that provides thread, statistical, and performance DB2 data to the Online Monitor component of DB2 PM.

multi-site report. Report or trace that contains data from multiple DB2 locations. Multi-site reports can be nondistributed (when no interaction takes place between the DB2 subsystems reported) or distributed (when interaction occurs between DB2 subsystems). Multi-site reports are the default in all report sets. See also *single-site report*.

multihomed host. In the Internet Protocol (IP), a host that is connected to more than one network.

N

N/A. Not applicable.

N/C. Not calculated.

N/P. Not present.

NAME option. An option of the TAPECOPY command used to define a name identifying the records copied.

NEWCOPY option. An option of the TAPECOPY command used to define the DDNAME of the output data set.

nonmerged report. Reports and traces that separate activity according to the location where the activity occurred. All threads performed at each location are reported together.

O

OFFSET option. An option of the DUMP and TAPECOPY commands used to define the offset of the record code.

Online Monitor. The online monitoring part of DB2 PM used to monitor an active DB2 subsystem.

OPTIONS command. This command can either be used from an Online Monitor panel to set various options controlling the environment of your IRF session, or from the source explain SQL Statement Selection window to change various source explain processing options.

ORDER option. An option of the REPORT and TRACE subcommands. ORDER is used to specify the DB2 PM identifiers and their sequence, in sorting reported information.

ORIGAUTH. A DB2 PM identifier denoting original authorization ID.

original authorization ID (ORIGAUTH). A DB2 PM identifier consisting of the original value of the Primary Authorization ID when a thread was created (before it could be changed by any authorization exits).

P

PACKAGE. A DB2 PM identifier used to identify a package, regardless of the plan it belongs to. PACKAGE is used in the accounting report set.

PAGESET. A DB2 PM identifier denoting the name of a page set. A page set consists of a collection of tables or an index.

PAGESIZE option. An option of the GLOBAL command used to specify the number of printed lines per page.

performance trace data. DB2 trace data about various subsystem events that are used for program, resource, user, and subsystem-related tuning.

periodic exception list. A list that contains a brief description of each exception condition that was detected by the periodic exception processor.

periodic exception processing. An Online Monitor subtask that gathers DB2 thread activity and statistics

information at user-specified intervals and analyzes the data for exception conditions.

PLANNAME. A DB2 PM identifier denoting plan name.

PRESORTED option. An option of the GLOBAL command used to specify whether DB2 PM internal sort is used.

PRIMAUTH. A DB2 PM identifier denoting primary authorization ID.

Q

QUALIFY command. Used to filter the threads listed on the Thread Summary panel.

R

record trace report set. Reports that format each DB2 trace record selected. This report set can be used to format a subset of data obtained from DB2 statistics, accounting, or performance trace information. The reports also provide access to users who need to view DB2 serviceability fields.

REDUCE processing. A DB2 PM function used to decrease the volume of the input data to subsequent REPORT and SAVE processing. REDUCE consolidates individual records with certain common characteristics into one record for reporting purposes.

regular mode. Statistics processing mode that displays values accumulated since DB2 startup.

REINIT command. A command used to restart the Exception Processor using the latest values in the Exception Threshold data set.

remote location. A location requesting or providing data for the local location.

report. A listing that uses summarized data. In reports events are ordered by DB2 PM identifiers, such as authorization ID or plan name.

report set. One or more DB2 PM reports containing the same information in varying degrees of detail. Report set names indicate the nature of the information included. For example, the statistics report set addresses DB2 system-wide data and the I/O activity report set addresses I/O activity.

REQLOC. A DB2 PM identifier denoting requesting location.

request type (REQUESTTYPE). A DB2 PM identifier used to identify a locking-related request.

requesting location (REQLOC). If the thread is an allied thread or the thread is an allied-distributed

thread (this location is the requester), the requesting location is the same as the local location. If the thread is a database access thread (this location is a server), the requesting location is the location that made the request.

REQUESTTYPE. A DB2 PM identifier denoting request type.

RESET command. Used to reset the QUALIFY, SORT, DELTA, and INTERVAL commands.

resource manager ID (RMID). The decimal identifier of a DB2 Resource Manager.

resource type (RESOURCETYPE). A DB2 PM identifier used to identify a locked resource.

RESOURCETYPE. A DB2 PM identifier denoting resource type.

RESTORE processing. A DB2 PM function used to reload a previously saved data set for additional processing. To restore reduced data, DB2 PM takes the saved, reduced data out of the external data sets. Next, DB2 PM places that data in main storage in the same reduced format as it was before it was saved. It is possible to restore previously reduced data, subsequently reduce new raw data, and use both for reporting or additional saving.

RID list. Record identifier list.

RMID. A DB2 PM identifier denoting resource manager ID.

S

SAVE processing. A DB2 PM function used to produce a data set containing reduced records. To save reduced data, DB2 PM copies the reduced data from main storage to external data sets. Save is available in accounting and statistics.

save-file utility. A utility which consists of the MIGRATE and CONVERT functions: to migrate save data sets from one DB2 PM version to another (MIGRATE) and to change SAVE data sets into sequential data sets suitable for use by the DB2 load utility (CONVERT). The save-file utility is used only with accounting and statistics save data sets.

serving location. The name of a DB2 location that performs work on behalf of another (requesting) location. See also *LOCATION*.

single-site report. A single-site report includes data from a single DB2 subsystem only. It is obtained by processing an input data set containing data from a single site or by specifying a single location using INCLUDE/EXCLUDE. See also *multi-site report*.

SKIP option. An option of the DUMP and TAPECOPY commands used to define the number of records to be skipped before processing begins.

snapshot. A status value found in a DB2 trace record representing the status of some aspect of a DB2 system. Snapshot values are also found in DB2 PM statistics delta records. In this case they represent the status of the DB2 system current at the end time of the period described by the delta record.

SORT command. Used to order the threads displayed on the Thread detail panel by one or more field values.

SORTBY. An option of the SQL activity REPORT and TRACE subcommands used to sort SQL events within each summary level.

source explain. A facility used to explain SQL statements that are embedded in a source program or SPUIFI input from within an ISPF/PDF editor.

SQL activity report set. A set of reports that provides information on SQL activity taking place during the processing of a DB2 application. The reports are used to analyze SQL calls within a logical unit of work, analyze the access path selected by the DB2 optimizer for local SQL calls, observe the local Data Manager scans, locking activity, and Buffer Manager I/O activity taking place during the execution of SQL requests, and group SQL activities by logical units of work.

statistics graph. A graph provided by the IRF graphics. It shows plots representing values of collected statistics data.

statistics processing. A function of DB2 PM that provides information about the current activity over the entire DB2 subsystem. The data is logged at intervals, specified at DB2 installation. The panels are used to view system-wide statistics for key DB2 components and assess system-wide performance. Details of DB2 statistics fields, buffer pools, and distributed activity can also be viewed. See also *exception processing*.

statistics report set. A report set that provides information collected by the DB2 instrumentation facility over the entire DB2 subsystem. The data is logged at intervals specified at DB2 installation. The reports are used to view system-wide statistics for key DB2 components, compare system performance in several reporting intervals, and assess system-wide performance and summarize it in one report. See also *exception processing*.

statistics trace data. DB2 data used for DB2 capacity planning and tuning the entire set of DB2 programs.

STOPAFT option. An option of the DUMP and TAPECOPY commands used to define the number of records to be processed, starting after the number of records to be skipped. See also *SKIP option*.

SUBSYSTEMID. A DB2 PM identifier denoting DB2 subsystem ID. Synonymous with *DB2ID*.

SUMMARIZEBY. An option of the SQL activity REPORT and TRACE subcommands used to summarize SQL events.

SYSRMDD option. An option of the GLOBAL command used to specify the DDNAME for the System parameters report. See also *system parameters report set*.

system parameters. An option that displays the current DSNZPARM values of a DB2 subsystem. It displays user-assigned control values of key DB2 installation values.

system parameters report set. A report set that shows current values of key DB2 installation values. It shows user-assigned control values of key DB2 installation values. See also *SYSRMDD option*.

T

TAPECOPY processing. A DB2 PM function used to make a copy of all or part of an SMF input data set.

thread activity. A function that provides information about the current activity of all active threads connected to a DB2 subsystem.

thread type (THREADTYPE). A DB2 PM identifier used to identify the type of thread.

THREADTYPE. A DB2 PM identifier denoting thread type.

time zone information member. A member of the DPMPARMS data set that contains user-specified information about time zone processing.

timestamp. A value that consists of a date, a time, and a number of microseconds.

TIMEZONE option. An option of the GLOBAL command used to specify the time difference between DB2 locations.

TOP option. An option in the accounting report set that can be used to produce a list of applications or users that have required most use of specific DB2 resources.

trace. A listing that uses unreduced data and usually reports individual records. A trace generally produces output in a short or long format; these are similar to the report summary and detail levels.

U

UNITS option. An option of the DISTRIBUTE command used to specify the units for the LIMITS option. See also *LIMITS option*.

user-tailored reporting. A DB2 PM function that allows the users to tailor accounting and statistics report and trace layouts. The tailoring is performed using the IRF.

utility activity report set. A set of DB2 PM reports providing DB2 application work information categorized as bind processing and utilities. These reports are used to determine workload distribution for local and distributed activity and to associate DB2 work with individual users or DB2 PM identifiers.

W

WORKLOAD. An option of the SQL activity REPORT and TRACE subcommands used to display workload detail for SQL events.

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