DB2 Performance Monitor for OS/390

IBM

Report Reference Volume 1

Version 6

> **Note**
>
> Before using this information and the product it supports, be sure to read the information in "Appendix F. Notices" on page 1285.

Contents

Contents **xv**

About This Book

This book provides you with detailed information about IBM DATABASE 2 Performance Monitor for OS/390 Version 6 (DB2 PM). DB2 PM is a performance analysis tool that helps you manage IBM DATABASE 2 Server (DB2) for OS/390 Version 6 (Program Product 5645-DB2), IBM DATABASE 2 for MVS/ESA Version 5 (Program Product 5655–DB2), and IBM DATABASE 2 for MVS/ESA Version 4 (Program Product 5695-DB2). DB2 is a relational database management system designed for use in MVS (TM) and OS/390 (R) environments. DB2 (R) provides a data model in which information is defined in tables consisting of columns and rows.

Who Should Use This Book

This book is designed for the following audiences:

- Anyone who will use the reports available in DB2 PM
- Anyone whose requirements are specialized (for example, the user who is interested only in information pertaining to the utility activity report set)

You will need this book if you are responsible responsible for one or more of the following activities:

- Determining total DB2 system performance and efficiency
- Tuning DB2
- Identifying and removing potential bottlenecks
- Measuring an application's performance and resource cost
- Measuring an application's effect on other applications and the system

It provides you with an overview of the reporting and graphic capabilities of DB2 PM and gives you some guidelines for setting up your strategy for using the product.

How to Use This Book

If you require access to information regarding *all* DB2 PM report sets, then you will probably want to leave this book in its original form - as a single book. However, if you need information pertaining to only one report set, you can remove that report set part together with Parts 1 and 2 of the Report Reference for use as a stand-alone book. Each report set has its own table of contents to help you quickly locate information specific to that report set.

> **Important Note about Reordering This Book**
>
> The DB2 PM Report Reference is not available as individual parts; you can only reorder the entire book.

How This Book Is Organized

The DB2 PM Report Reference is divided into two volumes, as follows:

- Volume 1
  - Part 1. Commonalities of the DB2 PM Report Sets
  - Part 2. Auxiliary and Troubleshooting Commands
  - Part 3. DB2 PM Logs
  - Part 4. User-Tailored Reporting
  - Part 5. Exception Processing
  - Part 6. The Accounting Report Set
  - Part 7. The Statistics Report Set
  - Part 8. The Performance Database
- Volume 2
  - Part 9. The Audit Report Set
  - Part 10. The Explain Report Set
  - Part 11. The I/O Activity Report Set
  - Part 12. The Locking Report Set
  - Part 13. The Record Trace Report Set
  - Part 14. The SQL Activity Report Set
  - Part 15. The System Parameters Report Set
  - Part 16. The Utility Activity Report Set
  - Bibliography

Prerequisites

To use this book and to create and interpret the DB2 PM reports, you need a working knowledge of, and experience with, DB2.

Part 1. Commonalities of the DB2 PM Report Sets

Commonalities

This part of the DB2 PM Report Reference describes those subjects that are common to all, or most of, DB2 PM reports or traces. It is designed to be used as a companion to chapters describing the report sets. This section is organized as follows:

- "Chapter 1. DB2 PM Identifiers" on page 3 shows the DB2 PM identifiers used in reports and traces.

- "Chapter 2. The DB2 PM Command Stream" on page 9 describes the input to reports and traces. It shows a sample of the JCL needed to produce a DB2 PM report and describes the ddnames used. It also lists the DB2 PM subcommand options.

- "How Large and Missing Values Are Reported" on page 35 and "Elapsed Time Formats" on page 35 show the conventions used in reports and traces.

Chapter 1. DB2 PM Identifiers

DB2 trace records contain identifiers that are used by DB2 PM to group data, order reports, identify trace records, include or exclude specific data, and graph data. These identifiers describe the object on which DB2 PM is reporting.

ACE - Agent control element address

> The absolute hexadecimal address of the DB2 agent control element for the thread. Each work request in DB2 is represented by an agent. When a work request identifies itself to DB2, an agent control element address (ACE) is used to track the agent. The agent can be:
>
> - An allied agent representing a work request that originated in allied address spaces
> - A system agent representing a work request internal to DB2.
>
> You can use this address to select records for a particular thread. Note that an ACE address can be reused after a thread terminates.

BPID - Buffer pool ID

> The buffer pool ID.

CLASS - DB2 trace class

> DB2 groups records of a similar nature into classes. When running a DB2 performance trace, you can limit the type of information traced by selecting one or more trace classes. DB2 PM can be used to select records by DB2 performance class.

CONNECT - Connection ID

> The connection identifier of the correlation header, which is the ID of the address space that interfaces with DB2. You can, for example, specify the CICS (R) or IMS (TM) ID.

CONNTYPE - Connection type

> The type of connection for a thread. You can, for example, specify that you only want to include records that have a connection type of TSO or CICS. Possible values are:

Table 1. Thread Connection Types

Value	Description
TSO	TSO foreground and background
DB2CALL	DB2 CALL attach
CICS	CICS attach
BATCH	DL/I batch
IMS-BMP	IMS nontransaction-oriented BMP
IMS-MPP	IMS attach MPP
IMS-CNTL	IMS control region
IMS-TBMP	IMS transaction-oriented BMP
DB2-PRIV	DB2 private protocol
DRDA	DRDA protocol
UTILITY	Utility attach
RRS	Recoverable Resource Manager Services attach

Correlation identifier

A 12-character value identifying the DB2 task in conjunction with the connection ID.

DB2 PM uses the correlation ID to derive two DB2 PM identifiers: the correlation name and the correlation number:

CORRNAME - Correlation name

An identifier assigned to a task. This field is a subset of the correlation ID. Its meaning varies with the connection type.

CORRNMBR - Correlation number

An identifier assigned to a task. This field is a subset of the correlation ID. Its meaning varies with the connection type.

The location of the correlation name and correlation number within the 12-character value depends upon the type of connection within which the task is executing.

In distributed processing, when the application requester is a DB2 system, the value assigned to the correlation ID at the application server is the same as the value assigned to the application requester. If the application requester is not a DB2 system, the value assigned to the correlation ID at the application server is the name of the job, task, or process the requester is servicing.

For more information about correlation ID translation, refer to the *DB2 PM Batch User's Guide*.

DATABASE - Database name

The name of the DB2 database.

> **Note about DATABASE and PAGESET**
>
> INCLUDE/EXCLUDE processing uses the character names of databases and page sets. DB2 instrumentation records contain the decimal IDs used by DB2. DB2 PM translates the decimal ID to the character name, when possible.

DATASET - Data set name

The 8-character name of the archive log, active log, or bootstrap data set (BSDS).

ENDUSER

The end user's workstation ID. This can be different from the AUTHID used to connect to DB2.

FIELD - Comparison with data in a record field

This option is used in conjunction with the FIELD command. Using the FIELD command, you can define a value and comparison operator for a data field in a specific IFCID type. You can include or exclude records based on the result of the comparison. Refer to "The FIELD Command" on page 69 for more information.

GROUP - Group name

The name of the data-sharing group.

IFCID - Instrumentation Facility Component Identifier

A decimal identifier that represents a significant DB2 event and appears in the trace records produced by DB2.

INSTANCE - Instance number

This hexadecimal number is mainly for distributed activity and is part of the LUWID. It can be used to match the activity performed by DBATs, DBAT-distributed threads, and allied-distributed threads. The instance number is allocated at thread creation.

LOCATION - Location name

The name of a DB2 system. The location name is unique among DB2 systems that can communicate with each other.

In DB2 Version 3 or Version 4, a DB2 subsystem can be installed without a location name. In non-data-sharing environments, DB2 PM then uses the DB2 subsystem ID as the location name. In data-sharing environments, DB2 PM uses the data-sharing group name as the location name.

If an input data set contains data from several subsystems, at least one of the following identifiers has to be different if DB2 PM is to distinguish between different subsystems: group name, location name, member name, or subsystem ID.

MAINPACK - Main package

This identifier can be used to distinguish between plans according to the packages they contain. The representative package is either the first or last package or DBRM in a plan.

This identifier is useful when the name of a plan does not provide satisfactory identification.

The MAINPACK definition is stored in the DPMPARMS member MAINPACK. You can access the member using the MAINPACK Definition Editor panel of the IRF. A different MAINPACK definition can be specified for each unique combination of requester location, connection ID, and plan name.

The default value for MAINPACK is the package ID of the first executed package for any requester location, connection ID, and plan name. If there is no package data available, MAINPACK defaults to the plan name.

MEMBER - Member name

The name of the data-sharing member.

OBJECT - Object type

The DB2 object type. Valid values are:

- BUFFER (buffer pool)
- COLLECT (collection)
- DATABASE (database)
- DISTTYPE (distribution type)
- FUNCTION (function)
- PACKAGE (package)
- SCHEMA (schema)
- APPLPLAN (application plan)
- LOBTS (LOB table space)
- STOGROUP (storage group)
- TAB/VIEW (table or view)
- USERAUTH (for system privileges like SYSADM or SYSOPR)

ORIGAUTH - Original authorization ID

The original value of the primary authorization ID at the time of connection to DB2 and before it can be changed by any authorization exits.

In distributed processing and if the requester is a DB2 system, the value of the original authorization ID at the application server is the same as the value assigned to the application requester. If the application requester is not a DB2 system, the value of the original authorization ID at the application server is the user ID used to make the initial connection with the application server.

PACKAGE - Package information

This identifier is used to identify a package or DBRM. It appears in traces and reports in the headings of corresponding package data blocks.

PAGESET - Page set name

The name of the page set.

> **Note about DATABASE and PAGESET**
>
> INCLUDE/EXCLUDE processing uses the character names of databases and page sets. DB2 instrumentation records contain the decimal IDs used by DB2. DB2 PM translates the decimal ID to the character name, when possible.

PLANNAME - Plan name

The plan name from the correlation header. A plan is a control structure produced during the bind process and used by DB2 to process SQL statements encountered during statement execution.

Note: To allow better identification and granulation of bind and utility traces and reports, it is necessary to filter and order data. The plan name on a bind event (constant DSNBIND) is replaced by the program name, and the plan name on a utility event (constant DSNUTIL) is replaced by the utility name.

PRIMAUTH or **AUTHID - Primary authorization ID** or **authorization ID**

The two terms are interchangeable. This is the primary authorization ID you have entered at signon or identify.

REQLOC - Requester location

For distributed processing, this is the location requesting the work. If the requester location is not a DB2 subsystem, or is not recognized by DB2, the logical unit name from the application-directed LUWID is printed instead of the requester location name. The logical unit name is enclosed in less than (<) and greater than (>) symbols.

For TCP/IP connections, the requester location can contain the dotted-decimal IP address.

RESOURCETYPE - Resource type

The type of lock resource. You can specify one of the following values:

DATAPAGE

Data page locking

DATABASE

Locking of the DBD

PAGESET

Page set locking

DATASET

Locking of partitioned data sets

SKCT   Skeleton cursor table locking

INDEX

Index page locking

TABLE

Table locking

SKPT   Skeleton package table locking

COLLECT

Collection ID locking

DRAIN

All types of drain locking

ROW   Data row lock

OTHER

All unlisted resource types

RMID - Resource manager identifier

The decimal identifier of a DB2 resource manager. You can use RMID to select a particular type of activity. For example, RMID 6 selects records associated with storage management.

SUBSYSTEMID - Subsystem ID

The ID of the DB2 subsystem that generated the data.

THREADTYPE - Thread type

The type of thread that you want included in the report. You can specify one or more of the following values:

ALLIED

Threads without distributed activity. An allied thread does not involve distributed activity, that is, it is not initiated by a remote location and does not request data from another location.

ALLIED_DIST

Threads that request work from remote locations. An allied-distributed thread is not initiated by a remote location but it requests data from one or more server locations.

DBAT   Threads performed on behalf of remote locations.

TRANSACT

The transaction or application that the client is running.

TYPE - Event type

Specifies which event types are to be included in, or excluded from, the lock detail trace. The valid values for this field are shown in Table 2.

Table 2. Event Types

Type	Events
IRLMREQ	Lock, unlock, change, query, and notify requests
CLAIMREQ	Claim acquire, claim change, and claim release
DRAINREQ	Drain request and drain release
PLOCKREQ	Page set or partition as well as page P-lock requests

Table 2. Event Types (continued)

Type	Events
IRLMSUSP	The beginning of lock, unlock, change, query, and notify suspensions
DRAINSUSP	The beginning of drain suspensions
LATCHSUSP	The beginning of page latch suspensions
IRLMRES	The end (resumption) of lock, unlock, change, query, and notify suspensions
DRAINRES	The end (resumption) of drain suspensions
LATCHRES	The end (resumption) of page latch suspensions
TIMEOUT	Timeouts
DEADLOCK	Deadlocks
LOCKSUMMARY	Lock summary events
LOCKAVOID	Successful lock avoidance events

The default is *all* event types.

Note: TYPE can also be used with the REDUCE and FILE subcommands of locking, with the following limitations:

- Valid types for REDUCE are: IRLMRES, DRAINRES, and LATCHRES.
- Valid types for FILE are: IRLMREQ, CLAIMREQ, DRAINREQ, and LOCKAVOID.

If values other than those listed are used with INCLUDE, REDUCE, or FILE, an empty report or file is produced.

If values not relevant to REDUCE or FILE are used with EXCLUDE, the event type is not filtered.

WSNAME
The end user's workstation name.

Chapter 2. The DB2 PM Command Stream

There are two ways to create a DB2 PM report or trace:

- Interactive report facility (IRF)
- JCL command stream

IRF is described in the *DB2 PM Batch User's Guide*.

Figure 1 is a sample of the JCL required to produce DB2 PM reports and traces. A description of the DD statements follows the sample.

```
//DB2PM   JOB (INSTALLATION DEPENDENCIES)
//*
//* ================================================================*
//*          D B 2   P M   R E P O R T   G E N E R A T I O N        *
//* ================================================================*
//*
//        EXEC PGM=DB2PM
//* FOLLOWING ARE DB2PM SYSTEM DDNAMES
//STEPLIB  DD  DSN=DGO.V6R1M0.SDGOLOAD,DISP=SHR
//DPMPARMS DD  DSN=DGO.V6R1M0.DPMPARMS,DISP=SHR
//INPUTDD  DD  DSN=DGO.V6R1M0.DPMIN61,DISP=SHR
//DPMLOG   DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//JOBSUMDD DD  SYSOUT=*
//EXCPTDD  DD  DSN=DGO.EXCEPT.THRESH,DISP=OLD
//EXTRCDD1 DD  SYSOUT=*
//EXFILDD1 DD  DSN=DGO.EXCEPT.LOGFILE,DISP=OLD
//SYSPRMDD DD  SYSOUT=*
//DPMOUTDD DD  DSN=DGO.V6R1M0.DPMOUT.DATA,DISP=OLD
//JSSRSDD  DD  DSN=DGO.V6R1M0.JSSRS.DATA,DISP=OLD
//DISTDD   DD  DSN=DGO.V6R1M0.DIST.DATA,DISP=OLD
//SYSUDUMP DD  DUMMY
//* FOLLOWING ARE DB2PM REPORT SET DDNAMES
//ccWORK   DD  DSN=DGO.V6R1M0.op.WORKDD,DISP=OLD
//ccRPTDD  DD  SYSOUT=*
//ccTRCDD1 DD  SYSOUT=*
//ccSAVDD  DD  DSN=DGO.V6R1M0.opSAV.DATA,DISP=OLD
//ccRSTDD  DD  DSN=DGO.V6R1M0.opRST.DATA,DISP=SHR
//ccFILDD1 DD  DSN=DGO.V6R1M0.op.FILE,DISP=OLD
//* FOLLOWING IS THE DB2PM COMMAND STREAM
//SYSIN   DD  *
  REPORTSET
       SUBCOMMAND
            OPTION
            OPTION
       SUBCOMMAND
            OPTION
  REPORTSET
       SUBCOMMAND
            OPTION
            OPTION
       SUBCOMMAND
            OPTION
  EXEC
```

Figure 1. Sample JCL for Requesting DB2 PM Functions

Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by DB2 PM. See the individual DD statement descriptions for more information.

Notes:

1. In this sample, REPORTSET is a place holder for the DB2 PM command to produce the report that you want. For information about the individual DB2 PM commands, refer to the relevant section of this book.
2. All statements following the EXEC statement are ignored.
3. If you do not include the EXEC statement in you JCL, no report is produced. The sysntax of your JCL is checked and written to the DPMLOG dataset together with any information, warning or error messages raised.

DD Statements

This section describes the DD statements and the data sets defined in Figure 1.

The values for RECFM, LRECL, and BLKSIZE shown for some data sets are the values that DB2 PM generated at run time. Note that the generated value for BLKSIZE is not mandatory, but is suggested. Do not override the values for RECFM and LRECL.

DPMPARMS

Applicable to all report sets.

The DPMPARMS data set is used to store changes that you have made to standard DB2 PM settings. For example, if you tailor your own report layout, it is stored in the DPMPARMS data set. Specify DPMPARMS if you want to use this layout. The modified DB2 PM settings stored in DPMPARMS are:

- Time zone processing
- Exception messages
- MAINPACK definition
- Correlation translation
- UTR layouts

DPMPARMS must be a partitioned data set. You use the following attributes if you want to preallocate a new DPMPARMS data set. It is recommended that you increase the number of directory blocks if you intend to tailor many report layouts:

RECFM:
    FB

LRECL:
    80

BLKSIZE:
    6160

Dir blocks
    5

Note: Do not specify DUMMY for DPMPARMS.

INPUTDD

Applicable to all report sets.

Lists the input data sets containing the DB2 performance data created by the DB2 trace facility. You can process several input data sets. These data sets are concatenated in the JCL to create one logical data set. The input data sets can be in SMF, GTF, or DPMOUT format or data sets generated by the Collect Report Data function of the Online Monitor. The normal rules for concatenating data sets apply. If DFSORT is used, refer to the *DFSORT Application Programming Guide* for rules governing the concatenation of data sets.

INPUTDD is not required if you use RESTORE REPORT for Accounting or Statistics.

Note: The default ddname for the input data set is INPUTDD. You can specify another ddname using the INPUTDD option of the GLOBAL command. If you specify another ddname, make sure your JCL includes a valid DD statement for the new name. Refer to "The GLOBAL Command" on page 40 for more information.

DPMLOG

Applicable to all report sets.

DB2 PM command processor messages are written to DPMLOG. If DPMLOG is omitted, it is dynamically allocated to the SYSOUT message class of the job. Refer to "Chapter 7. DPMLOG Execution Log" on page 83 for more information.

RECFM:
      FBA

LRECL:
      133

BLKSIZE:
      6251

SYSOUT

Applicable to all report sets.

Messages from DFSORT are written to the ddname SYSOUT. If SYSOUT is omitted, it is dynamically allocated to the SYSOUT message class of the job.

RECFM:
      FBA

LRECL:
      133

BLKSIZE:
      6251

JOBSUMDD

Applicable to all report sets.

The job summary log and the IFCID frequency distribution log are written to JOBSUMDD. This ddname is not required unless you want these logs.

Refer to "Chapter 9. Job Summary Log" on page 91 and "Chapter 10. IFCID Frequency Distribution Log" on page 95 for more information.

RECFM:
   FBA

LRECL:
   133

BLKSIZE:
   6251

EXCPTDD

Applicable to Accounting and Statistics only.

The exception threshold data set contains the user-defined exception thresholds. This ddname is required if you want to produce an exception log or if you specified EXCEPTION on the TRACE, REPORT, or FILE subcommand

RECFM:
   VB

LRECL:
   255

BLKSIZE:
   6233

EXTRCDD1

Applicable to Accounting and Statistics only.

The data for the exception log is written to EXTRCDD1. This DD statement is required if you want to produce an exception log. Refer to "Chapter 8. Exception Log" on page 85 for more information.

Note: The exception threshold data set, as defined in EXCPTDD, is also required to produce an exception log.

   RECFM:
      FBA

   LRECL:
      133

   BLKSIZE:
      6251

EXFILDD1

Applicable to Accounting and Statistics only.

The data for the exception log file data set is written to EXFILDD1. This DD statement is required if you want to produce an exception log file data set.

Note: The exception threshold data set, as defined in EXCPTDD, is also required to produce an exception log file data set.

> **RECFM:**
> VB
>
> **LRECL:**
> 512
>
> **BLKSIZE:**
> 4096

SYSPRMDD

Applicable to all report sets.

Specify this ddname if you want a system parameters report.

The system parameters report is written to SYSPRMDD. This ddname is optional.

Note: The default ddname for the system parameters report is SYSPRMDD. You can specify another ddname using the SYSPRMDD option of the DB2 PM GLOBAL command. If you specify another ddname, make sure your JCL contains a valid DD statement for the new ddname. Refer to "The GLOBAL Command" on page 40 for information about the GLOBAL command, and to Part 15. The System Parameters Report Set for information about the system parameters report.

> **RECFM:**
> FBA
>
> **LRECL:**
> 133
>
> **BLKSIZE:**
> 6251

DPMOUTDD

Applicable to all report sets.

If you do not specify DPMOUTDD:

All DPMOUT-related processing is completed in storage. Only the records that relate to the report set commands in the same step are processed. No data is externalized.

If you specify DPMOUTDD:

All records that satisfy GLOBAL FROM/TO and INCLUDE/EXCLUDE selection criteria are reformatted to DB2 PM trace format, sorted by time sequence, location and group name, and written to the data set specified by DPMOUTDD.

Notes:

1. Include DPMOUTDD in your JCL only if you want to retain a copy of the input data as filtered by any GLOBAL options.

2. You can specify a permanent or temporary data set for DPMOUTDD.

3. Do not specify DUMMY or DISP=MOD for DPMOUTDD.

4. The size of the DPMOUT data set depends on the number of input records—which are the IFCID records included in the DB2-related SMF record types 100, 101, and 102—and the GLOBAL filters. One input record occupies approximately 1.5 KB of the space in the DPMOUT data set. Because DB2 PM, by default, allocates up to 68 MB for a work data set, the temporary DPMOUT data set needs to be specified only if the number of input records that satisfy GLOBAL criteria exceeds approximately 45 000.

5. An alternative way of estimating the size of the DPMOUT data set is to make it 1.6 times the size of the input data set, if the input data set is composed mostly of DB2-related records.

RECFM:
> VBS

LRECL:
> 32 756

BLKSIZE:
> 6233

JSSRSDD

Applicable to Accounting and Statistics only.

Job summary data is written to JSSRSDD when a SAVE subcommand is processed, and is restored from JSSRSDD when a RESTORE subcommand is processed. If you are restoring data, the data set defined by JSSRSDD and the data set defined by xxRSTDD should match, that is, be produced by the same save operation. Refer to "Job Summary VSAM Data Set" on page 93 for more information.

JSSRSDD is optional. If you omit JSSRSDD, information about the previous processing of saved data is not restored, and information about current processing is not saved.

The VSAM data set defined by JSSRSDD must exist before you run DB2 PM. Either specify an existing data set from a previous DB2 PM run (when restoring data), or specify a new data set allocated using the IDCAMS DEFINE CLUSTER function. If an existing data set is used and the SAVE subcommand is specified, the new job summary data is added to the previous content.

Note: Do not specify DUMMY for JSSRSDD.

DISTDD

Applicable to Accounting, I/O Activity, Locking, SQL Activity, and Utility Activity.

The data generated by the DISTRIBUTE command is written as a VSAM data set to DISTDD. This data is used as input for DB2 PM graphics processing.

You can specify another ddname using the DISTDD option of the GLOBAL command. If your job stream contains a DISTRIBUTE command, you must have a valid DD statement either for DISTDD, or for the ddname specified using the DISTDD option of the GLOBAL command. See "The GLOBAL Command" on page 40 and "The DISTRIBUTE Command" on page 44 for more information.

The VSAM data set defined by DISTDD must exist before you run DB2 PM. Either reuse an existing data set or define a new data set using the IDCAMS DEFINE CLUSTER function. The previous contents of the existing data set are deleted before the new data is stored.

Note: Do not specify DUMMY for DISTDD.

ccTRCDDx

	Applicable to							
	Accounting	Audit	I/O Activity	Locking	Record Trace	SQL Activity	Statistics	Utility
cc=	AC	AU	IO	LO	RT	SQ	ST	UT

The output ddname for the TRACE subcommand. Up to five traces can be run in one job step. If ccTRCDDx is omitted, it is dynamically allocated to the SYSOUT message class of the job. The default ddname for the first Accounting trace is ACTRCDD1. The default ddnames for the second to fifth Accounting traces are ACTRCDD2 through ACTRCDD5.

You can specify a different ddname using the DDNAME option in the corresponding TRACE subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname.

RECFM:
> FBA

LRECL:
> 133

BLKSIZE:
> 6251

ccRPTDD

	Applicable to							
	Accounting	Audit	I/O Activity	Locking	Record Trace	SQL Activity	Statistics	Utility
cc=	AC	AU	IO	LO	RT	SQ	ST	UT

The default output ddname for the REPORT subcommand. The reports are written to ccRPTDD in the sequence corresponding to the REPORT subcommands. If ccRPTDD is omitted, it is dynamically allocated to the SYSOUT message class of the job.

You can specify a different ddname using the DDNAME option of each REPORT subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname.

RECFM:
    FBA

LRECL:
    133

BLKSIZE:
    6251

ccSAVDD

	Applicable to	
	Accounting	Statistics
cc=	AC	ST

Reduced data processed by the SAVE subcommand is, by default, written as a VSAM data set to ccSAVDD. A valid DD statement is required if your job stream contains a SAVE subcommand.

You can specify another ddname using the DDNAME option of the SAVE subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname. If you do not specify a different ddname, your JCL must contain a valid DD statement for the default ddname.

The VSAM data set defined by ccSAVDD must exist before you run DB2 PM. Either specify an existing data set from a previous DB2 PM run (when restoring data), or specify a new data set allocated using the IDCAMS DEFINE CLUSTER function. Note that the existing contents of the data set are lost unless the DDNAME options of both SAVE and RESTORE specify the same ddname or data set.

Note: Do not specify DUMMY for ccSAVDD.

For information on the allocation of the save data set, refer to the *DB2 PM Batch User's Guide*.

ccRSTDD

	Applicable to	
	Accounting	Statistics
cc=	AC	ST

Data processed by the RESTORE subcommand is read from ccRSTDD by default. A valid DD statement is required if your job stream contains a RESTORE subcommand.

You can specify a different ddname using the DDNAME option of the RESTORE subcommand. If your job stream contains a RESTORE subcommand that uses the DDNAME option, your JCL must contain a valid DD statement for the specified ddname. If your job stream contains a RESTORE subcommand that does not use the DDNAME option, your JCL must contain a valid DD statement for the default ddname.

Note: Do not specify DUMMY for ccRSTDD.

ccFILDD1

Applicable to				
	Accounting	Audit	Locking	Record Trace	Statistics
cc=	AC	AU	LO	RT	ST

The output from the FILE subcommand is, by default, written to ccFILDD1. You can specify a different ddname using the DDNAME option of the FILE subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname. If you do not specify a different ddname, your JCL must contain a valid DD statement for the default ddname.

RECFM:
> VB

LRECL:
> 9072

BLKSIZE:
> 9076

ccWORK

Applicable to all report sets.

Applicable to							
	Accounting	Audit	I/O Activity	Locking	Record Trace	SQL Activity	Statistics	Utility
cc=	AC	AU	IO	LO	RT	SQ	ST	UT

When you reduce data, DB2 PM uses a temporary REDUCE work data set to provide virtual storage constraint relief. This is normally created on the MVS-defined work volumes, and deleted by DB2 PM. Include ccWORK in your JCL when you want to control the placement or size of the data set or if you get a B37 abend. This can happen if you are trying to reduce a large amount of data with a large number of different DB2 PM identifiers and a short reduction interval.

When you specify ccWORK, DB2 PM allocates up to 68 MB for a work data set by default. Define it as a temporary data set. As a guide, if the number of accounting-related input records that satisfy the GLOBAL and report set command criteria exceeds 45 000 and the reduction ratio is very low, specify ccWORK.

Note: Do not specify DUMMY or DISP=MOD for this data set.

> **RECFM:**
>> VBS

LRECL:
    32 756

BLKSIZE:
    6233

ACMEMnn

Applicable to Accounting only.

When you use the TRACE subcommand, DB2PM temporarily uses an ACMEMnn work data set for each DB2 member that occurs in the input records. For example, if the input data set contains, or data sets contain, data from three different members, the DDNAMES ACMEM01, ACMEM02 and ACMEM03 are used. The work data sets are normally created on the MVS-defined work volumes, and deleted by DB2 PM.

Only include ACMEMnn in your JCL when you want to control the placement or size of the data set. If your input has a large amount of data for a specific member, you might get a B37 abend on the ACMEMnn work data set. In that event, specify ACMEMnn. DB2 PM allocates 68 MB for a work data set by default. Define it as a temporary data set. As a guide, if the number of accounting-related input records for a specific member that satisfy the GLOBAL and ACCOUNTING command criteria exceeds 40 000, specify ACMEMnn.

Note: Do not specify DUMMY or DISP=MOD for this data set.

RECFM:
    VBS

LRECL:
    32 756

BLKSIZE:
    6233

SYSIN

Applicable to all report sets.

SYSIN contains the commands of each DB2 PM report set that are input to DB2 PM. This DD statement is required.

RECFM:
    FB

LRECL:
    80

BLKSIZE:
    6160

Subcommand Options

DB2 PM subcommand options can be grouped into:

Time functions

These functions allow you to specify how times are reported, and the intervals and time frames of your reports. These include:

- DATEFORMAT
- FROM/TO
- INTERVAL
- BOUNDARY

Filter functions

These functions allow you to control the amount of data that is reported and control the way data is consolidated in reports. The functions include:

- EXCEPTION/NOEXCEPTION
- INCLUDE/EXCLUDE
- LAYOUT
- LEVEL
- LIMIT
- ORDER
- SCOPE
- SORTBY
- SUMMARIZEBY
- TOP
- TYPE
- WORKLOAD

DB2 PM Time Functions

DATEFORMAT

DATEFORMAT is a stand-alone command that controls the format of the dates that are displayed on DB2 PM reports, traces, and logs. DATEFORMAT also defines how the dates must be specified in the FROM and TO options. See "FROM/TO" on page 21.

The DATEFORMAT parameter must be 8 characters long and contain a *dd*, *mm*, and *yy* for the day, month, and year, respectively. You can specify the day, month, and year in any order. A single character delimiter is also required in the third and fifth positions. You can delimit the day, month, and year with either a slash (/), dash (—), period (.), or any combination of these delimiters.

For example, you might want to display the year before the month and day, separated by a delimiter, on a report. In this case, you would specify *yy/mm/dd* in the DATEFORMAT parameter.

The DATEFORMAT parameter can be abbreviated to DF.

If you use FROM or TO, you must specify the dates in exactly the same format you have defined in the DATEFORMAT parameter. For example, the formats:

yy-mm-dd

mm/dd-yy

dd.mm/yy

are all valid DATEFORMAT definitions. If you do not specify the DATEFORMAT parameter in your JCL, dates are displayed using the default format, *mm/dd/yy*.

In the JCL example shown in Figure 2, DATEFORMAT is used to specify the date format as *yy-mm-dd*. The relevant information is highlighted.

```
//DB2PM   JOB (INSTALLATION DEPENDENCIES)
//*
//* ================================================================*
//*       D B 2 P M   R E P O R T G E N E R A T I O N       *
//* ================================================================*
//*
//     EXEC PGM=DGO,PARM='DATEFORMAT=YY-MM-DD'
//STEPLIB  DD  DSN=DGO.V6R1M0.SDGOLMD0,DISP=SHR
//INPUTDD  DD  DSN=DGO.V6R1M0.DPMIN61,DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//JOBSUMDD DD  SYSOUT=*
//ACRPTDD  DD  SYSOUT=*
//SYSIN    DD  *
    .
    .
    .
ACCOUNTING
REPORT
   FROM (99-04-27,23:45)
     TO (99-04-27,23:55)
    .
    .
    .
EXEC
```

Figure 2. Sample Accounting JCL with DATEFORMAT Specified

The JCL example shown in Figure 2 produces a report similar to the one shown in Figure 3. The relevant information is highlighted.

```
       LOCATION: STM4D61Y                    DB2 PERFORMANCE MONITOR (V6)                     PAGE: 1-1
          GROUP: N/P                          ACCOUNTING REPORT - SHORT       REQUESTED FROM: 99/01/29 23:45
         MEMBER: N/P                                                                      TO: 99/01/29 23:45
      SUBSYSTEM: Y61Y                         ORDER: ENDUSER-WSNAME-TRANSACT   INTERVAL FROM: 99/01/29 23:48:01.86
    DB2 VERSION: V6                                  SCOPE: MEMBER                          TO: 99/01/29 23:53:34.20
ENDUSER
  WSNAME                    #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
    TRANSACT                #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------
HUGO
  WORKSTATNAME                   5       0    0.00    0.00    0.00    0.00      59.831795      59.233317 10299.60    46.80     0.40
    WORKSTATTX                   0      10    2.00    1.00    1.00    1.00      55.499719      55.458742  2485.60   234.60        0
HUGO
  WORKSTATNAME                   1       0    0.00    0.00    0.00    0.00   1:10.506675    1:09.849935 11822.00   272.00    39.00
    WORKSTATTX123456789012345    0       2    2.00    1.00    1.00    1.00   1:03.779540    1:03.737837  3084.00   270.00        0

*** SUB-TOTAL ***
HUGO
  WORKSTATNAME                   6       0    0.00    0.00    0.00    0.00   1:01.610942    2:02.005506 10553.33    84.33     6.83
                               0      12    2.00    1.00    1.00    1.00      56.879690      56.838591  2585.33   240.50        0
```

Figure 3. Accounting Report - Short

FROM/TO

FROM TO	Command							
Subcommand	Accounting	Audit	I/O	Locking	Record Trace	SQL Activity	Statistics	Utility
File	●	●		●	●		●	
Reduce	●	●	●	●		●	●	●
Report	●	●	●	●		●	●	●
Trace	●	●		●	●	●	●	●

You use FROM and TO to define the range of record timestamps that DB2 PM processes. FROM specifies the starting date and time; TO specifies the finishing date and time. Records are processed beginning with the first record having a timestamp greater than, or equal to, the FROM date and time, and ending with the last record having a timestamp less than the TO date and time.

You can use FROM and TO with the GLOBAL command and the REDUCE, REPORT, TRACE, and FILE subcommands.

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the record timestamp before FROM/TO processing.

```
       ┌──────────────────────────────────┐
       ▼                                  │
►►──────┬─FROM──(─┬───────┬──┬───────┬─)──┴──────────────────────────────►◄
        │         └─date─┘  └─,time─┘     │
        └─TO──(─┬───────┬──┬───────┬─)────┘
               └─date─┘  └─,time─┘
```
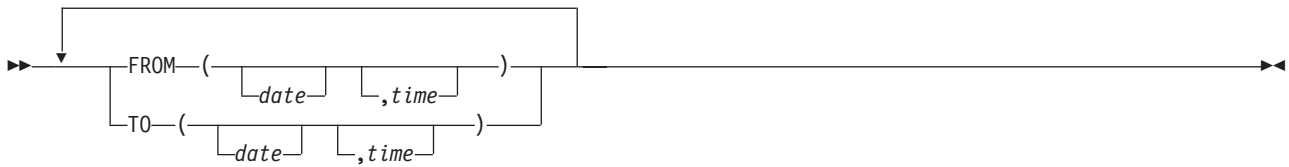
Figure 4. Syntax of FROM/TO

date The date in the form *mm/dd/yy*, where *mm* is the month, *dd* is the day, and *yy* is the year. For example, 25 February 1999 is entered as 02/25/99.

You can change the way dates are specified in the FROM and TO options using the DB2 PM DATEFORMAT parameter. For more information, refer to "DATEFORMAT" on page 19.

time The time in the form *hh:mm:ss.th*, where *hh* is the hour in 24-hour format, *mm* is the minute, *ss* is the second, and *th* is tenths and hundredths of a second. Trailing zeros can be omitted.

Table 3. FROM/TO Defaults

Option	Default
FROM(DATE,TIME) TO(,TIME)	If a FROM date is specified, with or without a FROM time, and only a TO time is specified, the TO date defaults to the FROM date.
FROM(,TIME) TO(DATE,TIME)	If a TO date is specified, with or without a TO time, and only a FROM time is specified, the FROM date defaults to the TO date.
FROM(DATE) TO(DATE)	If a FROM date is specified without a FROM time, the FROM time defaults to 00:00:00.00. If a TO date is specified without a TO time, the TO time defaults to 23:59:59.99.
FROM(,TIME) TO(,TIME)	If the FROM and TO times are specified without dates, all records that comply with the times are processed; the date of records is ignored. REQUESTED ALL DATES is printed on reports and traces in place of REQUESTED FROM.
FROM(,TIME)	If only a FROM time is specified, the TO time defaults to 23:59:59.99. All records with a timestamp between the FROM time and 23:59:59.99 are processed; the date of records is ignored. REQUESTED ALL DATES is printed on reports and traces in place of REQUESTED FROM.
TO(,TIME)	If only a TO time is specified, the FROM time defaults to 00:00:00.00. All records with a timestamp between 00:00:00.00 and the TO time are processed; the date of records is ignored. REQUESTED ALL DATES is printed on reports and traces in place of REQUESTED FROM.

Table 3. FROM/TO Defaults (continued)

Option	Default
FROM(DATE,TIME) FROM(DATE)	If a FROM date is specified, with or without a FROM time, and TO is omitted: • For all subcommands, the TO values specified in GLOBAL are applied. • If no TO values are specified in GLOBAL, processing begins with the first record with a timestamp after the FROM time or 00:00:00.00 (if no FROM time) on the FROM date, and ends with the last available record. NOT SPECIFIED is printed on reports and traces in place of REQUESTED TO.
TO(DATE,TIME) TO(DATE)	If a TO date is specified (with or without a TO time) and FROM is omitted: • For all subcommands, the FROM values specified in GLOBAL are applied. • If no FROM values are specified in GLOBAL, processing begins with the first available record, and ends with the last record with a timestamp before the TO time or 23:59:59.99 (if no TO time) on the TO date. NOT SPECIFIED is printed on reports and traces in place of REQUESTED FROM.

Examples Using FROM and TO:

• Example 1:

```
    .
    .
    .
FROM(02/25/99,10:00),TO(,10:10)
    .
    .
    .
```

Processing starts with the first record with a timestamp after 10:00 on 25 February 1999, and ends with the last record with a timestamp before 10:10 on the same day.

• Example 2:

```
    .
    .
    .
FROM(,10:00)
TO  (,10:10)
    .
    .
    .
```

All records with a timestamp at or after 10:00 and before 10:10 are processed, regardless of the date.

• Example 3:

```
    .
    .
    .
FROM(02/25/99,13:00)
    .
    .
    .
```

Processing starts with the first record with a timestamp after 13:00 on 25 February 1999, and ends with the last record in the input data set.

INTERVAL

INTERVAL	Command					
Subcommand	Accounting	I/O	Locking	SQL Activity	Statistics	Utility Activity
Reduce	●	●	●	●	●	●

Defines the time interval over which data is summarized. The range is from 0 to 99 999 and is specified in minutes. An interval of 15 specifies that entries are calculated within each 15-minute period. An interval of 0 specifies that data is summarized over the entire reduction period.

Note: INTERVAL is ignored by the audit and record traces report sets.

Example

This example specifies an interval of 2 hours:
⋮
```
REDUCE INTERVAL (120)
```
⋮

If INTERVAL is not specified, DB2 PM defaults to the interval specified in the GLOBAL command. If no interval is specified in GLOBAL, the default is 0 and all records are summarized and treated as one record.

Note: INTERVAL processing uses a lot of system resource. Always use the largest interval that meets your reporting requirements. If interval processing is not required, the default INTERVAL (0) is recommended for optimum processing.

BOUNDARY

BOUNDARY	Command				
Subcommand	Accounting	I/O	Locking	SQL Activity	Statistics
Reduce	●	●	●	●	●

Controls the alignment of the intervals used to summarize records in the reduction process. The range is from 0 to 60. A boundary of 0 specifies that intervals are aligned with the number of minutes in the FROM time. A boundary of 60 specifies that intervals are aligned with hour boundaries.

If no boundary is specified, the default is the boundary specified in the GLOBAL command. If no boundary is specified in global, the default is 60.

Boundary is ignored for INTERVAL (0). The interval starts at the timestamp of the first record that satisfies FROM.

If you use RESTORE and REDUCE in the same job stream, the interval and boundary specified in REDUCE should match the interval and boundary that were used to reduce the data being restored. If these values are different, the interval and boundary from the restored data is used.

Calculating Intervals

The start time of the first interval processed by REDUCE is influenced by BOUNDARY, INTERVAL, and FROM.

DB2 PM attempts to reduce all data that falls between FROM and TO dates and times. The first interval processed starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval cannot be aligned with the FROM time, the first properly aligned interval starting before the FROM time is used.

Although there is no restriction on the INTERVAL and BOUNDARY combination, your specification should comply with the following recommendations:

- For intervals of less than 60 (excluding 0), there should be a whole number of intervals in an hour. Choose one of the following values:

    1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30.

- For intervals of 60 or greater, there should be a whole number of intervals in a day. Choose one of the following values:

    60, 120, 180, 240, 360, 480, 720, or 1440.

- For intervals of one day (1440) or greater, INTERVAL should be a multiple of 1440.
- Select your interval and boundary so that the first interval starts at the FROM time.

Examples of Interval Calculation:

Example 1:
```
.
.
.
REDUCE
    FROM     (,08:00)
    TO       (,10:00)
    INTERVAL (30)
    BOUNDARY (60)
.
.
.
```

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the FROM time (08:00). Subsequent intervals start every 30 minutes (08:30, 09:00, and 09:30 each day).

Example 2:
```
.
.
.
REDUCE
    INTERVAL (1440)
    BOUNDARY (60)
.
.
.
```

The following defaults are applied:

- FROM defaults to all dates, and a time of 00:00:00.00.
- TO defaults to all dates, and a time of 23:59:59.99.

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the FROM time (00:00). Subsequent intervals cover 1440 minutes or one day; an interval starts at 00:00 each day.

Example 3:
```
.
.
.
```

```
REDUCE
   FROM    (,08:30)
   TO      (,12:00)
   INTERVAL (60)
   BOUNDARY (60)
REPORT
   FROM    (,08:30)
   TO      (,12:00)
⋮
```

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the hour of the FROM time (08:00). Subsequent intervals start every hour (09:00, 10:00, and 11:00).

DB2 PM Filter Functions

ORDER

ORDER	Command						
Subcommand	Accounting	Audit	I/O	Locking	SQL Activity	Statistics	Utility
Report	●	●	●	●	●	●	●
Trace							●

Specifies which DB2 PM identifiers are used to aggregate records and, unless TOP ONLY is specified for Accounting, identifies the presentation sequence of the report entries. You can order by one, two, or three identifiers separated by a dash and specify up to five sets of the identifiers for each entry of ORDER separated by at least one blank. You can specify one entry of ORDER for each REPORT subcommand. For group-scope Locking reports, the default order is DATABASE-PAGESET. For all other reports, the default for ORDER is PRIMAUTH-PLANNAME

MEMBER is automatically added as the second, third, or fourth identifier in group-scope reports.

Important Note

In a distributed environment it is recommended that reports be ordered by REQLOC or CONNTYPE. If REQLOC or CONNTYPE are *not* used in the ORDER option of REPORT, the accounting portion of *all* threads, including DBATs, where the combination of DB2 PM identifiers is the same are reported as one entry.

ORDER Block:

```
                       ┌─(5)─────────────────────┐
                       ├─PRIMAUTH-PLANNAME───────┤
                       │   ┌─ (3)─────┐          │
                       │   │          │          │
├──ORDER──(──▼───▼──DB2 PM identifier─┴──)───────────────────┤
```
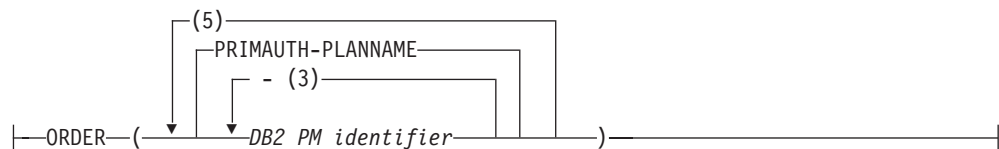
```
        :
ACCOUNTING
    REPORT
        ORDER    (CONNECTION-PLANNAME-PRIMAUTH,PRIMAUTH-PLANNAME)
        :
```

Figure 5. Example of the Order Option

This example specifies that two reports are produced:

- Both reports use the SHORT layout by default.
- The first report is ordered by primary authorization ID within plan name within connection ID.
- The second report is ordered by plan name within primary authorization ID.
- Both reports are written to the data set with the default ddname ACRPTDD.

DB2 PM Identifiers used with ORDER: Table 4 shows the DB2 PM identifiers and criteria that can be used with the ORDER option.

Table 4. DB2 PM Identifiers used with ORDER

DB2 PM Identifier	Keyword	Acct	Aud	I/O	Lock	SQL	Stat	Util
Buffer pool ID	BPID			●				
Class	CLASS	●	●	●	●	●		●
Connection ID	CONNECT	●	●	●	●	●		●
Connection type	CONNTYPE	●	●	●	●	●		●
Correlation name	CORRNAME	●	●	●	●	●		●
Correlation number	CORRNMBR	●	●	●	●	●		●
Database	DATABASE			●	●			
End user ID	ENDUSER	●	●		●	●		
Instance number	INSTANCE							●
Interval	INTERVAL	●					●	
Main package	MAINPACK	●						
Object type	OBJECT		●					
Original authorization ID	ORIGAUTH	●	●	●	●	●		●
Package or program name	PACKAGE or PROGRAM	●						
Page Set	PAGESET			●	●			
Plan name	PLANNAME	●	●	●	●	●		●
Primary authorization ID	PRIMAUTH or AUTHID	●		●	●	●		●
Requesting location	REQLOC	●	●	●	●	●		●
End user transaction name	TRANSACT	●	●		●	●		
End user workstation name	WSNAME	●	●		●	●		

Table 4. DB2 PM Identifiers used with ORDER (continued)

DB2 PM Identifier	Keyword	Acct	Aud	I/O	Lock	SQL	Stat	Util
Notes: 1. For Utility Activity, the ORDER option can be used for both reports and traces. 2. Instance number is applicable to Utility trace only.								

INCLUDE/EXCLUDE

INCLUDE EXCLUDE	Command							
Subcommand	**Accounting**	**Audit**	**I/O**	**Locking**	**Record Trace**	**SQL Activity**	**Statistics**	**Utility**
File	●	●		●	●			
Reduce	●	●	●	●		●	●	●
Report	●	●	●	●		●	●	●
Trace	●	●		●	●	●	●	●

Includes or excludes data associated with specific DB2 PM identifiers. If you omit this option, all records are included.

Using INCLUDE, you can define a list of DB2 PM identifier values that are included in processing. Using EXCLUDE, you can define a list of DB2 PM identifier values that are excluded from processing. You can specify list names, set names, values, or range values for each DB2 PM identifier. If you omit INCLUDE and EXCLUDE, all records are processed. If you include some DB2 PM identifier values and omit EXCLUDE, only those records described in INCLUDE are processed. If you exclude some DB2 PM identifier values and omit INCLUDE, all records are processed except those described in EXCLUDE.

INCLUDE/EXCLUDE Block:
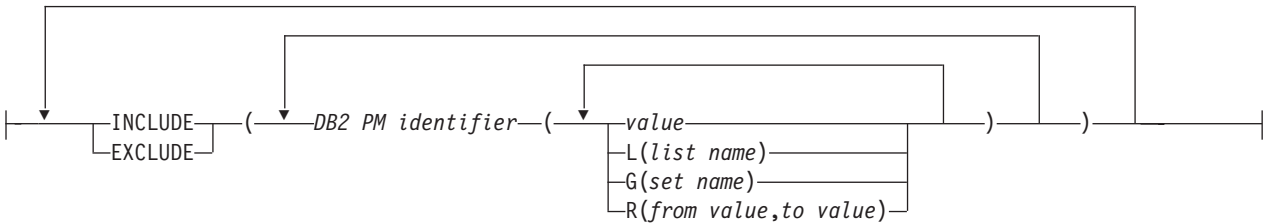
Figure 6. Syntax of INCLUDE/EXCLUDE

Option Descriptions: The following options are available with the INCLUDE/EXCLUDE command:

DB2 PM Identifier
    Specifies the identifiers that you want to include in, or exclude from, your

output. Identifiers valid for each report are shown in Table 5 on page 30. Refer to "Chapter 1. DB2 PM Identifiers" on page 3 for definitions of DB2 PM identifiers.

If you do not specify an identifier when using the REDUCE, REPORT, TRACE, or FILE subcommand, DB2 PM uses the identifiers specified for the GLOBAL INCLUDE/EXCLUDE command.

Note: You can use a DB2 PM identifier in either INCLUDE or EXCLUDE, but not with both in the same command or subcommand.

value A value for the specified DB2 PM identifier, or an asterisk (*) indicating all values.

DB2 PM identifier values must consist of the following characters: A - Z, #, $, @, >, <, or 0 - 9. If the value you want to include contains a character that is not in this list, use an asterisk in its place.

L The name of a list containing values for the specified DB2 PM identifier. The list name must be defined by a LIST command in the same job step.

G The name of a set of values for the selected DB2 PM identifier. The set name must be defined by a GROUP command in the same job step.

If a set name is specified in a value block, only that set is processed. If you want all DB2 PM identifier values that are not contained in any set specification to be reduced and reported individually, enter an asterisk (*) in the INCLUDE/EXCLUDE option following the last set name. For example:

```
⋮
INCLUDE (
PRIMAUTH (G(AUTHGRP1)
     G(AUTHGRP2)
     *))
⋮
```

indicates that the authorization IDs contained in the sets AUTHGRP1 and AUTHGRP2 are processed as sets, and all other authorization IDs are processed individually.

R Denotes a range of values beginning with a *from* value and ending with a *to* value. The *from* value must be less than the *to* value. The generic form can be used only in the last character position in range values. For example, `R(AUTH1*,AUTH2*)` is acceptable, but `R(AUTH*1,AUTH*2)` is not.

> **Improtant Note**
>
> Use GLOBAL INCLUDE/EXCLUDE carefully with IFCID.
>
> Because many IFCID records are paired events, BEGIN and END records are necessary to get a valid report or trace.
>
> All IFCIDs that share a common END record must be used together with INCLUDE/EXCLUDE.

Example Using INCLUDE and EXCLUDE:
```
⋮
LIST (PRIMAUTH(PRODUSER(USER1,USER2)))
ACCOUNTING
REDUCE
```

```
REPORT
LAYOUT (LONG)
INCLUDE (PLAN(QMF311))
EXCLUDE (PRIMAUTH(L(PRODUSER)))
⋮
```

This example produces an accounting long report. The only plan reported is QMF311. All primary authorization IDs are reported except those on the list called PRODUSER.

DB2 PM Identifiers used with INCLUDE/EXCLUDE

Table 5 shows the DB2 PM identifiers that can be used with the different report groups to select records. The following abbreviations are used for the individual subcommands the DB2 PM identifier can be used with:

r   REDUCE

t   TRACE

p   REPORT

f   FILE

all   applies to all subcommands

If you do not specify an identifier for INCLUDE/EXCLUDE when using the REDUCE, REPORT, TRACE, or FILE subcommand, DB2 PM uses the identifiers specified for the GLOBAL INCLUDE/EXCLUDE command.

Note: You can use a DB2 PM identifier in either INCLUDE or EXCLUDE, but not with both in the same command or subcommand.

Table 5. DB2 PM Identifiers used with INCLUDE/EXCLUDE

DB2 PM Identifier	Keyword	Acct	Aud	I/O	Lock	RT	SQL	Stat	Util	Glob
Ace control element address	ACE					t,f	r,t,p			all
Class	CLASS					t,f				all
Connection ID	CONNECT	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	all
Connection type	CONNTYPE	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	all
Correlation name	CORRNAME	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	all
Correlation number	CORRNMBR	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	all
Database	DATABASE			r,p	r,t,p,f					all
Data set	DATASET			r,p						all
End user ID	ENDUSER	r,t,p,f	t,r,p,f		r,t,p,f	t,f	r,t,p,f			
Field	FIELD					t,f				all
Group name	GROUP	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p	r,t,p,f	r,t,p	all
IFCID	IFCID					t,f	r,t,p			all
Instance number	INSTANCE	r,t,f	r,t,p,f		t,f	t,f	r,t,p		r,t,p	all
Location	LOCATION	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p	r,t,p,f	r,t,p	all
Main package	MAINPACK	r,t,p,f								
Member name	MEMBER	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p	r,t,p,f	r,t,p	all

Table 5. DB2 PM Identifiers used with INCLUDE/EXCLUDE (continued)

DB2 PM Identifier	Keyword	Acct	Aud	I/O	Lock	RT	SQL	Stat	Util	Glob
Original authorization ID	ORIGAUTH	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	all
Package or program name	PACKAGE or PROGRAM	r,t,p,f								
Page Set	PAGESET			r,p	r,t,p,f					all
Plan name	PLANNAME	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	all
Primary authorization ID	PRIMAUTH or AUTHID	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	all
Requesting location	REQLOC	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	all
Type of resource	RESOURCETYPE				r,t,p,f					
Resource manager ID	RMID					t,f				all
Subsystem ID	SUBSYSTEMID	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p	r,t,p,f	r,t,p	all
Type of thread	THREADTYPE	r,t,p,f	r,t,p,f	r,p	r,t,p,f	t,f	r,t,p		r,t,p	
End user transaction name	TRANSACT	r,t,p,f	t,r,p,f	r,t,p,f	t,f	r,t,p,f				
Event type	TYPE				r,t,f					
End user Iworkstation name	WSNAME	r,t,p,f	t,r,p,f		r,t,p,f	t,f	r,t,p,f			
Note: Event type can only be used with Locking Trace LEVEL(DETAIL).										

EXCEPTION/NOEXCEPTION

EXCEPTION /NOEXCEPTION	Command	
Subcommand	Accounting	Statistics
File	●	●
Report	●	●
Trace	●	●

Specify EXCEPTION if you want to report only those entries on accounting reports with at least one field in exception status. Specify NOEXCEPTION to produce a standard report. NOEXCEPTION is the default.

The thresholds for exception fields are defined in the exception threshold data set. Refer to Exception processing for more information about the exception threshold data set.

If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. Refer to "DD Statements" on page 10 for more information about required ddnames.

DDNAME

DDNAME	Report Set							
	Accounting	**Audit**	**I/O Activity**	**Locking**	**Record Trace**	**SQL Activity**	**Statistics**	**Utility Activity**
File	ACFILDDx	AUFILDDx		LOFILDDx	RTFILDDx	SQFILDDx	STFILDDx	
Reduce	ACWORK	AUWORK	IOWORK	LOWORK		SQWORK	STWORK	UTWORK
Report	ACRPTDD	AURPTDD	IORPTDD	LORPTDD		SQRPTDD	STRPTDD	UTRPTDD
Restore	ACCRSTDD						STRSTDD	
Save	ACSAVDD						STSAVDD	
Trace	ACTRCDDx	AUTRCDDx		LOTRCDDx	RTTRCDDx	SQTRCDDx	STTRCDDx	UTTRCDDx
Note: The default ddnames are shown in this table. x represents a number equal to or greater than one and equal to or less than the maximum number of subcommand invocations allowed.								

Specifies the data set to which the report is written. You can specify any valid ddname including the default, provided that your JCL contains a DD statement for it. If a DD statement is omitted, it will be dynamically allocated to the SYSOUT message class of the job.

TOP

Use TOP to identify report entries with a high value in certain fields. TOP is only used in the Accounting report set and is described in "TOP Processing" on page 221.

LAYOUT

LAYOUT	Command	
Subcommand	**Accounting**	**Statistics**
Report	●	●
Trace	●	●

Specifies the name of a report layout. You can specify one of the supplied layouts or one that you have previously tailored. The following sample layouts are supplied:

SHORT (the default)

LONG

You can tailor your own report layouts by specifying which blocks of data and which fields within the blocks are included, and their relative order. Refer to Part 4. User-Tailored Reporting for information about tailoring report layouts.

SCOPE

SCOPE	Command			
Subcommand	**Accounting**	**Audit**	**Locking**	**Statistics**
Report	●	●	●	●
Trace		●	●	

Specifies the scope of the report in a data-sharing environment. You can specify MEMBER or GROUP.

The default is MEMBER. In member-scope reports, a data-sharing group's instrumentation data is presented member by member. The events are reported in the specified ORDER sequence within the DB2 subsystem (member) where they occurred. Member-scope reports are used for DB2 subsystems that are not involved in data sharing.

In group-scope reports, instrumentation data belonging to individual members is merged and presented for the entire group. The events are reported in the specified ORDER sequence within the DB2 data-sharing group, regardless of which member of the group actually generated the events.

TYPE

TYPE is used in the Audit report set to control the type of data reported and in the Utility Activity report set to specify the activity types reported. See pages 585 and 1240 for more information.

LEVEL

LEVEL	Command			
Subcommand	Audit	I/O	Locking	Record Trace
Report	See page 586.	See page 684	See page 722	
Trace			See page 723	See page 785

The meaning and usage of LEVEL varies according to the report set. For details of this option, refer to the appropriate section indicated in the table.

SUMMARIZEBY

SUMMARIZEBY is applicable to the SQL Activity report set only, for more information about this option, see page 1139.

WORKLOAD

WORKLOAD	Command	
Subcommand	SQL Activity	Utility
Report and Trace	See page 1140	See page 1242

The meaning and usage of WORKLOAD varies according to the report set. For details of this option, refer to the appropriate section indicated in the table.

SORTBY

SORTBY	Command	
Subcommand	Record Trace	SQL Activity
Report		See page 1140
Trace	See page 786	See page 1143

The meaning and usage of SORTBY varies according to the report set. For details of this option, refer to the appropriate section indicated in the table.

LIMIT

The LIMIT option sets the number of threads processed by SQL Activity Trace. For details of this option, see page 1144.

Chapter 3. Output from DB2 PM Reports

The output from DB2 PM is one, or more, data sets containing the reports you requested and a set of log file data sets. These log files are described in "Part 3. DB2 PM Logs" on page 79. The reports and traces produced are described and explained in detail in the relevant sections of this book.

How Large and Missing Values Are Reported

Values printed on reports can be either total values or average values.

If there is insufficient space to print a value on a report or trace, a rounded value is printed followed by one of the following letters to indicate the magnitude:

K   thousand (kilo - 10^3)

M   million (mega - 10^6)

G   billion (giga - 10^9)

T   trillion (tera - 10^{12})

The letter is printed directly after the number, without blank spaces. There can, however, be decimal places.

Examples of Printed Values

- Valid conversions of 12 345 include:
  - `12K`
  - `12.35K`
  - `12.3K`
- Valid conversions of 1 234 567 include:
  - `1M`
  - `1.2346M`
  - `1235K`

N/C is printed if the data cannot be calculated.

N/P is printed if the data is not present. For example, for application-directed requesters, SQL counters are not present and *N/P* is printed.

N/A is printed if the field is not applicable to the DB2 release you are running.

Elapsed Time Formats

Time values are presented in one of the following formats:
- *dd hh:mm:ss.ffffffff*, where:

  dd   represents days

  hh   represents hours

  mm   represents minutes

ss represents seconds

ffffffff represents the fractions of a second up to 8 decimal places.

For example, a time value of 1:30:25.10 represents 1 hour, 30 minutes, and 25.1 seconds.

Some of the reports that use this format might not report days (*dd*) or hours (*hh*).

- *ssssssss.ffffffff*, where:

ssssssss
      represents seconds

ffffffff represents the fractions of a second up to 8 decimal places.

The actual number of decimal places varies from one field to another.

Some time fields can be rounded. If there is insufficient space to print a time value, the time is rounded by removing decimal places as required. For elapsed times, a rounded value is printed.

Part 2. Auxiliary and Troubleshooting Commands

Auxiliary Commands

This part of the *DB2 PM Report Reference* describes the general processing
commands shared by various report sets. You can use these commands to
streamline processing.

- "Chapter 4. Auxiliary Commands" on page 39 describes each auxiliary command
  and its options and keywords, and outlines the relationships between each
  auxiliary command and the report set commands.

- "Chapter 5. Troubleshooting Commands" on page 73 describes the DUMP
  command used to dump records from an input data set, and the TAPECOPY
  command used to copy records from an input data set to an output data set.

Chapter 4. Auxiliary Commands

DB2 PM uses the auxiliary commands to streamline the generation of reports. These commands are shared by various report sets and used with other DB2 PM subcommands. The auxiliary commands used in DB2 PM are:

- The GLOBAL command to filter input data and set default values for subcommand options. It is also used to define global processing options, such as DD statements for various data sets, the number of lines printed per page, whether or not the DB2 PM main internal sort occurs, and time zone adjustments for different locations.

- The GROUP command to collect several DB2 PM identifier values under one name. When you request a report and specify this name using the INCLUDE/EXCLUDE option, the events for all individual items are consolidated into one.

  Note: The GROUP command is only used to collect DB2 PM identifier values. It is not related to DB2 data sharing *groups*, and should not be confused with the GROUP parameter of the SCOPE option, or the GROUP DB2 PM identifier.

- The DISTRIBUTE command to generate frequency distributions for averaged data. You can plot distributed data using the graphics function of the IRF.

- The LIST command to define a list of values for a DB2 PM identifier. You can assign a name to the list and specify this name using the INCLUDE/EXCLUDE option. In this way, you do not need to enter each list item individually.

- The FIELD command to define exception conditions. You can then filter individual records meeting these conditions using the INCLUDE/EXCLUDE option.

Table 6 shows which auxiliary commands can affect which DB2 PM report set.

Table 6. Auxiliary Commands Valid with Different Report Sets

Auxiliary Command	Acct	Aud	I/O	Lock	RT	SQL	Stat	Util
GLOBAL	●	●	●	●	●	●	●	●
DISTRIBUTE	●		●	●		●		●
GROUP	●		●	●		●		●
LIST	●	●	●	●	●	●	●	●
FIELD					●			

The following abbreviations are used in all of the tables in this chapter:

Acct   accounting

Aud   audit

I/O   I/O activity

Lock   locking

RT   record traces

SQL   SQL activity

Stat   statistics

Util   utility activity

The GLOBAL Command

The GLOBAL command affects the processing of each report set. It enables you to:

- Specify values for the FROM, TO, INCLUDE, and EXCLUDE options, which provide primary filtering of input records. Only those records that satisfy these options are available for further processing.
- Define global processing options:
  - Change the ddname for input data
  - Change the ddname for the system parameters report
  - Change the ddname for the frequency distribution data set
  - Define the number of lines printed on each report or trace page
  - Specify a time adjustment for DB2 locations
  - Control whether the DB2 PM internal sort is performed.
- Define default values for the following REDUCE, REPORT, TRACE, and FILE options:
  - FROM and TO options: If you do not include either FROM or TO options in a REDUCE, REPORT, TRACE, or FILE subcommand, the default dates and times specified in GLOBAL are applied.
  - INCLUDE and EXCLUDE options: If you do not provide either an INCLUDE or an EXCLUDE option in a REDUCE, REPORT, TRACE, or FILE subcommand, the appropriate GLOBAL INCLUDE or EXCLUDE filters are applied as defaults.
  - INTERVAL option: If INTERVAL is not specified in a REDUCE subcommand, the default specified in GLOBAL is applied.
  - BOUNDARY option: If BOUNDARY is not specified in a REDUCE subcommand, the default specified in GLOBAL is applied.

There can be only one GLOBAL command in a DB2 PM execution.

```
►►──GLOBAL───────────────────────────────────────────────────────────────◄
            │ ┌─────────────────────────────────────────────┐
            │ │                                              │
            └─▼─FROM──(──────────────────────────)──────────┘
              │         └─date─┘  └─,time─┘
              │                                        0
              ├─TO──(──────────────────────────)──────
              │      └─date─┘  └─,time─┘
              │                        ┌─0────────┐
              ├─INTERVAL──(──────────────────)──────
              │            └─minutes─┘
              │                        ┌─NO──────┐
              ├─PRESORTED──(──ACCEPT───)──────────
              │             └─ENFORCE─┘
              │                      ┌─60──────┐
              ├─BOUNDARY──(──minutes──)─────────
              │             └─0───────┘
              │                      ┌─INPUTDD──┐
              ├─INPUTDD──(──ddname────)──────────
              │           └─ddname──┘
              │                    ┌─DISTDD───┐
              ├─DISTDD──(──ddname───)────────────
              │           ┌─SYSPRMDD──┐
              ├─SYSPRMDD──(──ddname────)─────────
              │                     ┌─60──────┐
              ├─PAGESIZE──(──integer──)──────────
              │                     ┌─0───────┐
              ├─TIMEZONE──(── + hh:mm ──)────────
              │              │ - hh:mm  │
              │              └─location─┘
              ├──┤ EXPLAIN block ├───────────────
              └──┤ INCLUDE/EXCLUDE block ├───────
```
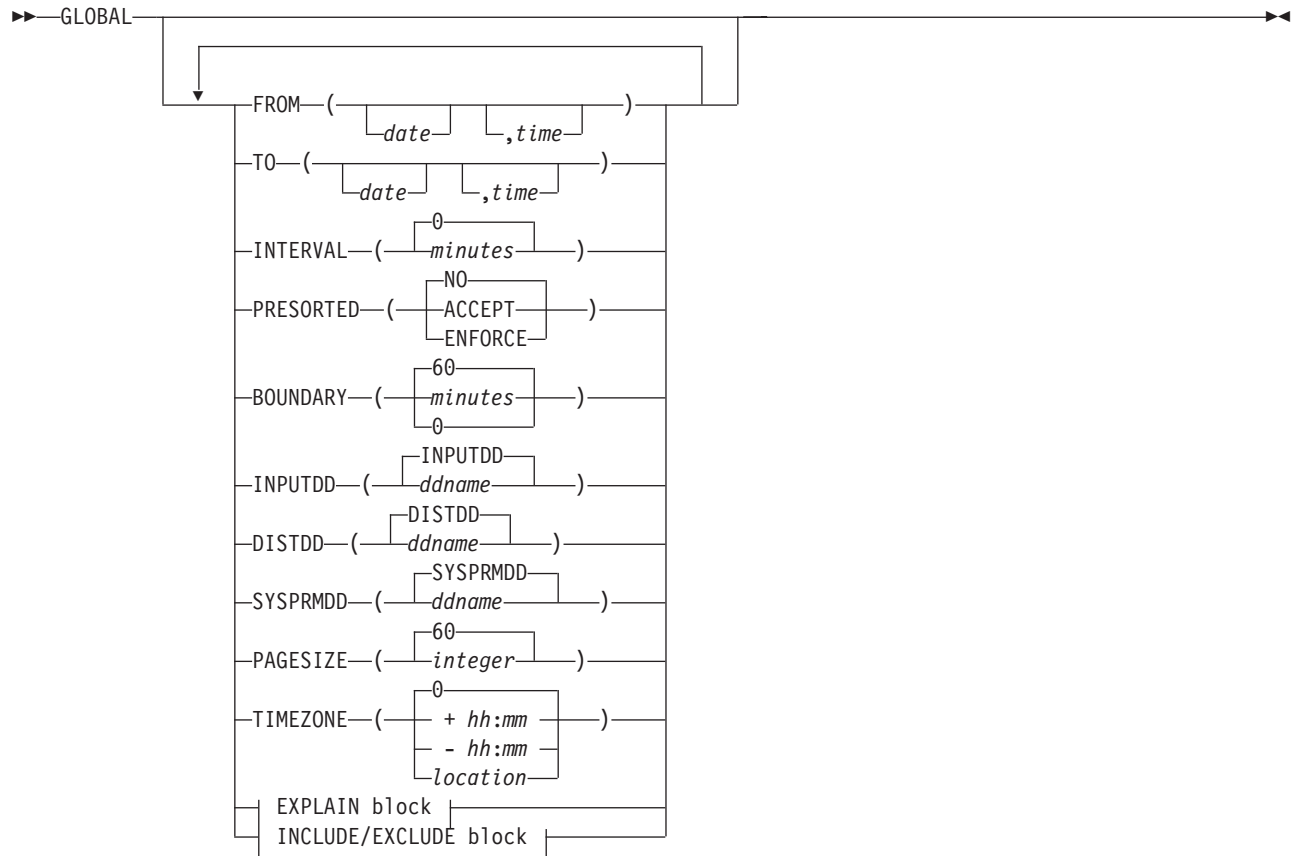
Figure 7. Syntax of the GLOBAL Command

GLOBAL Command Options

FROM/TO

The range of record timestamps processed by the primary filtering function of
GLOBAL. Refer to "FROM/TO" on page 21 for more information.

INTERVAL

Defines the time interval over which data is summarized. For more information
about this options, see "INTERVAL" on page 24.

PRESORTED

Controls the internal sort. It has the following values:

NO   Does not disable the sort. This is the default.

ENFORCE
          Disables the sort but terminates processing if out-of-sequence records are
          present. Use this option only when the input data set has been sorted, for
          example when reprocessing data from the DPMOUT data set.

ACCEPT
          Disables the sort and accepts out-of-sequence records. Using this option
          you can create complete and accurate accounting reports (including records

from several locations) from data sets which have not been sorted, for example SMF or GTF. The following limitations apply with this option:

- Duplicate input data is not checked. Therefore, do not concatenate two data sets which contain the same trace records, for example if trace data has been collected in two data sets during the same period.
- Only one location is reported per trace. To report more, specify several TRACE subcommands with INCLUDE on LOCATION.
- Trace entries might not be printed in time sequence. If a trace contains entries which are out of sequence, a message appears at the end showing the number.
- When INTERVAL(0) is in effect (the default), the interval times appearing in a report heading might not be accurate. Avoid ordering reports by interval when the interval is zero.

Note: Do not specify PRESORTED in Sysplex query parallelism, the results are unpredictable.

PRESORTED

Controls the internal sort. It has the following values:

NO   Does not disable the sort. This is the default.

ENFORCE
Disables the sort but terminates processing if out-of-sequence records are present. Use this option only when the input data set has been sorted, for example when reprocessing data from the DPMOUT data set.

ACCEPT
Disables the sort and accepts out-of-sequence records. Using this option you can create complete and accurate accounting reports (including records from several locations) from data sets which have not been sorted, for example SMF or GTF. The following limitations apply with this option:

- Duplicate input data is not checked. Therefore, do not concatenate two data sets which contain the same trace records, for example if trace data has been collected in two data sets during the same period.
- Only one location is reported per trace. To report more, specify several TRACE subcommands with INCLUDE on LOCATION.
- Trace entries might not be printed in time sequence. If a trace contains entries which are out of sequence, a message appears at the end showing the number.
- When INTERVAL(0) is in effect (the default), the interval times appearing in a report heading might not be accurate. Avoid ordering reports by interval when the interval is zero.

Note: Do not specify PRESORTED in Sysplex query parallelism, otherwise you might get unpredictable results.

BOUNDARY

Controls the alignment of the intervals used to summarize records in the reduction process. The range is from 0 to 60, and indicates minutes past the hour. For more information about this option, see"BOUNDARY" on page 24.

INPUTDD

The ddname of the input data set. The default is INPUTDD.

DISTDD

The ddname for the frequency distribution data set. The default is DISTDD.

SYSPRMDD

The ddname for the system parameters report. The default is SYSPRMDD.

PAGESIZE

The number of lines printed per page. Specify an integer in the range 50 to 999. The default for PAGESIZE is 60.

Some reports have a fixed number of lines per page. PAGESIZE is ignored for I/O summary reports, multi-page records in long record traces, and explain reports.

TIMEZONE

The time adjustment applied to record timestamps during DB2 PM processing. Using TIMEZONE, you can process data from locations in different time zones based on the local time of a single location. All further processing is based on the adjusted time. The timestamp used in FROM/TO, printed on reports and traces, and recorded in the file and save data sets is the adjusted value. The DPMOUT data set contains both the original and the adjusted value.

> **Important Note**
>
> When combining newly reduced data with restored data, make sure that the TIMEZONE specifications for the new data match those for the restored data. Misleading results can occur if the time adjustments are different.
>
> If you change the reference location for data, the time adjustments in old save or file data might be incompatible with newly processed data.
>
> Note that this does not apply to the DPMOUT data, as time adjustments are recalculated when the data is read from INPUTDD.

You can specify time adjustments as follows:

location

> The location of the reference time zone. The time is adjusted relative to the specified location. The adjustment is the difference between the time zone of the reference location and the CPU clock of the reported location. The LOCDATA member of the DPMPARMS data set must contain an entry for this location.
>
> This is the recommended method.

±hh:mm

> The time difference between the reference time zone and Greenwich Mean Time (GMT). The time difference is specified as ±hh:mm, where hh is hours in the range 00 to 23, and mm is minutes in the range 00 to 59. You can specify any value in the range –12:00 to +12:00. Use + for local times west

of Greenwich, and – for local times east of Greenwich. The time is adjusted relative to the specified time zone difference.

The data for calculating the required adjustments is stored in the LOCDATA member of the DPMPARMS data set. It is stored and edited using the IRF.

Notes:

1. If TIMEZONE is not specified, no timestamps are adjusted. If the location supplied in the TIMEZONE option does not have a corresponding entry in the LOCDATA member, a message is generated and execution is terminated.

2. During DB2 PM processing, if data is encountered for a location whose time zone adjustment values have not been supplied in the LOCDATA member, the time adjustment default is applied to all records for that location. The default adjustment is stored in LOCDATA under a location name of *. If LOCDATA does not contain a default entry, no adjustment is applied.

3. If several systems that should have the same CPU clock time have synchronization errors, you can use TIMEZONE to correct the times for DB2 PM processing. Change the CPU clock time for the nonsynchronized locations in LOCDATA to reflect the errors. For example, if SAN_JOSE_LAB is one minute late in synchronizing with SANTA_TERESA_LAB, edit LOCDATA and add a minute to the CPU clock value for SAN_JOSE_LAB.

4. Synchronization can only be adjusted to the nearest minute. Any adjustments made to LOCDATA might become invalid if the CPU clock time at any of the locations is reset.

For more information about TIMEZONE, refer to the *DB2 PM Batch User's Guide*.

INCLUDE/EXCLUDE

Limits the records available for further processing.

For more information about this option, see "INCLUDE/EXCLUDE" on page 28.

The DISTRIBUTE Command

The DISTRIBUTE command is a stand-alone command used to generate frequency distribution information. It is used for DB2 PM data associated with accounting, I/O activity, locking, SQL activity, and utility activity report sets.

You can control the collection of this data by specifying DB2 PM identifiers in the DISTRIBUTE command. You can also alter the frequency distribution limits to accumulate the data in appropriate ranges. After DB2 PM batch execution, the collected frequency distributions, which have been written to the frequency distribution data set, can be viewed using DB2 PM graphics.

In the reports, data is averaged for many occurrences. If there is a large number of events over which the data is averaged, the result can be difficult to analyze. An average value can also make a small number of events that have exceptionally high or low values difficult to detect. However, the DISTRIBUTE command can help you locate unusual values by dividing the events into ranges.

You can specify as many DISTRIBUTE commands as you want in a job step. You can specify the same field in several DISTRIBUTE commands, with different DB2 PM identifiers.

You can define up to ten distribution ranges for a particular field. During data reduction, DB2 PM keeps count of the number of records with values in each of the defined ranges. The following information is generated for each of the defined fields:

- Frequency distribution
- Average value
- Standard deviation
- Maximum value

The data generated by DISTRIBUTE is, by default, written to the DD statement DISTDD. You can change this ddname using the GLOBAL command. Refer to "The GLOBAL Command" on page 40 for more information about GLOBAL.

```
►►──DISTRIBUTE──(──FIELDID(field name──────────────)──┬─────────────────────┬──)────────────────►◄
                                  └─qualifier─┘        └─┤ DISTRIBUTE block ├─┘
```

DISTRIBUTE Block:

```
                          ┌──(9)─────┐
   ┌──────────────────────┼──────────┼──────────────────────────────┐
   ▼                      │ ┌─1 5 10 30 50 100 300 500 1000─┐        │
├──┼─LIMITS──(──▼──────────┴─┴─────────────────────────────┴──)──────┼─────────────────────────┤
   │              └─value─┘                                          │
   │          ┌─MILSECS¹─┐                                           │
   ├─UNITS──(─┼─COUNT²────┼──)─────────────────────────────────────  │
   │          ├─SECONDS───┤                                          │
   │          ├─MINUTES───┤                                          │
   │          └─HOURS─────┘                                          │
   │                    ┌──(3)──────────────┐                        │
   │                    ▼ ┌─PRIMAUTH───────┐ │                       │
   └─IDENTIFIERS──(──────┴─┴─DB2 PM identifier─┴──────)──────────────┘
```
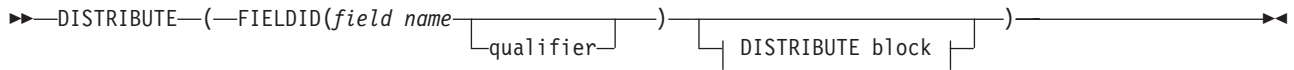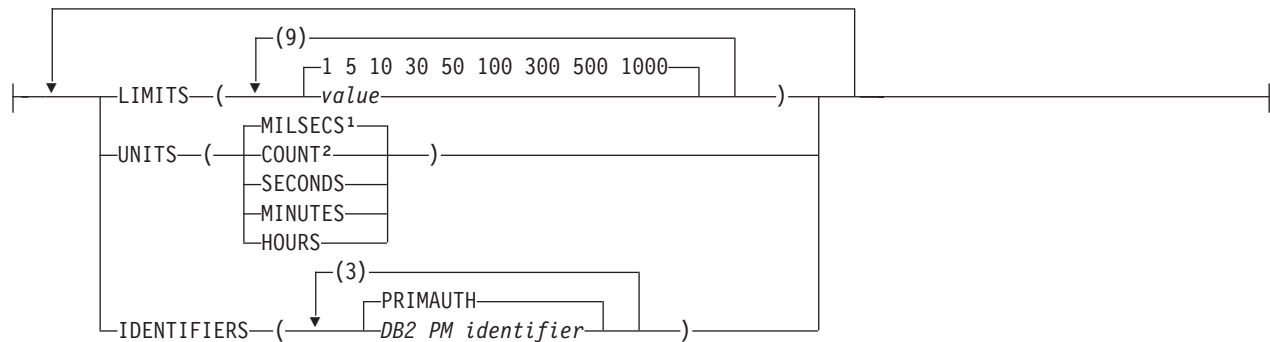
Notes:

1. MILSECS is the default for time fields.
2. COUNT is the default for numeric fields.

Figure 8. Syntax of the DISTRIBUTE Command

Option Descriptions

The options available with the DISTRIBUTE command are:

FIELDID (field name)
The keyword for the field. Valid values are shown for:

Accounting
in Table 8 on page 48 through Table 19 on page 54

I/O activity
in Table 20 on page 54

Locking
in Table 21 on page 56

SQL activity
in Table 22 on page 56

Utility activity
in the table Table 23 on page 57

qualifier
Accounting buffer pool, DDF, package, and RLF fields can be qualified by buffer pool ID, remote location, package name, and RLF type, respectively. An example for a buffer pool ID is BP32K.

LIMITS
The limits of the ten ranges for frequency distribution. At least one limit is required. Ranges can be entered in any sequence. Duplicate values are ignored. Counts are kept for each of the ten ranges. The default for LIMITS is:

LIMITS(1,5,10,30,50,100,300,500,1000)

This counts records in the following ranges:

> 0 and ≤ 1

> 1 and ≤ 5

> 5 and ≤ 10

> 10 and ≤ 30

> 30 and ≤ 50

> 50 and ≤ 100

> 100 and ≤ 300

> 300 and ≤ 500

> 500 and ≤ 1000

> 1000

UNITS The units for the LIMITS. This keyword is optional. The default is the count for fields containing numeric data, and milliseconds for time fields. The following values are valid:

- MILSECS (milliseconds)
- SECONDS
- MINUTES
- HOURS
- COUNT

IDENTIFIERS

The DB2 PM identifiers used in collecting distribution data. You can specify up to three types of DB2 PM identifiers. Frequency distribution data is collected for each unique combination of the selected DB2 PM identifiers. This keyword is optional. The default is PRIMAUTH.

Note: DISTRIBUTE uses REDUCE filters and interval/boundary values.

Table 7 shows the DB2 PM identifiers valid for the different report sets.

Table 7. DB2 PM Identifiers Used with DISTRIBUTE

DB2 PM Identifier	Acct	I/O	Lock	Util	SQL
CONNECT	●	●	●	●	●
CONNTYPE	●	●	●	●	●
CORRNAME	●	●	●	●	●
CORRNMBR	●	●	●	●	●
DATABASE		●	●		
DATASET		●			
ORIGAUTH	●	●	●	●	●
MAINPACK	●				
PAGESET		●	●		
PLANNAME	●	●	●	●	●
PRIMAUTH or AUTHID	●	●	●	●	●
REQLOC	●	●	●	●	●

Example Using the DISTRIBUTE Command

The following JCL fragment is an example of the distribute command:

```
               ⋮
         //SYSIN DD *
         DISTRIBUTE (
         FIELDID     (QBACGET.BP32K)
         IDENTIFIERS (PRIMAUTH,PLANNAME)
         LIMITS  (
          1
          10
          20
          50
          200
          1000
          2000
         )
            )

         EXEC
         /*
```

In this example, QBACGET.BP32K (GETPAGE requests for the 32 KB buffer pool)
is the field identifier for frequency distribution. A frequency distribution is calculated
for every combination of PRIMAUTH and PLANNAME occurring in the input data.
The data is accumulated in one of the eight ranges specified in the limits option.
The ranges are less than 1, between 1 and 10, between 10 and 20, and so on. The
last range is greater than 2000.

Accounting Keywords for the FIELDID Option

Note: These lists do not include keywords added or altered by Version 6.

Buffer Pool Activity

Table 8. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QBACGET	The number of GETPAGE requests. The counter is incremented by conditional GETPAGE requests for each thread, if successful, and for nonconditional requests, whether successful or not.
QBACRIO	The number of synchronous read I/O operations.
QBACSEQ	The number of sequential prefetch requests.
QBACLPF	The number of list prefetch requests.
QBACDPF	The number of dynamic prefetch requests.
QBACHRE	The number of successful hiperpool reads.
QBACHRF	The number of unsuccessful hiperpool reads.
QBACSWS	The number of buffer updates.
QBACIMW	The number of synchronous writes.
QBACHWR	The number of successful hiperpool writes.
QBACHWF	The number of unsuccessful hiperpool writes.
QBACSIO	The number of asynchronous pages read by prefetch that the agent triggered.
QBACHPG	The number of pages read asynchronously from hiperpool.
ABCLSPR	The number of all types of prefetch requests.

Table 8. Accounting Keywords Used with the DISTRIBUTE Command (continued)

Keyword	Description
Note: All fields can be explicitly qualified by one of the following:	
BPn	4 KB buffer pool number (0 ≤ n ≤ 49)
BP32K	32 KB buffer pool
BP32Kn	
	32 KB buffer pool number (1 ≤ n ≤ 9)
TOT4K	Total of all 4 KB buffer pools
TOT32K	
	Total of all 32 KB buffer pools
TOTAL	Total of all 4 KB and 32 KB buffer pools

Data Capture and IFI Class 5 Times

Table 9. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QIFAAIET	The elapsed time spent processing IFI calls (class 5).
QIFAAITT	The TCB time spent processing IFI calls (class 5).
QIFAAMBT	The elapsed time spent processing data capture describes.
QIFAAMLT	The elapsed time spent performing log extraction.
ADIFICAL	The total number of IFI calls.
QIFAANDR	The total number of data capture data rows returned. Two rows are returned for each row altered by an SQL update statement.

Data Sharing Locking

Table 10. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QTGALPLK	The number of lock requests for P-locks.
QTGAUPLK	The number of unlock requests for P-locks.
QTGACPLK	The number of change requests for P-locks.
QTGALSLM	The number of lock requests propagated to MVS XES.
QTGAUSLM	The number of unlock requests propagated to MVS XES.
QTGACSLM	The number of change requests propagated to MVS XES.
QTGAIGLO	The number of suspensions due to IRLM global resource contention.
QTGASGLO	The number of suspensions due to MVS XES global resource contention.
QTGAFLSE	The number of suspensions due to false contention.
QTGADRTA	The number of global lock or change requests denied because of an incompatible retained lock.
QTGANTFY	The number of notify messages sent.
ALLPSUSP	The total number of suspensions (local and global).
APLKSUSP	The total number of data-sharing suspensions.

DDF Activity

Table 11. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QLACCNVQ	The number of conversations queued.
QLACCIEL	The maximum number of open conversations.
QLACBROW	The number of rows transmitted in the message buffers if block fetch was used.
QLACCBLB	The number of times a switch was made from continuous to limited block fetch (system-directed access only).
QLACBRBF	The number of blocks received by the requester.
QLACBTBF	The number of blocks sent to the requester.
QLACCOMS	The number of commits sent—single-phase commit.
QLACCOMR	The number of commits received—single-phase commit.
QLACABRS	The number of rollbacks sent—single-phase commit.
QLACABRR	The number of rollbacks received—single-phase commit.
QLACSQLS	The number of SQL statements sent.
QLACSQLR	The number of SQL statements received.
QLACROWS	The number of rows sent.
QLACROWR	The number of rows received.
QLACMSGS	The number of messages sent.
QLACMSGR	The number of messages received.
QLACBYTS	The number of bytes sent.
QLACBYTR	The number of bytes received.
QLACRBND	The number of SQL statements sent to a system-directed access server for bind.
ADDSELRQ	The elapsed time at the requester.
ADDSELSR	The elapsed time at the server.
ADDSSRSR	The CPU time at the server.
QLACCRSE	The number of commit requests sent to the participant (two-phase commit operations only).
QLACCRRC	The number of commit requests received from the coordinator (two-phase commit operations only).
QLACBKSE	The number of backout requests sent to the participant (two-phase commit operations only).
QLACBKRC	The number of backout requests received from the coordinator (two-phase commit operations only).
Note: All fields can be explicitly qualified by the remote location.	

Group Buffer Pool Activity

Table 12. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QBGAXD	Reads (cross invalidation)—data returned.
QBGAXR	Reads (cross invalidation)—no data returned.
QBGAMD	Reads (page not found)—data returned.
QBGAMR	Reads (page not found)—no data returned.
QBGAMN	Reads (page not found)—read prefetch.
QBGAWC	Clean pages written.

Table 12. Accounting Keywords Used with the DISTRIBUTE Command (continued)

Keyword	Description
QBGASW	Changed pages written.

Note: All fields can be explicitly qualified by one of the following:

GBPn   4 KB group buffer pool number (0 ≤ n ≤ 49)

GBP32K
        32 KB group buffer pool

GBP32Kn
        32 KB group buffer pool number (1 ≤ n ≤ 9)

TOT4K   Total of all 4 KB group buffer pools

TOT32K
        Total of all 32 KB group buffer pools

TOTAL   Total of all 4 KB and 32 KB group buffer pools

Miscellaneous Accounting Data

Table 13. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QWACCOMM	The number of commits.
QWACABRT	The number of rollbacks.
QXINCRB	The number of incremental binds.

Locking Activity

Table 14. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QTXATIM	The number of timeouts.
QTXADEA	The number of deadlocks.
ADTIMDLK	The number of deadlocks and timeouts.
ALRSUSP	The number of suspensions.
QTXASLOC	The number of lock suspensions.
QTXASLAT	The number of latch suspensions.
QTXALOCK	The number of lock requests.
QTXAUNLK	The number of unlock requests.
QTXACHG	The number of change requests.
QTXALES	The number of lock escalations (shared).
QTXALEX	The number of lock escalations (exclusive).
QTXANPL	The maximum page locks held (high-water mark).
QTXACLNO	The number of claim requests.
QTXACLUN	The number of claim requests that were unsuccessful.
QTXADRNO	The number of drain requests.
QTXADRUN	The number of drain requests that were unsuccessful.

Package Data

Table 15. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QPACSQLC	The number of SQL statements issued in this package or DBRM.
QPACSCT	The class 7 elapsed time spent in DB2 executing the package or DBRM.
QPACTJST	The class 7 CPU time spent in DB2 executing the program.
ADLLPSSC	The number of lock or latch suspensions.
QPACAWTL	Waiting time for lock or latch suspensions.
ADIOPSSC	The total number of synchronous I/O suspensions.
QPACAWTI	The time spent waiting due to synchronous I/O suspensions.
ADARPSSC	The total number of suspensions due to read I/O performed under a thread other than the one being reported.
QPACAWTR	The time spent waiting due to read I/O performed under a thread other than the one being reported.
ADAWPSSC	The number of suspensions due to write I/O performed under a thread other than the one being reported.
QPACAWTW	The time spent waiting due to write I/O performed under a thread other than the one being reported.
ADSTPSSC	Suspensions due to synchronization execution unit switch to DB2 services from the thread being reported.
QPACAWTE	Waiting time due to synchronization execution unit switch to DB2 services.
ADDRPSSC	The total number of suspensions due to drain lock processing.
QPACAWDR	The time spent waiting due to drain lock suspensions.
ADTSUSCP	The total number of class 8 suspensions.
ADTSUSTP	The waiting time for all class 8 suspensions.
Note: All fields can be explicitly qualified by the package name (location, collection ID, package ID).	

Query Parallelism

Table 16. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QXMAXDEG	The maximum degree of parallel query processing executed among all the parallel groups to indicate the extent to which queries were processed in parallel.
QXTOTGRP	The number of parallel groups executed.
QXDEGCUR	The number of parallel groups which fall back to sequential mode due to cursor UPDATE/DELETE.
QXDEGESA	The total number of parallel groups which fall back to sequential mode due to a lack of ESA sort support.
QXDEGBUF	The total number of parallel groups which fall back to sequential mode due to storage shortage or contention on the buffer pool.
QXDEGENC	The total number of parallel groups which fall back to sequential mode due to unavailable enclave service.
ADTOTPFL	The total number of parallel groups which fall back to sequential mode.
QXREDGRP	The total number of parallel groups executed in reduced parallel degree due to a shortage of space or contention on the buffer pool.
QXNORGRP	The total number of parallel groups executed in the desired degree of parallel query processing.

Table 16. Accounting Keywords Used with the DISTRIBUTE Command (continued)

Keyword	Description
QWDAXCLM	The maximum number of DB2 members that participated in the processing of a query.
QWCOORNO	The total number of parallel groups executed on a single DB2 due to the COORDINATOR subsystem value being set to NO.
QXISORR	The total number of parallel groups executed on a single DB2 due to repeatable-read or read-stability isolation.
QXCRGTT	The number of CREATE GLOBAL TEMPORARY TABLE statements executed.

RID List Processing

Table 17. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QXMIAP	The number of times RID list processing was used.
QXNSMIAP	The number of times RID list processing was not used due to a shortage of storage space.
QXMRMIAP	The number of times RID list processing was not used due to one or more internal limits being exceeded.
ARTTERM	The number of times RID list processing was not used due to any reason.

SQL Activity

Table 18. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
QXSELECT	The number of SELECT statements executed.
QXINSRT	The number of INSERT statements executed.
QXUPDTE	The number of UPDATE statements executed.
QXDELET	The number of DELETE statements executed.
QXDESC	The number of DESCRIBE statements executed.
QXPREP	The number of PREPARE statements executed.
QXOPEN	The number of OPEN statements executed.
QXFETCH	The number of FETCH statements executed.
QXCLOSE	The number of CLOSE statements executed.
ASCDML	The total number of DML statements executed.
ASSIUDP	The sum of SELECT, UPDATE, INSERT, DELETE, and PREPARE statements.
ASSIUD	The sum of SELECT, UPDATE, INSERT, and DELETE statements.
ASIUD	The ratio of the sum of UPDATE, INSERT, and DELETE statements to the sum of commits and rollbacks.
ASOTHDML	The sum of other DML statements.
QXLOCK	The number of LOCK TABLE statements executed.
QXGRANT	The number of GRANT statements executed.
QXREVOK	The number of REVOKE statements executed.
ASCDCL	The total number of DCL statements executed.
ASTOTDEF	The total number of DCL and DDL statements.
ADTDDL	The number of DDL statements executed.

Timing Data

Table 19. Accounting Keywords Used with the DISTRIBUTE Command

Keyword	Description
ADRECETT	Class 1 (in application) elapsed time.
ADTCBT	Class 1 (in application) CPU time.
ADDB2ETT	Class 2 (in DB2) elapsed time.
ADDBTCBT	Class 2 (in DB2) CPU time.
ADTWTAP	Class 1 waiting time.
ADTWTDB	Class 2 waiting time.
ADLLSUSC	The number of lock or latch suspensions.
QWACAWTL	The time spent waiting due to lock or latch suspensions.
ADIOSUSC	The total number of synchronous I/O suspensions.
QWACAWTI	The time spent waiting due to synchronous I/O suspensions.
ADARSUSC	The total number of suspensions due to read I/O performed under a thread other than the one being reported.
QWACAWTR	The time spent waiting due to read I/O performed under a thread other than the one being reported.
ADAWSUSC	The total number of suspensions due to write I/O performed under a thread other than the one being reported.
QWACAWTW	The time spent waiting due to write I/O performed under a thread other than the one being reported.
ADSTSUSC	The total number of suspensions due to synchronous execution unit switch to DB2 services from the thread being reported.
QWACAWTE	The time spent waiting due to synchronous execution unit switch to DB2 services from the thread being reported.
ADDRSUSC	The total number of suspensions due to drain lock processing.
QWACAWDR	The time spent waiting due to drain lock suspensions.
ADTSUSC	The total number of class 3 suspensions.
ADTSUST	The time spent waiting for all class 3 suspensions.
ADSUCPU1	The class 1 CPU service unit time (in an application).
ADSUCPU2	The class 2 CPU service unit time (in DB2).

I/O Activity Keywords for the FIELDID Option

Note: This list does not include keywords added or altered by Version 6.

Table 20. I/O Activity Keywords Used with the DISTRIBUTE Command

Keyword	Description
IACRDIOE	Log read I/O elapsed time.
IACELPTM	Log writes elapsed time.
IACNOCCI	Log number of contiguous CIs.
IACALCET	Log allocate elapsed time.
IACDALET	Log deallocate elapsed time.
IACOPNET	Log open elapsed time.
IACCLSET	Log close elapsed time.

Table 20. I/O Activity Keywords Used with the DISTRIBUTE Command (continued)

Keyword	Description
IARWALLO	Archive wait for allocate elapsed time.
IARWDEAL	Archive wait for deallocate elapsed time.
IARWOPEN	Archive wait for open elapsed time.
IARWCLOS	Archive wait for close elapsed time.
IARWHSMR	Archive wait for HSM recall elapsed time.
IARWCLOC	Archive wait for catalog locate elapsed time.
IARWWTOR	Archive wait for WTOR issued elapsed time.
IARWDSUN	Archive wait for data set unavailable elapsed time.
IARWUUNI	Archive wait for unavailable physical unit.
IARWURST	Archive wait for unavailable reader service task.
IARWMDSV	Archive wait for multi-data set tape volume.
IARWPOSI	Archive wait for tape volume positioning.
IBPSUCET	Successful read elapsed time.
IBPNOPRD	Number of pages read.
IBPUSRET	Unsuccessful read elapsed time.
IBPTRDET	Total read elapsed time.
IBPSYNET	Synchronous number of write elapsed time.
IBPSYNPW	Synchronous number of pages written.
IBPASYET	Asynchronous write elapsed time.
IBPASYPW	Asynchronous number of pages written.
IEPCTHET	Cursor table header (CTH) elapsed time.
IEPCTHMC	Number of CTH data manager calls.
IEPCTHLS	Length of cursor table header section.
IEPCTDET	Cursor table directory (CTD) elapsed time.
IEPCTDMC	Number of CTD data manager calls.
IEPCTDLS	Length of cursor table directory section.
IEPCTRET	Cursor table RDS (CTR) elapsed time.
IEPCTRMC	Number of CTR data manager calls.
IEPCTRLS	Length of cursor table RDS section.
IEPDBDET	Database descriptor (DBD) elapsed time.
IEPDBDMC	Number of DBD data manager calls.
IEPDBDLS	Length of database descriptor section.
IEPPTHET	EDM package table header elapsed time.
IEPPTHMC	EDM package table header data manager calls.
IEPPTHLS	EDM package table header length of section.
IEPPTDET	EDM package table directory elapsed time.
IEPPTDMC	EDM package table directory data manager calls.
IEPPTDLS	EDM package table directory length of section.
IEPPTRET	EDM package table RDS section elapsed time.
IEPPTRMC	EDM package table RDS section data manager calls.

Table 20. I/O Activity Keywords Used with the DISTRIBUTE Command (continued)

Keyword	Description
IEPPTRLS	EDM package table RDS section length of section.
IARRIWET	Archive read I/O wait elapsed time (DASD/tape).
IARWTSET	Archive writes elapsed time.
IARNRBLK	Archive log number of blocks.
IARBSRET	Bootstrap data set reads elapsed time.
IARBSWET	Bootstrap data set writes elapsed time.

Locking Keywords for the FIELDID Option

Note: This list does not include keywords added or altered by Version 6.

Table 21. Locking Keywords Used with the DISTRIBUTE Command

Keyword	Description
LNRMLRET	Normal resume elapsed time.
LTIMOTET	Timeout resume elapsed time.
LDEDLKET	Deadlock resume elapsed time.

SQL Activity Keywords for the FIELDID Option

Note: This list does not include keywords added or altered by Version 6.

Table 22. SQL Activity Keywords Used with the DISTRIBUTE Command

Keyword	Description
SQLPREPE	Prepare statements elapsed time.
SQLPREPT	Prepare statements TCB time.
SQLOPENE	Open statements elapsed time.
SQLOPENT	Open statements TCB time.
SQLSELCE	Select statements elapsed time.
SQLSELCT	Select statements TCB time.
SQLINSRE	Insert statements elapsed time.
SQLINSRT	Insert statements TCB time.
SQLUPDTE	Update statements elapsed time.
SQLUPDTT	Update statements TCB time.
SQLDELTE	Delete statements elapsed time.
SQLDELTT	Delete statements TCB time.
SQLFETCE	Fetch statements elapsed time.
SQLFETCT	Fetch statements TCB time.
SQLCLOSE	Close statements elapsed time.
SQLCLOST	Close statements TCB time.
SQLDMLE	Any DML statements elapsed time.
SQLDMLT	Any DML statements TCB time.
SQLDDLE	Any DDL statements elapsed time.
SQLDDLT	Any DDL statements TCB time.

Keyword	Description
SQLDCLE	Any DCL statements elapsed time.
SQLDCLT	Any DCL statements TCB time.
SQLANYE	Any SQL statements elapsed time.
SQLANYT	Any SQL statements TCB time.

Utility Activity Keywords for the FIELDID Option

Note: This list does not include keywords added or altered by Version 6.

Table 23. Utility Activity Keywords Used with the DISTRIBUTE Command

Keyword	Description
TBRTOTAL	Total rebind.
TBRTOTLT	Total rebind time.
TBRBOUND	Total rebind bound.
TBRBONDT	Total rebind bound time.
TBRNBOND	Total rebind not bound.
TBRNBNDT	Total rebind not bound time.
TBBTOTAL	Total bind.
TBBTOTLT	Total bind time.
TBBBOUND	Total bind bound.
TBBBONDT	Total bind bound time.
TBBNBOND	Total bind not bound.
TBBNBNDT	Total bind not bound time.
TBFTOTAL	Total free bind.
TBFTOTLT	Total free bind time.
TBTOTALC	Total bind statements.
TBTRANST	Bind total transit time.
TUCHCK	Total Check utility time.
TUCHCK1I	Check Unload total items.
TUCHCK1T	Check Unload phase time.
TUCHCK2I	Check sort total items.
TUCHCK2T	Check sort phase time.
TUCHCK3I	Check Checkidx total items.
TUCHCK3T	Check Checkidx phase time.
TULOAD	Total Load utility time.
TULOAD1I	Load Reload total items.
TULOAD1T	Load Reload phase time.
TULOAD2I	Load sort total items.
TULOAD2T	Load sort phase time.
TULOAD3I	Load Buildidx total items.
TULOAD3T	Load Buildidx phase time.

Table 23. Utility Activity Keywords Used with the DISTRIBUTE Command (continued)

Keyword	Description
TULOAD4I	Load Indexval total items.
TULOAD4T	Load Indexval phase time.
TULOAD5I	Load Enforce total items.
TULOAD5T	Load Enforce phase time.
TULOAD6I	Load Discard total items.
TULOAD6T	Load Discard phase time.
TULOAD7I	Load Report total items.
TULOAD7T	Load Report phase time.
TURECV	Total Recover utility time.
TURECV1I	Recover Restore total items.
TURECV1T	Recover Restore phase time.
TURECV2I	Recover Logapply total items.
TURECV2T	Recover Logapply phase time.
TUREORG	Total Reorg utility time.
TUREOG1I	Reorg Unload total items.
TUREOG1T	Reorg Unload phase time.
TUREOG2I	Reorg Reload total items.
TUREOG2T	Reorg Reload phase time.
TUREOG3I	Reorg sort total items.
TUREOG3T	Reorg sort phase time.
TUREOG4I	Reorg build total items.
TUREOG4T	Reorg build phase time.
TUCHKD	Total Checkdat utility time.
TUCHKD1I	Checkdat Scantabu total items.
TUCHKD1T	Checkdat Scantabu phase time.
TUCHKD2I	Checkdat sort total items.
TUCHKD2T	Checkdat sort phase time.
TUCHKD3I	Checkdat Checkdat total items.
TUCHKD3T	Checkdat Checkdat phase time.
TUCHKD4I	Checkdat Reportck total items.
TUCHKD4T	Checkdat Reportck phase time.
TURCVI	Total Recovery utility time.
TURCVI1I	Recover Unload total items.
TURCVI1T	Recover Unload phase time.
TURCVI2I	Recover sort total items.
TURCVI2T	Recover sort phase time.
TURCVI3I	Recover build total items.
TURCVI3T	Recover build phase time.
TUCOPY	Total Copy utility time.
TUCOPYI	Total Copy utility items.

Keyword	Description
TUMERGE	Total Merge utility time.
TUMERGEI	Total Merge utility items.
TUMODIFY	Total Modify utility time.
TUREPAIR	Total Repair utility time.
TURUNSTA	Total Runstats utility time.
TURUNSTI	Total Runstats utility items.
TUSTOSPC	Total Stospace utility time.
TUSTOSPI	Total Stospace utility items.
TUDIAGT	Total Diagnose utility time.
TUQUIT	Total Quiesce utility time.
TUQUII	Total Quiesce utility items.
TURPTT	Total Report utility time.
TURPTI	Total Report utility items.

The GROUP Command

Using GROUP, you can define a named set of DB2 PM identifier values. A set name can contain values or lists of values for a particular DB2 PM identifier. When you request a report and specify this name in INCLUDE/EXCLUDE, the events for all individual items are consolidated into one. For example, you might request that all PRIMAUTHs used by the accounting department be reported under the set name *ACCTS*. Thus, the entire department is reported in one entry rather than in individual entries for each PRIMAUTH.

Sets can be used in the REDUCE and REPORT subcommands of the following report sets:
- Accounting
- I/O Activity
- Locking
- SQL Activity
- Utility Activity

Sets can also be used in the following report sets and commands, however, DB2 PM treats them as lists:
- Statistics
- Audit
- Record traces
- GLOBAL in all report sets
- FILE and TRACE in all report sets

The syntax of the GROUP command is shown in Figure 9 on page 61.

General Rules Regarding the Use of GROUP
- Each GROUP command defines one set.
- You can use as many GROUP commands as you wish.

- All values associated with a set must be for the same DB2 PM identifier.
- You can use more than one GROUP command for the same DB2 PM identifier.
- The combination of set name and DB2 PM identifier must be unique in the job step.

Rules Applying to the Use of GROUP with INCLUDE/EXCLUDE

- All set names that are referenced in INCLUDE/EXCLUDE must be defined by a GROUP command in the same job step.
- Set definitions are searched in the order in which they are entered in INCLUDE/EXCLUDE.
- If more than one set name is used in INCLUDE/EXCLUDE, and the sets contain common values, the data is assigned to the first set in which the value is found. When DB2 PM has found a value in a set, it does not attempt to find other occurrences of the same value.

```
►►──GROUP──(──DB2 PM identifier──(──set name──(──┬─ value ─────────────┬──)──)──)──────────────►◄
                                                 ├─ L(list name) ──────┤
                                                 └─ R(from value,to value)─┘
```
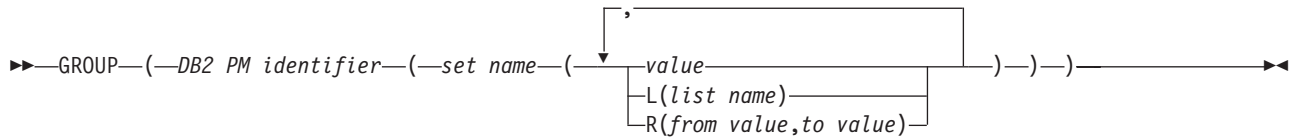
Figure 9. Syntax of the GROUP Command

Option Descriptions

The following options are available with the GROUP command:

DB2 PM identifier
>   The DB2 PM identifier that the set contains. Identifiers valid for the different report sets are shown in Table 24.

Table 24. DB2 PM Identifiers Used with GROUP

DB2 PM Identifier	Acct	I/O	Lock	Util	SQL
CONNECT	●	●	●	●	●
CONNTYPE	●	●	●	●	●
CORRNAME	●	●	●	●	●
CORRNMBR	●	●	●	●	●
DATABASE		●	●		
DATASET		●			
MAINPACK	●				
ORIGAUTH	●	●	●	●	●
PACKAGE	●				
PAGESET		●	●		
PLANNAME	●	●	●	●	●
PRIMAUTH or AUTHID	●	●	●	●	●
REQLOC	●	●	●	●	●

set name
>   The name of the set. It must be unique within the job step. Set names can consist of up to eight alphanumeric characters (A - Z, _, #, $, @, 0 - 9) with no embedded spaces. Set names must begin with a character in the range A to Z.

value   A value for the specified DB2 PM identifier.

>   DB2 PM identifier values must consist of the following characters: A - Z, #, $, @, >, <, or 0 - 9. If the value you want to include contains a character that is not in this list, use an asterisk in its place or place the string in quotes.

>   Except for the CONNTYPE identifier, a value can be specified in generic form. Place an asterisk (*) in the value to indicate that any value is valid. For example:

>   *****   Processes any value.

>   **ABCD***
>   >   Processes any value starting with ABCD.

*BCDE

> Processes any value in the first character position where the second, third, fourth, and fifth character positions contain BCDE.

**CDE Processes any value in the first and second character positions where the third, fourth, and fifth character positions contain CDE.

A*CDE

> Processes any value in the second character position where the first character position contains A, and the third, fourth, and fifth character positions contain CDE.

L Indicates that the following value is a list name. You cannot use the generic form for list names. For example, L(ABC*E) cannot be used.

R Denotes a range of values beginning with a *from* value and ending with a *to* value. The *from* value must be less than the *to* value. The generic form can be used only in the last character position in range values. For example, `R(AUTH1*,AUTH2*)` is acceptable, but `R(AUTH*1,AUTH*2)` is not.

Notes:

1. Quoted values can also be specified. Any quoted string is accepted, provided that it passes length and format checking.
2. Range cannot be specified for CONNTYPE.

Grouping Records

The record key for reduced data contains a number of DB2 PM identifiers. The DB2 PM identifiers contained in the key vary according to the report set.

When records are grouped, the set name of the records relating to grouped items is substituted for the original value of the specified DB2 PM identifier in the record key. When the substitution has been made, the records are not available for processing using the original key values.

The following examples illustrate how sets are processed.

Example 1: The following records are processed:

Location	Connection ID	Correlation Name	Correlation Number	Plan Name	Primary Authorization ID
LOCATION_1	TSO	USER_1	0	PLAN_1	ACCOUNTS
LOCATION_1	TSO	USER_2	0	PLAN_1	ACCOUNTS
LOCATION_1	TSO	USER_3	0	PLAN_2	ACCOUNTS
LOCATION_1	TSO	USER_4	0	PLAN_3	ACCOUNTS
LOCATION_1	TSO	USER_4	0	PLAN_4	ACCOUNTS

The following DB2 PM command stream example groups three of the four plans:

```
      .
      .
      .
//SYSIN DD *
GROUP (
PLANNAME (
   PLANGRP (
    PLAN_1
    PLAN_2
    PLAN_3
    )
  )
  )
      .
      .
      .
EXEC
```

This establishes a set named PLANGRP that you can use in INCLUDE/EXCLUDE on REDUCE and REPORT.

The stage of processing when the key value substitution takes place depends on where you include the set:

- You can use sets on GLOBAL(INCLUDE) to include records for grouped items. No substitution takes place during preprocessing, but the input records for the grouped items are included as if you entered each item.

  Note: When using sets on GLOBAL, remember that the GLOBAL INCLUDE/EXCLUDE specification becomes the default for all other commands in the job step. GLOBAL INCLUDE is illustrated in the following example:
  The following records are available for further processing:

```
      .
      .
      .
//SYSIN DD *
GROUP (
PLANNAME (
   PLANGRP (
    PLAN_1
    PLAN_2
    PLAN_3
    )
  )
  )
GLOBAL
INCLUDE (
   PLANNAME (G(PLANGRP))
)
      .
      .
      .
EXEC
```

Location	Connection ID	Correlation Name	Correlation Number	Plan Name	Primary Authorization ID
LOCATION_1	TSO	USER_1	0	PLAN_1	ACCOUNTS
LOCATION_1	TSO	USER_2	0	PLAN_1	ACCOUNTS
LOCATION_1	TSO	USER_3	0	PLAN_2	ACCOUNTS
LOCATION_1	TSO	USER_4	0	PLAN_3	ACCOUNTS

- When you use the set name on REDUCE(INCLUDE), the set name is substituted for the original value of the identifier in the key during REDUCE processing. The reduced data contains only the grouped records. You cannot process data using

the original key values in REPORT, and only the records for the set are stored in the save data set.

```
         ⋮
//SYSIN DD *
GROUP (
PLANNAME (
   PLANGRP (
    PLAN_1
    PLAN_2
    PLAN_3
    )
 )
 )
GLOBAL
INCLUDE (
   PLANNAME (G(PLANGRP))
)
ACCOUNTING
REDUCE
   INCLUDE (PLANNAME (G(PLANGRP)))
SAVE
         ⋮
EXEC
```

- When you use the set name on GLOBAL(INCLUDE), it acts as the default for subcommands without an INCLUDE specification. The result for the following example is the same as the result for the preceding example. The records are grouped during REDUCE processing using the GLOBAL(INCLUDE) default.

```
         ⋮
//SYSIN DD *
GROUP (
PLANNAME (
   PLANGRP (
    PLAN_1
    PLAN_2
    PLAN_3
    )
 )
 )
GLOBAL
INCLUDE (
   PLANNAME (G(PLANGRP))
)
ACCOUNTING
REDUCE
SAVE
         ⋮
EXEC
```

The reduced data and the save data set contain the following record:

Location	Connection ID	Correlation Name	Correlation Number	Plan Name	Primary Authorization ID
LOCATION_1	TSO	USER_1	0	PLANGRP	ACCOUNTS

- When you use the set name on REPORT(INCLUDE), the records for grouped items are consolidated during report processing. In the following examples, the REDUCE subcommand specification overrides the GLOBAL default. All records

that pass data filtering are included in the save data set because they are not grouped during REDUCE processing.

```
    ⋮
//SYSIN DD *
GROUP (
PLANNAME (
   PLANGRP (
    PLAN_1
    PLAN_2
    PLAN_3
    )
 )
 )
GLOBAL
INCLUDE (
   PLANNAME (G(PLANGRP))
)
ACCOUNTING
REDUCE
   INCLUDE (PLANNAME(*))
REPORT
   INCLUDE (PLANNAME(G(PLANGRP)))
SAVE
    ⋮
EXEC
```

In the following example, the set name on GLOBAL(INCLUDE) acts as the default for the REPORT subcommand. The result is the same as for the previous example.

```
    ⋮
//SYSIN DD *
GROUP (
PLANNAME (
   PLANGRP (
    PLAN_1
    PLAN_2
    PLAN_3
   )
 )
 )
GLOBAL
INCLUDE (
   PLANNAME (G(PLANGRP))
)
ACCOUNTING
REDUCE
   INCLUDE (PLANNAME(*))
REPORT
SAVE
    ⋮
EXEC
```

The accounting report contains the following entry:

Location	Connection ID	Correlation Name	Correlation Number	Plan Name	Primary Authorization ID
LOCATION_1	TSO	USER_1	0	PLANGRP	ACCOUNTS

The save data set contains the following records:

Location	Connection ID	Correlation Name	Correlation Number	Plan Name	Primary Authorization ID
LOCATION_1	TSO	USER_1	0	PLAN_1	ACCOUNTS
LOCATION_1	TSO	USER_2	0	PLAN_1	ACCOUNTS
LOCATION_1	TSO	USER_3	0	PLAN_2	ACCOUNTS
LOCATION_1	TSO	USER_4	0	PLAN_3	ACCOUNTS

Example 2: In this example, two reports are generated. The first presents set items individually. In the second report, records are grouped. The REDUCE subcommand specification again overrides the GLOBAL default, so all records that pass preprocessing are included in the save data set.

```
   ⋮
//SYSIN DD *
GROUP (
PLANNAME (
   PLANGRP (
    PLAN_1
    PLAN_2
    PLAN_3
    )
 )
 )
GLOBAL
INCLUDE (
   PLANNAME (G(PLANGRP))
)
ACCOUNTING
REDUCE
   INCLUDE (PLANNAME(*))
REPORT
   INCLUDE (PLANNAME(*))
REPORT
   INCLUDE (PLANNAME(G(PLANGRP)))
SAVE
   ⋮
EXEC
```

In the following example, the set name on GLOBAL(INCLUDE) acts as the default for the second REPORT subcommand. The result is the same as for the previous example.

```
         ⋮
//SYSIN DD *
GROUP (
PLANNAME (
   PLANGRP (
    PLAN_1
    PLAN_2
    PLAN_3
    )
 )
 )
GLOBAL
INCLUDE (
   PLANNAME(G(PLANGRP))
)
ACCOUNTING
REDUCE
   INCLUDE (PLANNAME(*))
REPORT
   INCLUDE (PLANNAME(*))
REPORT
SAVE
         ⋮
EXEC
```

The LIST Command

The LIST command is available in all report sets. Using the LIST command, you
can define a named list of values for a DB2 PM identifier, and use the list name in
INCLUDE or EXCLUDE instead of entering each list item. A list can contain values
or lists of values for a particular DB2 PM identifier. Items in a list are treated
independently, as if they were entered individually in INCLUDE or EXCLUDE.

Rules for the List Command

General Rules
- Each LIST command defines one list.
- You can use as many LIST commands as you wish.
- All values itemized in a list must be for the same DB2 PM identifier.
- You can use more than one LIST command for the same DB2 PM identifier.
- The combination of list name and DB2 PM identifier must be unique in the job
  step.

Rules for the Use of LIST with INCLUDE/EXCLUDE
- List definitions are searched in the order in which they were entered in
  INCLUDE/EXCLUDE.
- All list names that are referenced in INCLUDE/EXCLUDE must be defined by a
  LIST command in the same job step. Those list names that are not defined by a
  LIST command are ignored during INCLUDE/EXCLUDE processing.

```
             ┌──────────────────────,──────────────────────────┐
►►─LIST─(─DB2 PM identifier─(─list name─(─▼─┬─value─────────────────┬─)─)─)──────────────►◄
                                           ├─L(list name)──────────┤
                                           ├─G(set name)───────────┤
                                           └─R(from value,to value)┘
```
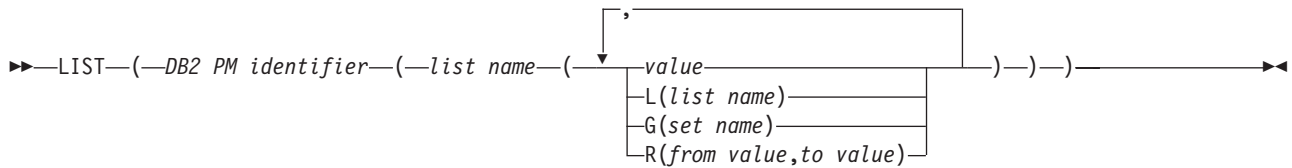
Figure 10. Syntax of the LIST Command

Option Descriptions

The following options are available with the LIST command:

DB2 PM identifier
> The DB2 PM identifier that the list contains. Any DB2 PM identifier can be used with the LIST command except FIELD.

list name
> The name of the list. The combination of list name and DB2 PM identifier must be unique in the job step. List names can consist of up to eight alphanumeric characters (A - Z, _, #, $, @, 0 - 9) with no embedded spaces. List names must begin with a character in the range A to Z.

set name
> The name of the set. It must be unique within the job step. Set names can consist of up to eight alphanumeric characters (A - Z, _, #, $, @, 0 - 9) with no embedded spaces. Set names must begin with a character in the range A to Z.

value   A value for the specified DB2 PM identifier.

> DB2 PM identifier values must consist of the following characters: A - Z, _, #, $, @, >, <, or 0 - 9. If the value you want to include contains a character that is not in this list, use an asterisk in its place.

> Except for the INSTANCE identifier, a value can be specified in generic form. Place an asterisk (*) in the value to indicate that any value is valid. For example:

> *****   Processes any value.

> **ABCD***
>> Processes any value starting with ABCD.

> ***BCDE**
>> Processes any value in the first character position where the second, third, fourth, and fifth character positions contain BCDE.

> ****CDE**   Processes any value in the first and second character positions where the third, fourth, and fifth character positions contain CDE.

> **A*CDE**
>> Processes any value in the second character position where the first character position contains A, and the third, fourth, and fifth character positions contain CDE.

L   Denotes that the following value is a list name. You cannot use the generic form for list names. For example, L(ABC*E) cannot be used.

> The L(list name) option cannot specify the list name for this LIST command.

G   Denotes that the following value is a set name. You cannot use the generic form for set names. For example, G(ABC*E) cannot be used.

R   Denotes a range of values beginning with a *from* value and ending with a *to* value. The *from* value must be less than the *to* value. The generic form can be used only in the last character position in range values. For example, R(AUTH1*,AUTH2*) is acceptable, but R(AUTH*1,AUTH*2) is not.

Example Using the LIST Command

```
//SYSIN DD *
LIST
   (PRIMAUTH(AUTHLST5(R(USER01,USER05),USER11)))
ACCOUNTING
TRACE
   INCLUDE (PRIMAUTH(L(AUTHLST5)))
EXEC
```

This example requests the following:

- The name of the list is AUTHLST5.
- The primary authorization IDs (PRIMAUTH) associated with this list definition are:
  - USER01 through USER05
  - USER11.

The FIELD Command

The FIELD command is used only with the INCLUDE/EXCLUDE option of the record traces. Using FIELD, you define the location of the data in a particular IFCID type, a comparison operator, and a value against which to compare the data. The DB2 PM record traces produced include or exclude those records that meet the comparison value. For example:

```
   ⋮
//SYSIN DD *
FIELD (
  QW0018ID,
  18,
  2,
  0,
  3,
  C,
  EQ,
  INDX
 )
RECTRACE
TRACE
  LEVEL   (SHORT)
  INCLUDE (IFCID(18)
    FIELD   (QW0018ID))
   ⋮
EXEC
```

This example reads the scan end record IFCID 18, looking for all records that contain index data (INDX). It produces a short record trace containing only those scan end records that meet this condition.

Effective use of the FIELD command requires a detailed knowledge of the DB2 IFCID record formats.

You can specify the following with FIELD:

- A value you want used as a comparison value
- A location within a particular type of performance input record (identified by IFCID) that you want compared to the comparison value
- The type of comparison that you want to make between the previous two values (that is, data in the record equal to the comparison value)

The decision to include a record in the trace is based on whether the comparison was true or false (see Table 25) and whether the field name for the field definition was referenced in an INCLUDE or an EXCLUDE statement.

Table 25. Comparison Values

Comparison True?	Field name Location	Decision
Yes	in INCLUDE	Record is used in the trace.
No	in INCLUDE	Record is not used in the trace.
Yes	in EXCLUDE	Record is not used in the trace.
No	in EXCLUDE	Record is used in the trace.

```
►►──FIELD──(──name──IFCID──self defining section──offset──repeating group──type──┬──EQ──┬──────────────────►
                                                                                  ├──NE──┤
                                                                                  ├──GE──┤
                                                                                  ├──LE──┤
                                                                                  ├──GT──┤
                                                                                  └──LT──┘

►──comparison value──)────────────────────────────────────────────────────────────────────────────────►◄
```
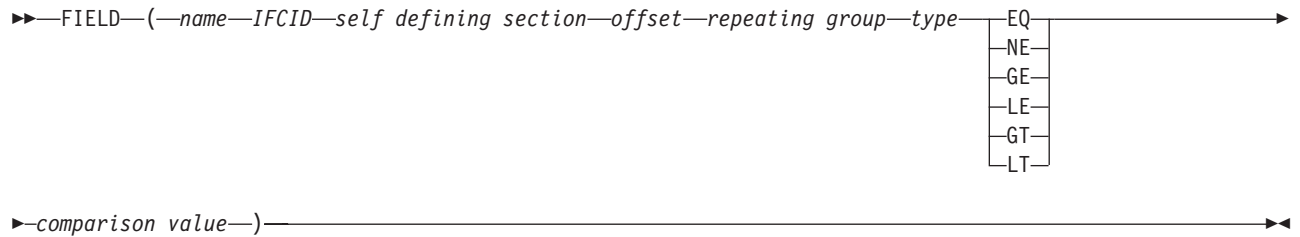
Figure 11. Syntax of the FIELD Command

Option Descriptions

The following options are required with the FIELD command:

field name
An 8-character name identifying a particular field.

IFCID number
The decimal IFCID number of the performance record.

self defining section number
The decimal number identifying the self-defining data section which points to the data section containing the field to be compared. If the value is 0, the self-defining section identified is the first one that points to the product section. If the value is 1, the self-defining section is the first one that points to a data section.

offset of data in data section
The decimal offset into the data section of the starting byte of the record field to be compared.

repeating group number
The number of repeating data sections in which the comparison is made. If this field contains a value of 0, the comparison is made in all repeating data sections. If the value is for example 12, the self-defining section is the twelfth one which points to a data section.

Valid values are 0-99.

field type
A character indicating the type of data to be compared:

C   character data

X   hexadecimal data

F   fullword binary data

H   halfword binary data.

comparison types
The type of comparison to be made between the field in the performance record and the comparison value in the definition:

EQ   equal to

NE   not equal to

GE   greater than or equal to

LE   less than or equal to

GT   greater than

LT   less than.

comparison value

The value to be compared to the defined field in the performance record:

Character data

Up to 16 characters can be entered. Character data containing blanks must be enclosed in single quotation marks. The quotation marks cannot be part of the comparison value.

Hexadecimal data

This value or constant represents a hexadecimal value, such as 0001D0F2. Up to 8 characters can be specified. Do not enclose the value in quotation marks.

Fullword binary

This data is converted into a fullword binary value. It is limited to the maximum value allowed in a fullword field.

Halfword binary

This data is converted into a halfword binary value. It is limited to the maximum value allowed in a halfword field.

Example Using the FIELD Command

```
FIELD (
    QXSELECT,
    003,
    02,
    008,
    0,
    F,
    GT,
    100
    )
```

This example requests the following:

- The name attributed to this field comparison is QXSELECT.
- The IFCID of the input record in which this comparison is made is 003.
- The data section containing the data to be compared is defined by the second self-defining section.
- The data to be compared is at decimal offset 008 in the data section.
- The comparison is to be made in all occurrences of that data section (0).
- The data to be compared is a fullword binary value (F).
- The comparison is made as to whether the data in the data section is greater than the comparison value.
- The comparison value is 100 in fullword binary format.

Chapter 5. Troubleshooting Commands

This chapter describes the troubleshooting commands DUMP and TAPECOPY. The options for these commands are almost identical. DUMP and TAPECOPY can each occur once in a job step.

The DUMP Command

The DUMP command is a tool used for diagnosis. It provides, in dump format, a printout of an input data set. All records in the input data set, a selected range of records, or specific record types can be dumped.

The DUMP command defines options for the record dump module. Dumps are written to SYSPRINT in a hexadecimal dump format.

```
                                  ┌──────────────────────────────────────┐
►►────────────────DUMP──(──┬──┬──EXEC──(──INPUTDD──)──┬──────────────────┴──)────────►◄
    └─dump name─┘           │  │                4     │
                            │  ├─OFFSET──(──┬──────────┬──)─┘
                            │  │            └─integer──┘
                            │  │              ┌──────────┐
                            │  ├─CODES──(──┬──codelist──┴──)─┘
                            │  │           0
                            │  ├─SKIP──(──┬──────────┬──)─┘
                            │  │          └─integer──┘
                            │  │               0
                            │  ├─STOPAFT──(──┬──────────┬──)─┘
                            │  │             └─integer──┘
                            │  │              whole record
                            │  └─MAXDUMP──(──┬──────────────┬──)─┘
                            │                └─integer──────┘
```
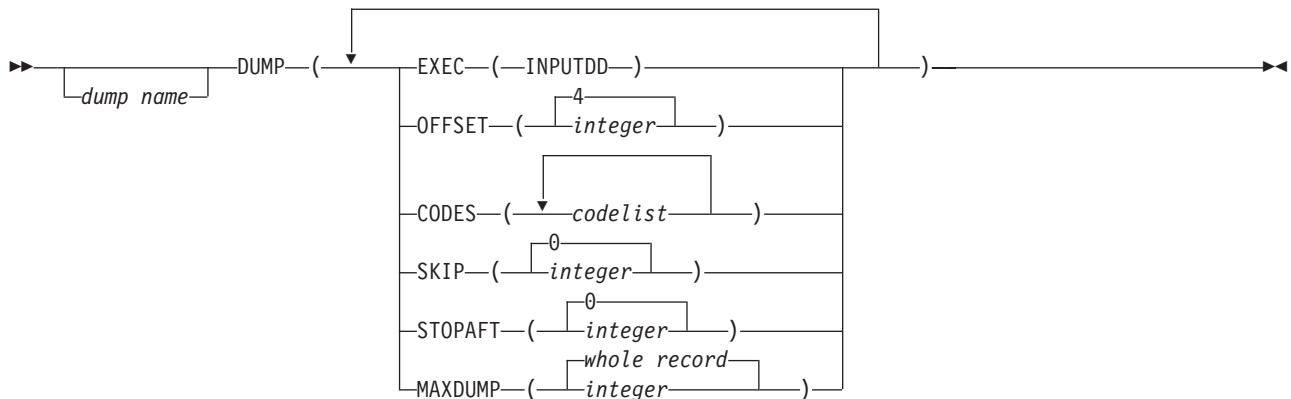
Figure 12. Syntax of the DUMP Command

Option Descriptions

The following options are used with the DUMP command:

dump name
A user-defined name printed on the dump. If this field is omitted, the records are identified with the name DUMP0001.

> **Important Note**
> The dump name specified cannot be the same as a DB2 PM command keyword or abbreviation.

EXEC Specifies INPUTDD as the ddname of the input data set. INPUTDD is the only valid ddname for this option and must be specified.

OFFSET
The offset of the record code into the record. The record code is a 1-byte field at position offset-plus-1. For example, OFFSET(4) defines a record code in the fifth byte of the record. The offset must be a numeric value less than the actual length of the record. The maximum value is 999 999 999. The default is 4.

CODES
The code values for records to be processed. Each code is a 2-digit hexadecimal number. You can specify either of the following:

A list of values:

        '01,02,03'

or a range of values:

     '01-03,05-07'

Each entry must be separated by a comma. Enclose the code list in quotes if more than one value is specified.

Note: If this option is omitted, all record codes (00-FF) are processed.

SKIP The number of records to be skipped before processing begins. The maximum value is 999 999 999.

The default is 0. If 0 is specified, processing begins with the first record.

STOPAFT

The number of records to be processed, starting after the number of records to be skipped (SKIP option). The maximum value is 999 999 999.

The default is 0. This causes all records (after skipping, if specified) to be processed.

MAXDUMP

The length of the dump in bytes, starting from the beginning of the record. The default is the full length of the record. You can enter any integer in the range of 1 to 99 999. For example, if you specify `MAXDUMP(128)`, only the first 128 bytes of input records are dumped.

Note: Some IFCID records can be up to 32 KB in length. If you use the default for MAXDUMP (the entire record), very large reports can be produced.

Example Using DUMP

```
DUMPSTAT DUMP (
EXEC    (INPUTDD)
OFFSET  (4)
CODES   ('01,02')
SKIP    (125)
STOPAFT (10)
MAXDUMP (1000))
```

In this example:

- The DUMP is named DUMPSTAT.
- The ddname of the input data set is INPUTDD (the GLOBAL default).
- The offset of 4 defines a record code in the fifth byte of the record.
- Only records with a value of 01 or 02 in the fifth byte are dumped.
- The first 125 records of the input data set are skipped.
- The next 10 records that meet the specifications are dumped.
- Only the first 1000 bytes of each record are dumped.

The TAPECOPY Command

The TAPECOPY command is a utility tool that you can use to select a specified subset or all records from an input data set, and copy them to an output data set. The selection logic is identical to that used for the DUMP command.

The TAPECOPY command defines options for the data set copy module. Copies of selected portions of the input data set are produced on a user-specified output data set.
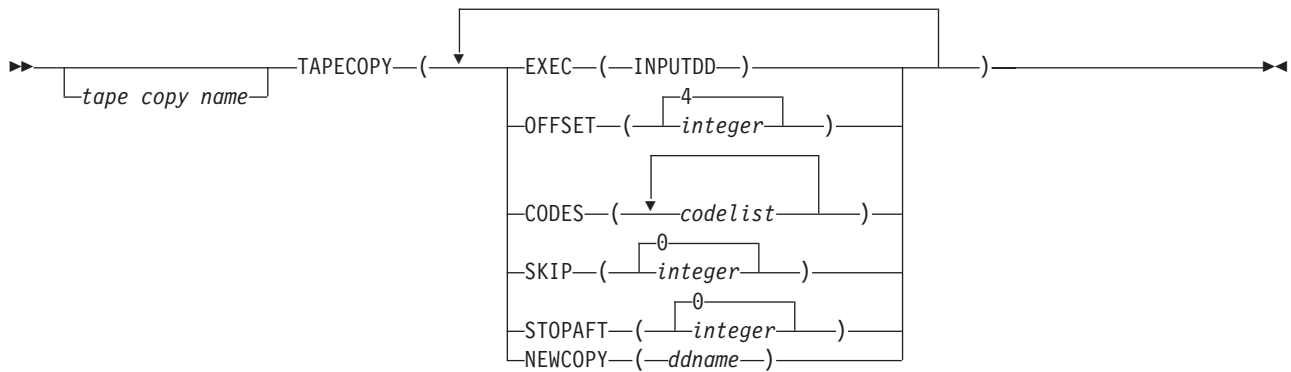
Figure 13. Syntax of the TAPECOPY Command

Option Descriptions

The following options are used with the TAPECOPY command:

tape copy name
A user-defined name identifying the records copied. If this field is omitted, the records are identified by the name COPY0001.

> **Important Note**
>
> The tape copy name specified cannot be the same as a DB2 PM command keyword or abbreviation.

EXEC Specifies INPUTDD as the ddname of the input data set. INPUTDD is the only valid ddname for this option and must be specified.

OFFSET
The offset of the record code into the record. The record code is a 1-byte field at position offset-plus-1. For example, OFFSET(4) defines a record code in the fifth byte of the record. The offset must be a numeric value less than the actual length of the record. The maximum value is 999 999 999. The default is 4.

CODES
The code values for records to be processed. Each code is a 2-digit hexadecimal number. You can specify either of the following:

A list of values:

        '01,02,03'

or a range of values:

     '01-03,05-07'

Each entry is separated by a comma. Enclose the code list in quotes if more than one value is specified.

Note: If this option is omitted, all record codes (00-FF) are processed.

SKIP The number of records that are skipped before processing begins. The maximum value is 999 999 999.

The default is 0. If 0 is specified, processing begins with the first record.

STOPAFT

> The number of records to be processed, starting after the number of records to be skipped (SKIP option). The maximum value is 999 999 999.

> The default is 0. This causes all records (after skipping, if specified) to be processed.

NEWCOPY

> The ddname of the output data set. The default is TAPECOPY.

Example Using TAPECOPY

```
COPYSTAT TAPECOPY(
EXEC     (INPUTDD)
OFFSET   (4)
CODES    ('01,02')
SKIP     (50)
STOPAFT  (10)
NEWCOPY  (OUTDATA))
```

In this example:

- The TAPECOPY is named COPYSTAT.
- The ddname of the input data set is INPUTDD (the GLOBAL default).
- The offset of 4 defines a record code in the fifth byte of the record.
- Only records with a value of 01 or 02 in the fifth byte are copied.
- The first 50 records of the input data set are skipped.
- The next 10 records that meet the specifications are copied.
- The ddname of the output data set is OUTDATA.

Sample JCL for DUMP and TAPECOPY Commands

Figure 14 shows a sample JCL for the DUMP and TAPECOPY commands.

```
//TPCDUMP1 JOB    (INSTALLATION DEPENDENCIES)
//*
//*
//****************************************************************
//*
//*
COPY INPUT DATA FILE TO SYSPRINT OR AN OUTPUT DATA FILE
//*
//****************************************************************
//*
// EXEC PGM=DGO
//STEPLIB  DD  DSN=DGO.V6R1M0.SDGOLMDO,DISP=SHR
//SYSPRINT DD  SYSOUT=X
//SYSOUT   DD  SYSOUT=X
//*
//*
---    INPUT DATA SET    ---
//*
//INPUTDD  DD  DSN=DGO.V6R1M0.INPUT1,DISP=SHR
//*
//*
---    OUTPUT DATA SET   ---
//*
//OUTDATA  DD  DSN=DGO.V6R1M0.OUTPUT1,
//         DISP=(NEW,CATLG),
//         UNIT=SYSDA,SPACE=(TRK,(10,10),RLSE),
//         DCB=(RECFM=VB,LRECL=4092,BLKSIZE=4096)
//*
//SYSIN    DD  *
*
*
---   TAPECOPY COMMAND EXAMPLE   ---
*
COPY0001 TAPECOPY (EXEC(INPUTDD),SKIP(125),STOPAFT(10),NEWCOPY(OUTDATA))
*
*
*
---   DUMP COMMAND EXAMPLE    ---
*
DUMP0001 DUMP (EXEC(INPUTDD),SKIP(125),STOPAFT(10),MAXDUMP(1000))
EXEC
*
*
```

Figure 14. Sample JCL for the DUMP and TAPECOPY Commands

The command syntax shown in the preceding figure is not appropriate in all circumstances. You must modify it to meet your requirements and system setup.

Part 3. DB2 PM Logs

This part of the *DB2 PM Report Reference* describes the DB2 PM logs. It is divided into the following chapters:

- "Chapter 6. Introduction to the DB2 PM Logs" on page 81 describes the purpose of the various logs, where they get their information, and how the logs are generated.

- "Chapter 7. DPMLOG Execution Log" on page 83 describes the DPMLOG execution log, provides an example, and defines the fields included in the log.

- "Chapter 8. Exception Log" on page 85, describes the exception log, provides an example, and defines the fields included in the log.

- "Chapter 9. Job Summary Log" on page 91 describes the job summary log, provides an example, and defines the fields included in the log.

- "Chapter 10. IFCID Frequency Distribution Log" on page 95 describes the IFCID frequency distribution log, provides an example, and defines the fields included in the log.

DB2 PM Logs

Chapter 6. Introduction to the DB2 PM Logs

The DB2 PM logs provide summarized information about various events during DB2 PM execution. You can save some of this summarized information for use in later processing. The following events are reported:

- Records in exception status
- DB2 START/STOP TRACE commands
- Reduction interval completion by report set
- SAVE subcommand completion by report set
- RESTORE subcommand completion by report set
- Errors and messages
- IFCID record distribution

How Logs Are Generated

The DB2 PM logs are generated automatically for each DB2 PM execution, provided there are valid DD statements in your JCL. To prevent generation of these logs, omit the ddname from your JCL (the preferred method), or specify DUMMY in the definition.

Types of DB2 PM Logs

There are four DB2 PM logs:

- The *DPMLOG execution log* provides a listing of messages issued during command stream validation and DB2 PM initialization. It also reports any errors during the execution of DB2 PM.
- The *exception log* provides a listing identifying accounting and statistics records with at least one field containing a value outside user-specified limits.
- The *job summary log* includes the following occurrences in DB2 PM processing:
  - Detection of a DB2 START TRACE or DB2 STOP TRACE command
  - Reduction interval completion by report set
  - SAVE subcommand completion by report set
  - RESTORE subcommand completion by report set
  - Key error and warning messages.
- The *IFCID frequency distribution log* provides the count of the input and processed trace records accumulated by IFCID. For each IFCID, a percentage of the total number of input and processed records is calculated.

Chapter 7. DPMLOG Execution Log

The DPMLOG execution log shows:

- Messages issued during DB2 PM initialization
- Command stream syntax errors
- Information, warning, and error messages issued during processing

How the DPMLOG Execution Log Is Generated

If the DPMLOG DD statement is omitted, such a statement is dynamically allocated and the output is directed to the default SYSOUT class specified for the job.

Example of the DPMLOG Execution Log

Figure 15 shows an example of a SYSPRINT message log.

```
                                   DB2 PERFORMANCE MONITOR (V6)                                PAGE: 1
                                        EXECUTION LOG                                      RUN DATE: 06/05


MSG.ID.    DESCRIPTION
---------  -----------------------------------------------------------------------------------------------
DGOC2001I  DB2 PM COMMAND INPUT FROM DDNAME SYSIN

           ACCOUNTING

               REDUCE

                   INTERVAL (5)

               REPORT

                   ORDER    (INTERVAL)

           EXEC
DGOC1999I  SYSTEM INITIALIZATION COMPLETE. RETURN CODE 0

DGOC0999I  DB2 PM EXECUTION COMPLETE. RETURN CODE 0
```

Figure 15. Execution Log

The following sections describe the header and the fields in the DPMLOG execution log.

The DPMLOG Execution Log Header

This header contains the following information, described in the order middle block, right block:

DB2 PERFORMANCE MONITOR (V6)
　　　The produce name and version.

EXECUTION LOG
　　　The name of the log report.

PAGE The page number.

RUN DATE
The date and time of the DB2 PM job generating the log. The default format is *mm/dd/yy hh:mm:ss.th*, which can be changed with the DATEFORMAT parameter.

Field Descriptions

The descriptions start with the left block.

MSG.ID.
The message identification in the format *DGOcnnnni*, where:

- *DGO* is the product code for DB2 PM
- *c* is the DB2 PM module component code
- *nnnn* is the error message number
- *i* is an action code with possible values of:
  - I (informational)
  - W (warning)
  - E (error)
  - S (severe error)
  - U (unrecoverable error)

DESCRIPTION
The complete text of the error message.

Chapter 8. Exception Log

The exception log identifies and lists accounting and statistics records with at least one field outside user-specified limits. It gives you the means to identify DB2 threads and statistics intervals that contain fields with exceptional values. This helps you recognize performance problems in the DB2 subsystem and in threads.

Exception processing is accomplished by setting values in the exception threshold data set. You can define exception thresholds for specific accounting and statistics fields. When exception processing is requested, the instrumentation data is checked against these values. Only records with at least one field containing a value outside the user-specified limits are reported.

The exception log file data set is a sequential data set suitable for use by the DB2 load utility. It contains a listing of accounting and statistics exception records identical to the listing in the exception log.

Refer to "Part 5. Exception Processing" on page 153 for a description of the exception threshold data set and the exception log file data set.

Exception traces are available in the accounting (refer to "Chapter 26. Accounting Report and Trace Blocks" on page 255) and statistics (refer to "Chapter 34. Statistics Report and Trace Blocks" on page 441) report sets. Each of these relates separately to accounting or statistics data. The exception log reports accounting and statistics trace exceptions in the same report, in timestamp order. This helps you identify:

- Applications that might be causing exceptional conditions in the DB2 subsystem
- Exceptional DB2 subsystem conditions that might be causing thread performance problems

Although accounting and statistics exception reports are available in addition to traces, report entries are neither listed in the exception log nor stored in the exception log file data set.

> **Input to Exception Logs**
> DB2 statistics and accounting trace records with IFCID 1 and 2 (statistics) and IFCID 3 and 239 (accounting) are used as input to the exception log.

How the Exception Log Is Generated

There is no DB2 PM command to generate the exception log. The exception log is generated automatically for a DB2 PM execution when the following DD statements are defined in your JCL:
- EXCPTDD - exception threshold data set
- EXTRCDD1 - exception log

To prevent generation of the exception log, omit the EXTRCDD1 statement from your JCL (the preferred method), or specify DUMMY in the definition.

The amount of data reported in the exception log can be controlled by the GLOBAL INCLUDE/EXCLUDE and FROM/TO specifications.

Example of the Exception Log

Figure 16 shows an example of an exception log.

```
   LOCATION: LOCA1_LAB                      DB2 PERFORMANCE MONITOR (V6)                    PAGE: 1-1
      GROUP: N/P                                  EXCEPTION LOG
     MEMBER: N/P
  SUBSYSTEM: DB1G                                                              ACTUAL FROM: 06/30/99
20:34:09.92
DB2 VERSION: V6                                                                PAGE DATE: 06/30/99


                                                                         CALCULATED          THRESHOLD
PRIMAUTH CONNECT  EXCEPTION TIME   PER                                    OR      OP  VALUE    TYPE
ORIGAUTH CORRNAME INSTANCE             FIELD ID FIELD DESCRIPTION      BY  FIELD VALUE
PLANNAME CORRNMBR CONNTYPE
-------- -------- --------------- ---- -------- -------------------------------- ------ ------------ - ------------ ----
ADMF001  BATCH    20:34:09.925838 PLAN ADCPUT   CPU TIME IN APPLICATION (CLASS 1)  TOTAL    0.328675 > 0             PROB
ADMF001  L282DML  X'A981C569657F'      ADRECETT ELAPSED TIME IN APPLICATION (CLASS 1) TOTAL 3.613503 > 0            PROB
DSNTEP3  'BLANK'  TSO                  ADTDDL   TOTAL SQL DDL STATEMENTS           TOTAL           0 < 1             WARN
MAINPACK:DSNTEP3                       ADTOTPFL TOTAL PARALL.GROUPS FELL TO SEQUENTIAL TOTAL       0 < 1            WARN
                                      ADTWTAP  TOTAL WAIT TIME IN APPLICATION (CLASS 1) TOTAL 3.284828 > 0          PROB
                                      ALCLKET  TOTAL LOCK ESCALATIONS             TOTAL           0 < 1             WARN
                                      ALLPSUSP TOTAL ALL SUSPENSIONS (LOCAL AND GLOBAL) TOTAL     0 < 1            WARN
                                      ALRSUSP  TOTAL ALL SUSPENSIONS              TOTAL           0 < 1             WARN
                                      ARTTERM  RID LIST TERMINATED - ANY REASON   TOTAL           0 < 1             WARN
                                      ASCDCL   TOTAL SQL DCL STATEMENTS           TOTAL           1 > 0             PROB
                                      ASCDML   TOTAL SQL DML STATEMENTS           TOTAL          27 > 0             PROB
                                      ASIUD    TOTAL INSERTS, UPDATES AND DELETES TOTAL           0 < 1             WARN
                                      QTXACLUN CLAIM REQUESTS UNSUCCESSFUL        TOTAL           0 < 1             WARN
                                      QTXADEA  DEADLOCKS                          TOTAL           0 < 1             WARN
                                      QTXADRUN DRAIN REQUESTS UNSUCCESSFUL        TOTAL           0 < 1             WARN
                                      QTXALES  LOCK ESCALATIONS - SHARED          TOTAL           0 < 1             WARN
                                      QTXALEX  LOCK ESCALATIONS - EXCLUSIVE       TOTAL           0 < 1             WARN
                                      QTXANPL  MAXIMUM PAGE LOCKS HELD            TOTAL           7 > 0             PROB
                                      QTXASLOC LOCK SUSPENSIONS                   TOTAL           0 < 1             WARN
                                      QTXATIM  TIMEOUTS                           TOTAL           0 < 1             WARN
                                      QWACABRT ROLLBACKS                          TOTAL           0 < 1             WARN
                                      QWACCOMM COMMITS                            TOTAL           1 > 0             PROB
                                      QXCALLAB STORED PROCEDURE ABENDS            TOTAL           0 < 1             WARN
                                      QXCALLRJ CALL STATEMENT REJECTS             TOTAL           0 < 1             WARN
                                      QXCALLTO CALL STATEMENT TIMEOUTS            TOTAL           0 < 1             WARN
                                      QXDEGBUF PARALL.GROUPS FELL TO SEQ-NO BUFFER TOTAL          0 < 1             WARN
                                      QXDEGCUR PARALL.GROUPS FELL TO SEQ-CURSOR UPD/DEL TOTAL     0 < 1            WARN
                                      QXDEGENC PARALL.GROUPS FELL TO SEQ-ENCL.SERV.UNAV TOTAL     0 < 1            WARN
                                      QXDEGESA PARALL.GROUPS FELL TO SEQ-NO ESA SORT TOTAL        0 < 1            WARN
                                      QXINCRB  INCREMENTAL BINDS                  TOTAL           0 < 1             WARN
                                      QXMAXDEG MAX DEGREE OF I/O PARALLELISM      TOTAL           3 > 0             PROB
                                      QXMRMIAP RID LIST TERMINATED - MAXIMUM LIMIT TOTAL          0 < 1             WARN
                                      QXNSMIAP RID LIST TERMINATED - NO STORAGE   TOTAL           0 < 1             WARN
                                      QXREDGRP PARALL.GROUPS RUN WITH REDUCED DEGREE TOTAL        0 < 1            WARN
                                      ABCLSPR  BP0 TOTAL PREFETCH REQUESTS        TOTAL           0 < 1             WARN
                                      QBACGET  BP0 GETPAGES                       TOTAL          33 > 0             PROB
                                      QBACHRF  BP0 UNSUCCESSFUL HIPERPOOL READS   TOTAL           0 < 1             WARN
                                      QBACHWF  BP0 UNSUCCESSFUL HIPERPOOL WRITES  TOTAL           0 < 1             WARN
                                      QBACIMW  BP0 SYNCHRONOUS WRITES             TOTAL           0 < 1             WARN
                                      QBACRIO  BP0 SYNCHRONOUS READS              TOTAL           0 < 1             WARN

EXCEPTION LOG COMPLETE
```

Figure 16. Exception Log

The following sections describe the header and the fields in the exception log.

The Exception Log Header

This header contains the following information, described in the order left block, middle block, right block:

LOCATION
> The DB2 reporting location. If the location name is not available, the DB2 subsystem ID is printed in this field.

GROUP
> The data sharing group the DB2 subsystem belongs to.

MEMBER
> The DB2 subsystem's member name.

SUBSYSTEM
The ID of the DB2 subsystem that generated the data.

DB2 VERSION
The DB2 version number of the subsystem that generated the data.

DB2 PERFORMANCE MONITOR (V6)
The product name and version.

EXCEPTION LOG
The title of the log report.

PAGE The page number in the format *lll-nnnnnn*, where *lll* denotes the location number within the report and *nnnnnn* the page number within the location.

ACTUAL FROM
The timestamp of the first record in the log.

PAGE DATE
The date of the timestamps printed on this page. A page break occurs at the change of the date.

Field Descriptions

The descriptions start with the left block, listing the DB2 PM identifiers.

PRIMAUTH
The primary authorization ID of the thread.

ORIGAUTH
The original authorization ID of the thread.

PLANNAME
The DB2 application plan name of the thread.

CONNECT
The DB2 connection ID of the thread.

CORRNAME
The correlation name of the thread.

CORRNMBR
The correlation number of the thread.

EXCEPTION TIME
For accounting records, this is the accounting timestamp. For statistics records, this is the END TIME of the statistics interval in which the exception occurred.

INSTANCE
The LUW instance number.

CONNTYPE
The type of connection for the associated thread. Values are:

TSO TSO foreground and background

DB2CALL
DB2 CALL Attach

CICS CICS Attach

DLI-BTCH
DL/I Batch

IMS-BMP

     IMS nontransaction-oriented BMP

IMS-MPP

     IMS Attach MPP

IMS-CNTL

     IMS Control Region

IMS-TBMP

     IMS transaction-oriented BMP

SYST-DIR

     System-directed method

APPL-DIR

     Application-directed method

UTILITY

     Utility attach

RRS   RRS attach

If connection type is not present, 'BLANK' is printed.

MAINPACK

     This identifier is used to distinguish plans according to the packages they contain.

Note: PRIMAUTH, ORIGAUTH, PLANNAME, CONNECT, CORRNAME, CORRNMBR, INSTANCE, CONNTYPE, and MAINPACK do not apply to statistics records. Except for MAINPACK, *N/A* is printed for these fields. For MAINPACK, nothing is printed.

PER   This identifies the log entry as an exception per system, per plan, or per program.

FIELD ID

     The field ID of the accounting or statistics field in exception status.

FIELD DESCRIPTION

     A description of the field in exception status. This description matches, as closely as possible, the terminology used in the accounting and statistics reports. If the field in exception status is a buffer pool field, the buffer pool ID is printed in front of the field description on the same line. Values are:

- BP0 - BP49
- BP32K - BP32K9

All nondistributed fields for an accounting thread or statistics interval are listed first. Any distributed fields in exception status follow the nondistributed fields and are grouped by remote location. Packages follow after DDF and are grouped by package name.

BY   The basis used for comparing values in the records to values in the exception threshold data set. Values are:

- TOTAL - an absolute value (the default)
- MINUTE - by minute
- SECOND - by second
- COMMIT - by commit

- THREAD - by thread

CALCULATED OR FIELD VALUE

The value from the field in exception status - either an absolute value or a value calculated according to the comparison basis.

Time values are reported in the format *sssssss.thtt*, where *sssssss* is time in seconds and *thtt* is in tenths, hundredths, thousandths, and ten-thousandths of seconds. Integer values such as aborts and selects are reported in the format *nnnnnnnnnnnn*. Other values are reported in the format *nnnnnnnnn.nn*.

OP   The greater than (>) or less than (<) operator.

THRESHOLD VALUE

The value defined in the exception threshold data set, above or below which the actual value must fall to be considered in exception status.

THRESHOLD TYPE

Describes whether the THRESHOLD VALUE is defined in the exception threshold data set as a WARNing or a PROBlem.

Chapter 9. Job Summary Log

The DB2 PM job summary log provides a summary of events during DB2 PM execution, and other information about DB2 that helps you interpret DB2 PM reports. The job summary log includes the following events:

- Detection of a DB2 START TRACE or DB2 STOP TRACE command.
- Reduction interval completion by report set.

  There is a summary of all intervals for each report set at the end of the reduction phase.

- RESTORE subcommand completion by report set. This includes the completion code, DB2 subsystem ID, timestamp information on any restored data, and the ddname of the RESTORE file.

- SAVE subcommand completion by report set. This includes the completion code, DB2 subsystem ID, timestamp information on any restored data, and the ddname of the SAVE file.

How the Job Summary Log Is Generated

There is no DB2 PM command to generate the job summary log. The log is generated automatically for each DB2 PM execution, provided that the appropriate ddname is defined in your JCL.

The ddname for the job summary log is JOBSUMDD.

To prevent generation of the job summary log, omit the ddname from your JCL (the preferred method), or specify DUMMY in the definition.

Note: Omitting the ddname for the job summary log also prevents the generation of the IFCID frequency distribution log because both reports are written to JOBSUMDD.

Example of the Job Summary Log

Figure 17 shows an example of a job summary log.

```
MSG.ID.   LOCATION        GROUP    SSID  MEMBER    TIMESTAMP
          DESCRIPTION
--------- ----------------------------------------------------------------------------------------------------
DGOC4060I DSNDB0G         DSNDB0G  DB1G  DB1G      05/19/99 22:34:20.59
          DB2 START TRACE NUMBER 01 DB2 SUBSYSTEM ID = DB1G
          TEXT = -START TRACE (STAT )CLASS (* )RMID (* )PLAN (* )AUTHID (* )IFCID (* )BUFSIZE (* )

DGOC4065I DSNDB0G         DSNDB0G  DB1G  DB1G      05/19/99 22:35:39.68
          DB2 STOP TRACE NUMBER 01 DB2 SUBSYSTEM ID = DB1G
          TEXT = -STOP TRACE (*) TNO (01) COMMENT('TRACE STOPPED BY MODIFY COMMAND')

DGOC4060I DSNDB0G         DSNDB0G  DB1G  DB1G      05/19/99 22:35:39.68
          DB2 START TRACE NUMBER 01 DB2 SUBSYSTEM ID = DB1G
          TEXT = -MODIFY TRACE (STAT )CLASS (* )TNO (1 )IFCID (* )

DGOC4060I DSNDB0G         DSNDB0G  DB2G  DB2G      05/19/99 22:34:21.64
          DB2 START TRACE NUMBER 01 DB2 SUBSYSTEM ID = DB2G
          TEXT = -START TRACE (STAT )CLASS (* )RMID (* )PLAN (* )AUTHID (* )IFCID (* )BUFSIZE (* )

DGOC4060I DSNDB0G         DSNDB0G  DB2G  DB2G      05/19/99 22:34:22.15
          DB2 START TRACE NUMBER 02 DB2 SUBSYSTEM ID = DB2G
          TEXT = -START TRACE (ACCTG )CLASS (1 2 3 )RMID (* )PLAN (* )AUTHID (* )IFCID (* )BUFSIZE (* )


DGOC9200I ACCOUNTING REDUCE COMPLETED. SUMMARY OF REDUCED DATA FOLLOWS
          LOCATION          GROUP    SSID  MEMBER    INTERVAL START        INTERVAL END           COUNT
          ----------------  -------- ----  --------  -------------------   -------------------   --------
          DSNDB0G           DSNDB0G  DB1G  DB1G      05/19/99 22:35:07.26  05/19/99 22:56:45.89        27
          DSNDB0G           DSNDB0G  DB2G  DB2G      05/19/99 22:47:05.09  05/19/99 22:47:05.09         1

DGOC4005I DSNDB0G         DSNDB0G  DB1G  DB1G
          NUMBER OF RECORDS PROCESSED WITHOUT A CPU HEADER WAS 56

DGOC4010I DSNDB0G         DSNDB0G  DB1G  DB1G
          NUMBER OF RECORDS PROCESSED WITHOUT A CORRELATION HEADER WAS 9

DGOC4005I DSNDB0G         DSNDB0G  DB2G  DB2G
          NUMBER OF RECORDS PROCESSED WITHOUT A CPU HEADER WAS 30

DGOC4010I DSNDB0G         DSNDB0G  DB2G  DB2G
          NUMBER OF RECORDS PROCESSED WITHOUT A CORRELATION HEADER WAS 9
```

Figure 17. Job Summary Log

The following sections describe the header and the fields in the job summary log.

The Job Summary Log Header

This header contains the following information, described in the order middle block, right block:

DB2 PERFORMANCE MONITOR (V6)
DB2 PM version.

EXECUTION LOG
The name of the log report.

PAGE The page number.

RUN DATE
The date and time of the DB2 PM job generating the log. The default format is *mm/dd/yy hh:mm:ss.th*, which can be changed with the DATEFORMAT parameter.

Field Descriptions

The descriptions start with the left block.

MSG.ID.

The message identification in the format *DGOcnnnni*, where:

- *DGO* is the product code for DB2 PM
- *c* is the DB2 PM module component code
- *nnnn* is the message number
- *i* is an action code with possible values of:
  - I (informational)
  - W (warning)
  - E (error)
  - S (severe error)
  - U (unrecoverable error)

LOCATION
> The DB2 location to which the message applies. If there is no location data, the subsystem ID (DB2ID) is printed.

DESCRIPTION
> The complete text of the message.

GROUP
> The name of the data sharing group.

SSID The ID of the data sharing subsystem.

MEMBER
> The name of the data sharing member.

TIME_STAMP
> The date and time of the current input trace record, in the format *mm/dd/yy hh:mm:ss.th*.

Job Summary VSAM Data Set

The job summary VSAM data set (JSSRSDD) is used for saving and restoring data-related job summary information. When data is saved and JSSRSDD has been included in the job stream, related job summary information is written to JSSRSDD. If JSSRSDD has been included in the job stream and data is restored, job summary information is restored to the job summary log.

If you are restoring data, the data set defined by JSSRSDD and the data set defined by the restore data set must match, that is, be produced by the same save operation.

JSSRSDD is optional. If you omit JSSRSDD, information about the previous processing of saved data is not restored or information about current processing is not saved.

The VSAM data set defined by JSSRSDD must already exist when you run DB2 PM. Either specify an existing data set from a previous DB2 PM run (when restoring data), or specify a new data set allocated using the IDCAMS DEFINE CLUSTER function. If an existing data set is used and the SAVE subcommand is specified, the new job summary data is added to the previous content.

See the *DB2 PM Batch User's Guide* for the attributes of DB2 PM VSAM data sets.

Note: Do not specify DUMMY for JSSRSDD.

Chapter 10. IFCID Frequency Distribution Log

The IFCID frequency distribution log provides counts of the trace records by IFCID. There are counts for the number of valid records provided as input to DB2 PM as well as for the number of records that are processed after GLOBAL filtering and after duplicate records are dropped. An IFCID count is listed, and a percentage of the total number of records is calculated.

One copy of the IFCID frequency distribution log is produced for each location.

Input to the IFCID Frequency Distribution Logs

All records supplied as input to DB2 PM are used automatically as input to the IFCID frequency distribution log.

How the IFCID Frequency Distribution Log Is Generated

There is no DB2 PM command to generate the IFCID frequency distribution log. The log is generated automatically for each DB2 PM execution, provided that the appropriate ddname is defined in your JCL.

The ddname for the IFCID frequency distribution log is JOBSUMDD.

To prevent the generation of the IFCID frequency distribution log, omit the ddname from your JCL (the preferred method), or specify DUMMY in the definition.

Note: Omitting the ddname for the IFCID frequency distribution log also prevents the generation of the job summary log because both logs are written to JOBSUMDD.

Example of the IFCID Frequency Distribution Log

Figure 18 shows an example of a frequency distribution log.

```
       LOCATION: DSNDB0G                      DB2 PERFORMANCE MONITOR (V6)                            PAGE: 1
          GROUP: DSNDB0G                      IFCID FREQUENCY DISTRIBUTION LOG           RUN DATE: 06/15/99 08:21:11.18
         MEMBER: DB1G
      SUBSYSTEM: DB1G                                                                 ACTUAL FROM: 05/19/99 22:34:20.59
    DB2 VERSION: V6                                                                            TO: 05/19/99 22:56:57.6 7

              INPUT       INPUT      PROCESSED    PROCESSED                  INPUT       INPUT      PROCESSED    PROCESSED
      IFCID   COUNT    PCT OF TOTAL    COUNT    PCT OF TOTAL     IFCID       COUNT    PCT OF TOTAL    COUNT    PCT OF TOTAL
      -------  ----------  ------------  ----------  ------------    -------  ----------  ------------  ----------  ------------
         1         9        9.67%          0        0.00%             5          10       10.75%         10       17.85%
         2         9        9.67%          0        0.00%           105           9        9.67%          9       16.07%
         3        27       29.03%         27       48.21%           106          10       10.75%          0        0.00%
         4        10       10.75%         10       17.85%           202           9        9.67%          0        0.00%

      TOTAL INPUT TRACE RECORDS   =                  93
      TOTAL PROCESSED TRACE RECORDS =                56
```

Figure 18. IFCID Frequency Distribution Log

The following sections describe the header and the fields in the IFCID frequency distribution log.

The IFCID Frequency Distribution Log Header

This header contains the following information, described in the order left block, middle block, right block:

LOCATION
> The DB2 reporting location. If the location name is not available, the DB2 subsystem ID is printed in this field.

GROUP
> The data sharing group the DB2 subsystem belongs to.

MEMBER
> The DB2 subsystem's member name.

SUBSYSTEM
> The ID of the DB2 subsystem that generated the data.

DB2 VERSION
> The DB2 version number of the subsystem that generated the data.

DB2 PERFORMANCE MONITOR (V6)
> The product name and version.

IFCID FREQUENCY DISTRIBUTION LOG
> The title of the log report.

PAGE   The page number.

RUN DATE
> The timestamp of the DB2 PM job generating the log, in the format *mm/dd/yy hh:mm:ss.th* . The format can be changed with the DATEFORMAT parameter.

ACTUAL FROM/TO
> The date and time of the first and last record included in the log.

Field Descriptions

The descriptions start with the left block.

IFCID   The IFCID number of the record. The identifier is listed in decimal.

INPUT COUNT
> The total number of occurrences of each IFCID in the raw data, after invalid records are rejected and partial GTF records are combined.

INPUT PCT OF TOTAL
> The percentage of the total number of input records that the number in INPUT COUNT represents.

PROCESSED COUNT
> The total number of occurrences of each IFCID in the processed data after GLOBAL filtering and after duplicate records are dropped. When DPMOUTDD is specified in the JCL, the value in this field is a reflection of the contents of the DPMOUT data set.

PROCESSED PCT OF TOTAL
> The percentage of the total number of records in the processed data that the number in PROCESSED COUNT represents.

TOTAL INPUT TRACE RECORDS
> The total of the INPUT COUNT column.

TOTAL PROCESSED TRACE RECORDS
The total of the PROCESSED COUNT column.

Part 4. User-Tailored Reporting

This part of the *DB2 PM Report Reference* describes the user-tailored reporting feature. It is divided into the following chapters:

- "Chapter 11. Introduction to User-Tailored Reporting" on page 101 introduces the concept of user-tailored reporting and describes the different block types and commands.

- "Chapter 12. Customizing Report and Trace Layouts" on page 111 describes how to tailor reports by adding, deleting, moving, and renaming blocks, fields, rows and columns of data. It also shows how to display and save the modified layouts.

- "Chapter 13. Advanced Functions" on page 147 describes special functions of user-tailored reporting.

Chapter 11. Introduction to User-Tailored Reporting

You can design your own accounting and statistics reports and traces using the user-tailored reporting feature (UTR), which is part of the Interactive Reporting Facility (IRF). This can be useful if none of the layouts of the sample accounting and statistics reports supplied by DB2 PM suit your requirements.

All layouts must be based on one of the existing layouts. You can make as many changes as you wish to a sample layout, from minor modifications to changing a layout entirely.

User-tailored reporting gives you full control over the volume, contents, and format of accounting and statistics reports and traces. You can:

- Add entire blocks or individual fields to an existing layout.
- Remove entire blocks or individual fields from an existing layout.
- Change the relative positions of blocks and fields in an existing layout.
- Change block and field labels.

After you have created your layout, you can produce the corresponding output by using the name you have given the layout in the LAYOUT option of the accounting or statistics REPORT or TRACE subcommand.

Assume that you have created your own accounting report layout and given it the name MYREP. To produce an accounting report that uses this layout, specify:

```
    .
    .
    .
ACCOUNTING
REPORT
LAYOUT (MYREP)
    .
    .
    .
```

Sample Layouts

DB2 PM provides two classes of sample layouts called SHORT and LONG.

In accounting and statistics reports and traces, the SHORT and LONG layouts provide general and comprehensive data, respectively. The SHORT layout contains only a selected number of blocks or fields from accounting or statistics categories, whereas the LONG layout contains most of the available blocks and fields but not all. SHORT is the default layout when you generate accounting and statistics reports and traces.

You can tailor the layouts to suit your requirements. For example, you can begin with the SHORT or LONG layout, and select other blocks and individual fields from the pool of available fields, by placing an order number in the *Order* column on the UTR panels.

For more information about these layouts, refer to Chapter 26. Accounting Report and Trace Blocks and Chapter 34. Statistics Report and Trace Blocks.

Note: An order number can be any positive integer up to 5 digits in length, entered in the *Order* column on UTR panels. Numbers between 1 and 99 999 are valid order numbers. Fields which are not included in a report or trace layout have the number 99999 next to them.

Blocks of Data

The accounting and statistics reports and traces consist of blocks of information, such as a highlights block, a buffer pool information block, or a distributed data block. The formats of the blocks vary. The block types are:

- List block
- Column block
- Table block

When you modify layouts, you need to know the block types because the customization and printing of the blocks are slightly different for each. Also, in some cases when you modify a layout, you can choose between different formats for a block.

List Blocks

Figure 19 shows an example of the list block layout.

```
1
---- IDENTIFICATION -------------------------------------------------------------------------------------------------
2
ACCT TSTAMP: 03/13/98 23:19:45.26     PRIMAUTH: USRT001
3
CORRNAME: A31RIUD     LUW NET: USIBMSY      CICS NET: N/A
BEGIN TIME : 03/13/98 23:19:44.57   ORIGAUTH: USRT001         CORRNMBR: 'BLANK'     LUW LUN: D31F          CICS LUN: N/A
END TIME   : 03/13/98 23:19:45.26   PLANNAME: R31GFUO         CONNTYPE: APPL-DIR    LUW INS: A72DF6623155  CICS INS: N/A
REQUESTER  : VTAMF                   PROD ID : DB2 5.1.0       CONNECT : BATCH       LUW SEQ:           2
MAINPACK   : R31GFUO
```

Figure 19. List Block Layout

This block consists of the following elements:

1   Block label - this text identifies the block.

2   Field label - this text identifies the field.

3   Field value - this is the value of the field.

As you can see from the example, every field has its own label, and every field label has only one value.

Column Blocks

Figure 20 shows an example of the column block layout.

```
1
#OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
CONNECT                         #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 TCBTIME CLASS2 TCBTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

BATCH                          7     200    8.00    0.00   23.14    0.29 1:09:01.525990          N/P   1253.14   117.14    83.14
0
2
22    59.43    0.86    0.57    0.43         4.698535           N/P   126.71    52.57      188

DB2CALL                       10      10    0.00    0.00    0.00    0.00 1:06.989512            N/P     23.00     0.20     3.00
0     0    1.00    1.00    0.00    1.00         0.041995          N/P     0.00     0.00      .10
```

Figure 20. Column Block Layout

This block consists of the following elements:

1 Column heading - this text identifies the column.

2 Field value - this is the value of the field.

In this block type it is possible to have two or more rows of column headings with corresponding rows of field values.

Column blocks can contain repeating groups of information. For instance, in the general accounting data block shown in the example, the connection IDs BATCH and DB2CALL contain the same information.

You can specify that the repeating blocks are printed only for certain values, such as buffer pools, using the QUALIFY command. For more information see "QUALIFY Command" on page 106.

Table Blocks

Figure 21 shows an example of the table block layout.

```
1
SQL DDL
2
CREATE    DROP   ALTER
----------  ------  ------  ------
3
TABLE
4
0        0        0
TEMPTABLE      0        0        0
TABLESPACE     0        0        0
DATABASE       0        0        0
STOGROUP       0        0        0
SYNONYM        0        0      N/A
VIEW           0        0      N/A
ALIAS          0        0      N/A
PACKAGE      N/A        0      N/A

TOTAL          0        0        0

RENAME TBL     0
COMMENT ON     0
LABEL ON       0
```

Figure 21. Table Block Layout

This block consists of the following elements:

1 Block label - this text identifies the block.

2 Column label - this text identifies the column.

3 Row label - this text identifies each row in the table.

4 Field value - this is the value of the field.

As you can see from the example, the table blocks are made up of columns and rows. As in any table, data is organized in a matrix.

Block Attributes

You can change the way blocks are printed by specifying block attributes. If you do not specify any attributes, DB2 PM uses the default attributes to format the reports.

You can change the following attributes:

New Page
   Whether the block is printed on a new page.

Print Label
   Whether the block label is printed.

Every Page
   Whether the block is printed on every page.

New Line
   Whether the block is printed on a new line underneath the preceding block.

For information about how to change the block attributes, refer to "Changing Block Attributes" on page 147.

Changing Blocks and Their Contents

You can add, delete, move, and rename blocks in a layout. All block types are tailored using the UTR Block Selection panel.

You can also modify the contents of the blocks:

- The contents of list and column blocks are modified using the UTR Field Selection panel. On the UTR Field Selection panel you can add, delete, move, and rename fields.
- The contents of table blocks are modified using the UTR Table Row Selection panel and the UTR Table Column Selection panel. On these panels you can add, delete, move, and rename columns and rows.

For more information, refer to "Chapter 12. Customizing Report and Trace Layouts" on page 111.

Commands

The following section describes the IRF commands specific to user-tailored reporting. All these commands have been assigned a function key in the panels where they can be used.

The commands are:
- EXTEND
- FILLER
- QUALIFY
- CONFIG
- BROWSE

EXTEND Command

Blocks, fields, rows, and columns are identified by their label on the UTR selection panels. You can display the description of the fields identified by those labels using the EXTEND command.

You can enter the command on the command line or use the function key **F5** (Extend). You can toggle between these two display modes by repeating the command.

Note: When the descriptions are hidden, more fields are displayed on the screen. However, if you are not familiar with the DB2 PM columns, blocks, and fields, it can be useful to display the descriptions. The length of the fields are also displayed on the screen, as part of the description.

The descriptions show the field names used in exception processing and in the accounting and statistics description tables.

The UTR Field Selection panel without descriptions is shown in Figure 22.

```
DGOBFLD1                   UTR Field Selection            Row 1 to 11 of 67
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
10     #OCCURS
20     #DISTRS
30     #ROLLBK
40     #COMMIT
50     SELECTS
60     FETCHES
70     INSERTS
80     OPENS
90     UPDATES
100    CLOSES
110    DELETES
F1=Help    F3=Exit    F5=Extend  F7=Up      F8=Down    F10=Config F11=Filler
F12=Cancel
```

Figure 22. UTR Field Selection Panel without Descriptions

The field selection panel with descriptions is shown in Figure 23. The descriptions and field lengths are shown only on the panel; they are not printed.

```
DGOBFLD3                  UTR Field Selection          Row 1 to 5 of 67
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                              Length
10     #OCCURS
Number of accounting records (ASOCCURS)                     7
20     #DISTRS
Number of records with distributed activity (ASDISTRS)      7
30     #ROLLBK
Sum of rollbacks (QWACABRT)                                 7
40     #COMMIT
Sum of commits (QWACCOMM)                                   7
50     SELECTS
Average of SELECT statements executed (QXSELECT)            7
F1=Help    F3=Exit    F5=Extend F7=Up      F8=Down   F10=Config F11=Filler
F12=Cancel
```

Figure 23. UTR Field Selection Panel with Descriptions

The names in parentheses are DB2 or DB2 PM field names. Use them to locate more detailed descriptions of these fields in "Chapter 27. Accounting Fields" on page 299 for accounting reports and traces and in "Chapter 35. Statistics Report and Trace Fields" on page 501 for statistics reports and traces.

FILLER Command

You use the FILLER command to insert blank fields or rows into a block. To do this, you place the cursor on the preceding field and issue the command.

On UTR panels, the command can be issued by entering it on the command line or by pressing **F11** (Filler).

For more information, refer to "Adding Blank Lines and Rows" on page 148.

QUALIFY Command

You use the QUALIFY command to qualify a block or a category. For example, you can qualify the buffer pool blocks by the name of the buffer pool.

Repeating blocks have the same information repeated for different values. An example of a repeating block is the buffer pool block in which the same information is shown for different buffer pools. Other repeating blocks are the distributed data block that shows the same fields for different remote locations, and the package data block that shows the data for different packages.

Using the QUALIFY command you can qualify the repeating blocks to show information only for a certain value, for example a certain buffer pool. The command can be issued by entering it on the command line or by pressing **F6** (Qualify) on the UTR Field Selection, UTR Table Row Selection, UTR Table Column Selection, and UTR Block Category Selection panels.

If a block cannot be qualified, the QUALIFY command is not shown in the function key area.

When you issue the command, the UTR Block Qualifier Selection panel is displayed, as shown in Figure 24. You use this panel to select and order the qualifiers.

Assume that you want the buffer pool block to show information for buffer pools 0 and 1. Press **F6** (Qualify) on the UTR Table Row Selection panel for buffer pool data. The UTR Block Qualifier Selection panel is displayed. Enter an order number next to the qualifiers to select them, as shown in Figure 24.

```
DGOBEQAL              UTR Block Qualifier Selection       Row 1 to 6 of 64
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : BUFFER POOL ACTIVITY

1.  To include and order, modify/add a number in the Order column
2.  To exclude a block qualifier, blank out the Order column

Order  Label
Description
30     TOT32K
Total for 32K buffer pools
40     TOTAL
Total for all buffer pools
1
BP0
Buffer Pool 0
2
BP1
Buffer Pool 1
BP2

F1=Help    F3=Exit    F5=Extend  F7=Up      F8=Down   F10=Config F12=Cancel
```

Figure 24. UTR Block Qualifier Selection Panel

The fields on the panel are:

Order Use this field to:
- Add a qualifier by adding a number next to it.
- Delete a qualifier by deleting the number next to it.
- Move a qualifier by changing the number next to it.

Label/Description
This column shows the qualifier label and description, if you are using the extended display as in this example. For more information, see page "EXTEND Command" on page 105.

When you next press **Enter** or **F3** the order numbers are automatically adjusted to ascending order and recalculated into multiples of ten.

In the layout you have just created, the buffer pool block now includes buffer pools 0 and 1.

CONFIG Command

You use the CONFIG command to modify block attributes. For example, you can specify that a block is printed on every page.

When you issue the command, the UTR Block Configuration panel is displayed. You use this panel to change the block attributes.

The command can be issued by entering it on the command line or by pressing **F10** (Config).

For more information, refer to "Changing Block Attributes" on page 147.

BROWSE Command

You use the BROWSE command to generate and view report and trace layouts. It can be entered only on the UTR Block Selection panel.

The command can be issued by entering it on the command line or by pressing **F6** (Browse).

For more information, refer to "Displaying the Layout" on page 142.

Changing the Labels

You can change the label of any block, field, row, column, category, and qualifier on the UTR selection panels by typing over the existing label.

You might want to change a label if you want to make it longer and easier to understand. Or you might want to make it shorter so that, for example, more fields fit on the line.

You use the EXTEND command or press **F5** (Extend) to look at the field descriptions to see the length of the actual field. The label can be longer than the length of a field.

The field label is printed on reports and traces; the description is shown only on the panel to help you choose the right field.

Categories of Information

Certain accounting and statistics data blocks are divided into subblocks or categories.

The accounting distributed data block is divided into two categories: server data and requester data. The accounting packages data block is divided into three categories: identification, times, and suspensions data.

The statistics buffer pool data block is divided into four categories: general, read, write, and sort/merge data.

When you select accounting distributed data block in the UTR Block Selection panel, the UTR Block Category Selection panel is displayed, as shown in Figure 25.

You use this panel to select the categories of data you want to tailor. You select one category at a time to modify. You can then specify the order in which the categories are to be printed on the report. You can also include or exclude categories and change their labels.

```
DGOBCAT4                   UTR Block Category Selection        Row 1 to 2 of 2
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : DISTRIBUTED ACTIVITY

1.  To change the contents of a block category, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block category, blank out the Order column

Modify  Order  Label
Description
_        10      SERVER DATA
Server location DDF data
_        20      REQUESTER DATA
Requester location DDF data
****************************** Bottom of data *******************************




F1=Help      F3=Exit      F5=Extend    F6=Qualify   F7=Up        F8=Down
F10=Config   F12=Cancel
```

Figure 25. DDF Block Categories

The fields on the panel are:

Modify
> Enter a slash (/) in this field when you want to modify the contents of a category.

Order Use this field to:
> - Add a category by adding a number next to it.
> - Delete a category by deleting the number next to it.
> - Move a category by changing the number next to it.

Label/Description
> This column shows the category label and description, if you are using the extended display as in this example. For more information, see "EXTEND Command" on page 105.
>
> The label is printed on reports and traces; the description is only shown on the panel.

Similarly, when you select the accounting package data block or the statistics buffer pool data block in the block selection panel, you can tailor the categories of data on the respective UTR Block Category Selection panels.

UTR Selection Panel Headers

All UTR selection panels contain a header showing the report or trace you are about to modify.

The UTR Block Selection panel header shows the report set and the layout you have selected, as shown in Figure 26.

```
DGOBEBLK                     UTR Block Selection              Row 1 to 6 of 27
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
```

Figure 26. Header of the UTR Block Selection Panel

The UTR Field, Table Row, Table Column, Block Category, and Block Qualifier Selection panels show the report set, the layout, and the block you have chosen.

```
DGOBCAT4                  UTR Block Category Selection         Row 1 to 2 of 2
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : DISTRIBUTED ACTIVITY
```

Figure 27. Header of the UTR Block Category Selection Panel

Chapter 12. Customizing Report and Trace Layouts

This chapter describes the main features of user-tailored reporting. It contains the following topics:

- Accessing UTR
- Adding, deleting, moving, and renaming a block
- Adding, deleting, moving, and renaming a field
- Adding, deleting, moving, and renaming rows and columns
- Displaying the layout
- Saving the layout
- Canceling layout changes

Accessing a Layout

The user-tailored reporting feature is accessed through the IRF.

For a simple example of customizing a report, refer to the *DB2 PM Batch User's Guide*.

To customize a layout, select option 5, *Customize DB2 PM report and trace layouts*, from the IRF main menu.

```
DGOFMENU              IBM Database 2 Performance Monitor
Command ===>
_____

Select one of the following:


5
_ 1. Create and execute DB2 PM commands
2. Display and print graphs
3. View online DB2 activity
4. Maintain parameter data sets
5. Customize DB2 PM report and trace layouts
6. Exception profiling

F1=Help    F2=Split   F3=Exit    F9=Swap   F12=Cancel
```

Figure 28. Selecting Customize DB2 PM Report and Trace Layouts

The first user-tailored reporting panel is the User-Tailored Reporting Layout Generation menu, as shown in Figure 29.

```
DGOBMENU        User-Tailored Reporting Layout Generation
Command ===>
_____

Select one of the following report set functions and then enter the
DPMPARMS data set to be used.

1
1. Accounting report
2. Statistics report
3. Accounting trace
4. Statistics trace



DPMPARMS data set
'DGO.V6R1M0.DPMPARMS'







F1=Help    F2=Split   F3=Exit    F9=Swap   F12=Cancel
```

Figure 29. Selecting the Report Set and Output Type

Use this menu to select the report set and the output type to be customized and to specify the name of the DPMPARMS data set where you want the modified layout specifications to be stored. It is recommended that you allocate a different DPMPARMS data set for each DB2 release.

After you have made your selections, press **Enter**. The UTR Layout Selection panel is displayed for the report set and output type you have specified, as shown in Figure 30.

```
DGOBPLAY                    UTR Layout Selection              Row 1 to 2 of 2
Command ===>
_____

Report set ..... : Accounting Report

Select a Layout then press Enter.

Layout  Description
_   LONG    Accounting Report - Long
/
SHORT   Accounting Report - Short
****************************** Bottom of data *********************************





F1=Help    F2=Split   F3=Exit    F7=Up      F8=Down    F9=Swap    F12=Cancel
```

Figure 30. Selecting a Sample Layout

You select the layout you want to use as the basis for your new layout by entering a slash (/) in the input field next to its name. Always choose the sample that is closest to the layout you want.

This panel shows both the DB2 PM supplied sample layouts and the layouts you have created and are saved in your DPMPARMS data set.

Note: If you request a report or a trace of a previous DB2 release the report or trace only shows the data relevant to that previous DB2 release and no Version 6 data.

Next, the UTR Block Selection panel is displayed, as shown in Figure 31. Press **F5** (Extend) to show the descriptions.

Blocks

You can add, delete, move, and rename blocks in a layout. All block types are tailored using the UTR Block Selection panel.

The UTR Block Selection Panel

You use the UTR Block Selection panel to add and delete blocks in a layout, to change the order in which the blocks are printed, and to modify their contents.

```
DGOBEBLK                    UTR Block Selection              Row 1 to 5 of 27
Command ===>

_____

Report set ..... : Accounting Report
Layout ....... : SHORT

1.  To change the contents of a block, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block, blank out the Order column

Modify  Order  Label
Description
_       10      GENERAL
General Accounting Data
_       20      PACKAGE GENERAL
General Package Data (Column Form)
_       30      DISTRIBUTED ACTIVITY
Distributed Data Facility Data (Column Form)
_       99999  ORDER IDS
Report Order identifiers
_       99999  AVERAGE
Application (Class 1) and DB2 (Class 2) Times and Events
F1=Help    F2=Split   F3=Exit    F5=Extend  F6=Browse  F7=Up      F8=Down
F9=Swap    F12=Cancel
```

Figure 31. UTR Block Selection Panel

The fields on the panel are:

Modify
Enter a slash (/) in this field when you want to modify the contents of a block.

Order Use this field to:

- Add a block by adding a number next to it.
- Delete a block by deleting the number next to it.
- Move a block by changing the number next to it.

Label/Description
This column shows the block label and description, if you are using the extended display as in this example. For more information on extended display, see "EXTEND Command" on page 105.

The label is printed on reports and traces; the description is only shown on the panel.

Note: In some cases, UTR offers a choice of the same data in different forms. For example, the UTR Block Selection panel can have one entry for package general data in column form, and an entry for the same data in table form. The fields in both blocks are the same, but the form is different. In Figure 31, the package general and distributed activity blocks are in column form.

Adding a Block

To add a block, enter a number next to the block in the *Order* column. Specify the order number as follows:

- If you want the new block to be printed before another block, specify a number less than the order number of that block.

- If you want the new block printed after another block, specify a number greater than the order number of that block.

When you next press **Enter** or **F3**, or issue the BROWSE or FILLER command, the order numbers are automatically adjusted to ascending order and into multiples of ten. When you use the FILLER command, order numbers are automatically renumbered without duplicate order number checking. Also, other changes, such as modifications to labels and order numbers, are ignored when they are made at the same time as the FILLER command is issued.

Example of Adding a Block

Assume that you want to add the average class 1, 2, and 5 times block to the sample accounting short report. You want this block to print last.

The sample layout SHORT consists of the general accounting data block, the general package data block, and the distributed activity block. An example of a report using the SHORT layout is shown in Figure 32.

```
LOCATION: DSNCAT                          DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-1
GROUP: DSNCAT                             ACCOUNTING REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
MEMBER: SSDQ                                                                                TO: NOT SPECIFIED
SUBSYSTEM: SSDQ                             ORDER: PRIMAUTH-PLANNAME            INTERVAL FROM: 05/10/98 18:47:13.28
DB2 VERSION: V6                                SCOPE: MEMBER                               TO: 05/10/98 18:47:13.2

PRIMAUTH            #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
PLANNAME            #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------ ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

T3270A                    1       0    3.00    4.00    3.00    0.00  26:58.834243           N/P    78.00    56.00     0.00
NOPIA                     0       1    3.00    3.00    2.00    0.00      0.239061           N/P    17.00     0.00        0
```

Figure 32. Accounting Report - Sample Layout

The report you want to produce contains the *AVERAGE* block in addition to the general accounting data block. An example of an accounting report using the modified layout is shown in Figure 33.

```
LOCATION: DSNCAT                        DB2 PERFORMANCE MONITOR (V6)                              PAGE: 1-1
GROUP: DSNCAT                           ACCOUNTING REPORT - SHORT                REQUESTED FROM: NOT SPECIFIED
MEMBER: SSDQ                                                                                TO: NOT SPECIFIED
SUBSYSTEM: SSDQ                           ORDER: PRIMAUTH-PLANNAME               INTERVAL FROM: 05/10/98 18:47:13.28
DB2 VERSION: V6                                  SCOPE: MEMBER                              TO: 05/10/98 18:47:13.28

PRIMAUTH                      #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
PLANNAME                      #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
--------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

T3270A                            1       0    3.00    4.00    3.00    0.00   26:58.834243            N/P    78.00    56.00     0.00
NOPIA                             0       1    3.00    3.00    2.00    0.00       0.239061            N/P    17.00     0.00        0


AVERAGE        APPL (CLASS 1)  DB2 (CLASS 2)   IFI (CLASS 5)
------------   --------------  --------------  --------------
ELAPSED TIME         6.854556        0.311110            N/P
CPU TIME             0.108782        0.093532            N/P
TCB                  0.108782        0.093532            N/P
TCB-STPROC           0.000000        0.000000            N/A
PAR.TASKS            0.000000        0.000000            N/A
SUSPEND TIME              N/A        0.067448            N/A
TCB                      N/A        0.025696            N/A
PAR.TASKS                N/A        0.041752            N/A
NOT ACCOUNT.             N/A             N/C            N/A
DB2 ENT/EXIT             N/A           43.00            N/A
EN/EX-STPROC            N/A            0.00            N/A
DCAPT.DESCR.            N/A             N/A            N/P
LOG EXTRACT.           N/A             N/A            N/P

------------------------------------------------------------------------------------------------
|PROGRAM NAME       TYPE    #OCCURS  SQLSTMT  CL7 ELAP.TIME  CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
|PCIT2A01           DBRM         5    19.00      0.310245       0.092727        0.092320     4.40|
------------------------------------------------------------------------------------------------


ACCOUNTING REPORT COMPLETE
```

Figure 33. Accounting Report - Modified Layout

To produce the report similar to the example shown in Figure 33, you include the *AVERAGE* block by specifying an order number next to the block. Because you want the new block to print after the general accounting data block, you specify an order number for the block greater than the order number of the existing block, as shown in Figure 34.

```
DGOBEBLK                    UTR Block Selection              Row 1 to 5 of 27
Command ===>

_____

Report set ..... : Accounting Report
Layout ....... : SHORT

1.  To change the contents of a block, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block, blank out the Order column

Modify  Order  Label
Description
_        10     GENERAL
General Accounting Data
_        20     PACKAGE GENERAL
General Package Data (Column Form)
_        30     DISTRIBUTED ACTIVITY
Distributed Data Facility Data (Column Form)
_        99999  ORDER IDS
Report Order identifiers

_
11
AVERAGE
Application (Class 1) and DB2 (Class 2) Times and Events
F1=Help    F2=Split   F3=Exit    F5=Extend  F6=Browse  F7=Up      F8=Down
F9=Swap    F12=Cancel
```

Figure 34. Adding a Block - before Pressing **Enter**

> **Note:** Even though the *PACKAGE GENERAL* and *DISTRIBUTED ACTIVITY* blocks
> have been selected, these blocks are printed only if the information is
> present. The report example shown in Figure 33 does not contain general
> package and distributed activity data.

To adjust the order of the blocks, press **Enter**. The blocks are now ordered in
ascending sequence and the order number of the *AVERAGE* block is adjusted to
the next multiple of ten, 20, as shown in Figure 35.

```
DGOBEBLK                    UTR Block Selection              Row 1 to 5 of 27
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT

1.  To change the contents of a block, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block, blank out the Order column

Modify  Order  Label
Description
_       10     GENERAL
General Accounting Data
_       20     AVERAGE
Application (Class 1) and DB2 (Class 2) Times and Events
_       30     PACKAGE GENERAL
General Package Data (Column Form)
_       40     DISTRIBUTED ACTIVITY
Distributed Data Facility Data (Column Form)
_       99999  ORDER IDS
Report Order identifiers
F1=Help    F2=Split   F3=Exit    F5=Extend  F6=Browse  F7=Up      F8=Down
F9=Swap    F12=Cancel
```

Figure 35. Adding a Block - after Pressing **Enter**

The modified accounting layout now prints the *AVERAGE* block.

Deleting a Block

To delete a block, blank out the number in the *Order* column next to the block.

When you press **Enter** after you have blanked out the order number of a block, it returns to its original position in the list of blocks shown on the panel. This means that you can always see your selections summarized at the top of the UTR Block Selection panel.

Example of Deleting a Block

Assume that you want to delete the *AVERAGE* block which you added to the sample accounting short report in the previous example.

To do this, you blank out the order number next to the *AVERAGE* block, as shown in Figure 36.

```
DGOBEBLK                    UTR Block Selection            Row 1 to 5 of 27
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT

1.  To change the contents of a block, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block, blank out the Order column

Modify  Order  Label
Description
_       10     GENERAL
General Accounting Data
_              AVERAGE
Application (Class 1) and DB2 (Class 2) Times and Events
_       30     PACKAGE GENERAL
General Package Data (Column Form)
_       40     DISTRIBUTED ACTIVITY
Distributed Data Facility Data (Column Form)
_       99999  ORDER IDS
Report Order identifiers
F1=Help    F2=Split   F3=Exit    F5=Extend  F6=Browse  F7=Up      F8=Down
F9=Swap    F12=Cancel
```

Figure 36. Deleting a Block - before Pressing **Enter**

Then press **Enter** to readjust the order of the blocks. The *AVERAGE* block is
returned to its original position on the panel, as shown in Figure 37.

```
DGOBEBLK                    UTR Block Selection            Row 1 to 5 of 27
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT

1.  To change the contents of a block, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block, blank out the Order column

Modify  Order  Label
Description
_       10     GENERAL
General Accounting Data
_       20     PACKAGE GENERAL
General Package Data (Column Form)
_       30     DISTRIBUTED ACTIVITY
Distributed Data Facility Data (Column Form)
_       99999  ORDER IDS
Report Order identifiers
_       99999  AVERAGE
Application (Class 1) and DB2 (Class 2) Times and Events
F1=Help    F2=Split   F3=Exit    F5=Extend  F6=Browse  F7=Up      F8=Down
F9=Swap    F12=Cancel
```

Figure 37. Deleting a Block - after Pressing **Enter**

The modified report layout now prints only the general accounting, general package,
and distributed activity data blocks.

Moving a Block

To move a block, change its order number.

- If you want to move the block before another block, specify an order number less than the order number of the block you want it to precede.
- If you want to move the block after another block, specify an order number greater than the order number of the block you want it to follow.

Example of Moving a Block

Assume that you want to change the order of the blocks of the report created in the previous example, so that the *DISTRIBUTED ACTIVITY* block precedes the *PACKAGE GENERAL* data block, and follows the *GENERAL* block.

To do this, you give the *DISTRIBUTED ACTIVITY* block order number eleven as shown in Figure 38.

```
DGOBEBLK                     UTR Block Selection            Row 1 to 5 of 27
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT

1.  To change the contents of a block, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block, blank out the Order column

Modify  Order  Label
Description
_       10      GENERAL
General Accounting Data
_       20      PACKAGE GENERAL
General Package Data (Column Form)

_
11
DISTRIBUTED ACTIVITY
Distributed Data Facility Data (Column Form)
_       99999  ORDER IDS
Report Order identifiers
_       99999  AVERAGE
Application (Class 1) and DB2 (Class 2) Times and Events
F1=Help    F2=Split   F3=Exit    F5=Extend  F6=Browse  F7=Up       F8=Down
F9=Swap    F12=Cancel
```

Figure 38. Moving a Block - before Pressing **Enter**

To adjust the order of the blocks, press **Enter**. The blocks are now displayed in ascending sequence and the order numbers are adjusted to multiples of ten, as shown in Figure 39.

```
DGOBEBLK                    UTR Block Selection           Row 1 to 5 of 27
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT

1.  To change the contents of a block, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block, blank out the Order column

Modify  Order  Label
Description
_       10     GENERAL
General Accounting Data
_       20     DISTRIBUTED ACTIVITY
Distributed Data Facility Data (Column Form)
_       30     PACKAGE GENERAL
General Package Data (Column Form)
_       99999  ORDER IDS
Report Order identifiers
_       99999  AVERAGE
Application (Class 1) and DB2 (Class 2) Times and Events
F1=Help    F2=Split   F3=Exit    F5=Extend  F6=Browse  F7=Up      F8=Down
F9=Swap    F12=Cancel
```

Figure 39. Moving a Block - after Pressing **Enter**

The modified report layout now prints the *DISTRIBUTED ACTIVITY* block before the *PACKAGE GENERAL* block.

Renaming a Block

To rename a block, type a new name over the label of an existing block. For example, the *DISTRIBUTED ACTIVITY* block can be renamed *DDF ACTIVITY*, as shown in Figure 40.

```
DGOBEBLK                    UTR Block Selection          Row 1 to 5 of 27
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT

1.  To change the contents of a block, select the Modify column
2.  To include and order, modify/add a number in the Order column
3.  To exclude a block, blank out the Order column

Modify  Order  Label
Description
_        10      GENERAL
General Accounting Data
_        20      PACKAGE GENERAL
General Package Data (Column Form)
_        30
DDF ACTIVITY
Distributed Data Facility Data (Column Form)
_        99999  ORDER IDS
Report Order identifiers
_        99999  AVERAGE
Application (Class 1) and DB2 (Class 2) Times and Events
F1=Help    F2=Split   F3=Exit    F5=Extend  F6=Browse  F7=Up      F8=Down
F9=Swap    F12=Cancel
```

Figure 40. Renaming a Block

> **Note:** The description of the block cannot be changed.

Fields

You can modify the contents of blocks. The contents of table blocks are modified using the UTR Table Row Selection and UTR Table Column Selection panels. The contents of list and column blocks are modified using the UTR Field Selection panel.

The UTR Field Selection Panel

On the UTR Field Selection panel you can add, delete, move, and rename fields.

When you want to modify the contents of a block, enter a slash (/) in the *Modify* column next to the block on the UTR Block Selection panel. If the block is a list or a column block, the UTR Field Selection panel is displayed. If the block is a table block, the UTR Table Row Selection panel is displayed.

```
DGOBFLD3                   UTR Field Selection            Row 1 to 5 of 67
Command ===>

_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                               Length
10     #OCCURS
Number of accounting records (ASOCCURS)                      7
20     #DISTRS
Number of records with distributed activity (ASDISTRS)       7
30     #ROLLBK
Sum of rollbacks (QWACABRT)                                  7
40     #COMMIT
Sum of commits (QWACCOMM)                                    7
50     SELECTS
Average of SELECT statements executed (QXSELECT)             7
F1=Help    F3=Exit    F5=Extend  F7=Up     F8=Down   F10=Config F11=Filler
F12=Cancel
```

Figure 41. UTR Field Selection Panel

The fields on the panel are:

Order   Use this field to:

- Add a field by adding a number next to it.
- Delete a field by deleting the number next to it.
- Move a field by changing the number next to it.

Label/Description

This column shows the field label and description, if you are using the extended display as in this example. For more information on extended display, see "EXTEND Command" on page 105.

The label is printed on reports and traces; the description is only shown on the panel.

Length

This column shows the length of the field.

Adding a Field

To add a field to a block, enter a number next to the field in the *Order* column. Specify the order number as follows:

- If you want the new field to be printed before another field, specify a number less than the order number of that field.
- If you want the new field printed after another field, specify a number greater than the order number of that field.

When you next press **Enter** or **F3**, or issue the FILLER command, the order numbers are automatically adjusted to ascending order and into multiples of ten.

Example of Adding a Field

Assume that you want to add the *CLS2 WAIT TIME* (average class 2 waiting time) and the *NOT ACCNT TIME* (average not accounted waiting time) fields to the general accounting data block in the SHORT sample accounting report. You want these fields to be printed after the existing time fields.

The layout of the sample report, before the fields are added, looks like this:

```
  LOCATION: DSNCAT                      DB2 PERFORMANCE MONITOR (V6)                           PAGE: 1-1
     GROUP: DSNCAT                      ACCOUNTING REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
    MEMBER: SSDQ                                                                          TO: NOT SPECIFIED
 SUBSYSTEM: SSDQ                           ORDER: PRIMAUTH-PLANNAME            INTERVAL FROM: 05/10/98 18:47:13.28
DB2 VERSION: V6                           SCOPE: MEMBER                                     TO: 05/10/98 18:47:13.28

PRIMAUTH                  #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
PLANNAME                  #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------
```

Figure 42. Accounting Report - Sample Layout

The report you want to produce contains the *CLS2 WAIT TIME* and the *NOT ACCNT TIME* fields in addition to the predefined general accounting data block fields. The layout of the report looks like this:

```
  LOCATION: DSNCAT                      DB2 PERFORMANCE MONITOR (V6)                           PAGE: 1-1
     GROUP: DSNCAT                      ACCOUNTING REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
    MEMBER: SSDQ                                                                          TO: NOT SPECIFIED
 SUBSYSTEM: SSDQ                           ORDER: PRIMAUTH-PLANNAME            INTERVAL FROM: 05/10/98 18:47:13.28
DB2 VERSION: V6                           SCOPE: MEMBER                                     TO: 05/10/98 18:47:13.28

#OCCURS #COMMIT INSERTS  CLOSES CLASS1 EL.TIME CLASS2 CPUTIME GETPAGES TOT.PREF
PRIMAUTH                  #DISTRS SELECTS   OPENS DELETES CLASS1 CPUTIME
CLS2 WAIT TIME
BUF.UPDT LOCK SUS
PLANNAME                  #ROLLBK FETCHES UPDATES PREPARE CLASS2 EL.TIME
NOT ACCNT TIME
SYN.READ #LOCKOUT
------------------------- ------- ------- ------- ------- -------------- -------------- -------- --------
```

Figure 43. Accounting Report - Modified Layout

As you can see, when you added the two new fields to the block, DB2 PM added a third row of column headings to fit in the new fields.

To produce the report example similar to the one shown in Figure 43, first enter a slash (/) in the Modify column next to the *GENERAL* block on the UTR Block Selection panel and press **Enter**. Scroll down (**F8**) to the *CLS2 WAIT TIME* and *NOT ACCNT TIME* fields, and include these fields by specifying an order number next to them. Because you want the new fields to print after the other time fields, you specify order numbers greater than the order number of the last time field, *CLASS2 CPUTIME*. In this case, you insert fields between order numbers 160 and 170 using the numbers 161 and 162 as shown in Figure 44.

```
DGOBFLD3                    UTR Field Selection          Row 31 to 35 of 67
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                               Length
99999  #RIDUNS
Sum of times RID List processing was not used (ARTTERM)        7
99999  #INCBND
Sum of Incremental Binds executed (QXINCRB)                    7
99999  CLS1 WAIT TIME
Average Class 1 waiting time (ADTWTAP)                        14
161
CLS2 WAIT TIME
Average Class 2 waiting time (ADTWTDB)                        14
162
NOT ACCNT TIME
Average not accounted waiting time (ADNOTACC)                14
F1=Help   F2=Split  F3=Exit    F5=Extend F7=Up      F8=Down   F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 44. Adding a Field - before Pressing **Enter**

To adjust the order of the fields, press **Enter**. The fields are now ordered in
ascending sequence. Press **F7** (Up) until the two fields which were included are
displayed on the panel, as shown in Figure 45. The order numbers of the
CLS2 WAIT TIME and *NOT ACCNT TIME* fields are adjusted to the next multiple
of ten, 170 and 180. The rest of the fields are also adjusted automatically.

```
DGOBFLD3                    UTR Field Selection          Row 16 to 20 of 67
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                               Length
160    CLASS2 CPUTIME
Average Class 2 CPU time (ADDBCPUT)                           14
170    CLS2 WAIT TIME
Average Class 2 waiting time (ADTWTDB)                        14
180    NOT ACCNT TIME
Average not accounted waiting time (ADNOTACC)                14
190    GETPAGES
Average getpage requests for all buffer pools (QBACGET)       8
200    BUF.UPDT
Average buffer updates for all buffer pools (QBACSWS)         8
F1=Help   F2=Split  F3=Exit    F5=Extend F7=Up      F8=Down   F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 45. Adding a Field - after Pressing **Enter** *and F7*

The modified report layout now prints the *CLS2 WAIT TIME* and *NOT ACCNT TIME* fields in the general accounting data block.

Deleting a Field

To delete a field, blank out the number in the *Order* column next to the field.

When you press **Enter** after you have blanked out the order number of a field, it returns to its original position on the panel. This means that you can always see your selections summarized at the top of the UTR Field Selection panel.

Example of Deleting a Field

Assume that you want to delete the *CLS2 WAIT TIME* and *NOT ACCNT TIME* fields which you added to the general accounting data block in the previous example.

To do this, you blank out the order number next to the *CLS2 WAIT TIME* and *NOT ACCNT TIME* fields, as shown in Figure 46.

```
DGOBFLD3                   UTR Field Selection          Row 16 to 20 of 67
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                             Length
160    CLASS2 CPUTIME
Average Class 2 CPU time (ADDBCPUT)                       14
CLS2 WAIT TIME
Average Class 2 waiting time (ADTWTDB)                    14
NOT ACCNT TIME
Average not accounted waiting time (ADNOTACC)            14
190    GETPAGES
Average getpage requests for all buffer pools (QBACGET)    8
200    BUF.UPDT
Average buffer updates for all buffer pools (QBACSWS)      8
F1=Help   F2=Split   F3=Exit    F5=Extend  F7=Up     F8=Down   F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 46. Deleting a Field - before Pressing **Enter**

Press **Enter** to readjust the order of the fields. The fields that no longer have an order number are returned to their original positions on the panel. The original order of the fields is restored, as shown in Figure 47.

```
DGOBFLD3                   UTR Field Selection        Row 16 to 20 of 67
Command ===>
_____
DGOB036 Changes have been accepted. Press ENTER again to continue
Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                            Length
160    CLASS2 CPUTIME
Average Class 2 CPU time (ADDBCPUT)                      14
170    GETPAGES
Average getpage requests for all buffer pools (QBACGET)   8
180    BUF.UPDT
Average buffer updates for all buffer pools (QBACSWS)     8
190    SYN.READ
Average synchronous reads for all buffer pools (QBACRIO)  8
200    TOT.PREF
Average all types of prefetch requests (ABCLSPR)          8
F1=Help   F2=Split   F3=Exit    F5=Extend  F7=Up     F8=Down   F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 47. Deleting a Field - after Pressing **Enter**

The *CLS2 WAIT TIME* and *NOT ACCNT TIME* fields do not have order numbers next to them, so they are no longer printed in the general accounting data block.

Moving a Field

To move a field, change its order number.

- If you want to move the field before another field, specify an order number less than the order number of the field you want it to precede.
- If you want to move the field after another field, specify an order number greater than the order number of the field you want it to follow.

Example of Moving a Field

Assume that you want to change the order of the fields on the general accounting data block, so that the *#COMMIT* and *#ROLLBK* fields are printed last.

The layout of the general accounting data block you want to produce looks like this:

```
   LOCATION: DSNCAT                         DB2 PERFORMANCE MONITOR (V6)                      PAGE: 1-1
      GROUP: DSNCAT                          ACCOUNTING REPORT - SHORT          REQUESTED FROM: NOT SPECIFIED
     MEMBER: SSDQ                                                                           TO: NOT SPECIFIED
  SUBSYSTEM: SSDQ                            ORDER: PRIMAUTH-PLANNAME          INTERVAL FROM: 05/10/98 18:47:13.28
DB2 VERSION: V6                               SCOPE: MEMBER                               TO: 05/10/98 18:47:13.28

PRIMAUTH                  #OCCURS SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
#ROLLBK
PLANNAME                  #DISTRS FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
#COMMIT
------------------------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- -------- -------
```

Figure 48. General Accounting Data Block - Modified Layout

To do this, you change the order number of the fields by using a number greater than the last specified field. In this case, you use 221 and 222 (as shown in Figure 49) because the last field on this layout has, by default, order number 220.

```
DGOBFLD3                    UTR Field Selection          Row 1 to 5 of 67
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                          Length
10     #OCCURS
Number of accounting records (ASOCCURS)                 7
20     #DISTRS
Number of records with distributed activity (ASDISTRS)  7
221
#ROLLBK
Sum of rollbacks (QWACABRT)                             7
222
#COMMIT
Sum of commits (QWACCOMM)                               7
50     SELECTS
Average of SELECT statements executed (QXSELECT)        7
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up     F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 49. Moving a Field - before Pressing **Enter**

To adjust the order of the blocks, press **Enter**. The blocks are now ordered in ascending sequence, as shown in Figure 50.

```
DGOBFLD3                    UTR Field Selection          Row 1 to 5 of 67
Command ===>
_____
DGOB036 Changes have been accepted. Press ENTER again to continue
Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                          Length
10     #OCCURS
Number of accounting records (ASOCCURS)                 7
20     #DISTRS
Number of records with distributed activity (ASDISTRS)  7
30     SELECTS
Average of SELECT statements executed (QXSELECT)        7
40     FETCHES
Average of FETCH statements executed (QXFETCH)          7
50     INSERTS
Average of INSERT statements executed (QXINSRT)         7
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up     F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 50. Moving a Field - after Pressing **Enter**

The modified general accounting block layout now prints the *#COMMIT* and *#ROLLBK* fields after the *LOCK SUS* and *#LOCKOUT* fields in the last column of the report.

Renaming a Field

To rename a field, type a new name over the label of an existing field. For example, the *#OCCURS* field can be renamed to *#OCCURRENCES*, as shown in Figure 51.

```
DGOBFLD3                    UTR Field Selection           Row 1 to 5 of 67
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : GENERAL

1.  To include and order, modify/add a number in the Order column
2.  To exclude a field, blank out the Order column

Order  Label
Description                                               Length
10
#OCCURRENCES
Number of accounting records (ASOCCURS)                      7
20     #DISTRS
Number of records with distributed activity (ASDISTRS)       7
30     SELECTS
Average of SELECT statements executed (QXSELECT)             7
40     FETCHES
Average of FETCH statements executed (QXFETCH)               7
50     INSERTS
Average of INSERT statements executed (QXINSRT)              7
F1=Help   F2=Split   F3=Exit    F5=Extend  F7=Up     F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 51. Renaming a Field

Note: The description of the field cannot be changed.

Rows and Columns

The contents of table blocks are modified using the UTR Table Row Selection and Table Column Selection panels. On these panels you can add, delete, and move rows and columns.

The UTR Table Row Selection Panel

When you want to modify the contents of a block, enter a slash (/) in the *Modify* column next to the block on the UTR Block Selection panel. If the block is a table block, the UTR Table Row Selection panel is displayed, as shown in Figure 52.

```
DGOBROW3                    UTR Table Row Selection          Row 1 to 5 of 15
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
10     SELECT
SELECT statements executed (QXSELECT)
20     INSERT
INSERT statements executed (QXINSRT)
30     UPDATE
UPDATE statements executed (QXUPDTE)
40     DELETE
DELETE statements executed (QXDELET)
50     FILLER
Filler length:  1
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 52. UTR Table Row Selection Panel

The fields on the panel are:

Order Use this field to:
- Add a row by adding a number next to it.
- Delete a row by deleting the number next to it.
- Move a row by changing the number next to it.

Label/Description

This column shows the row label and description, if you are using the extended display as in this example. For more information on extended display, see "EXTEND Command" on page 105.

The label is printed on reports and traces; the description is only shown on the panel.

Adding a Row

To add a row to a block, enter a number next to the row in the *Order* column. Specify the order number as follows:
- If you want the new row to be printed before another row, specify a number less than the order number of that row.
- If you want the new field printed after another row, specify a number greater than the order number of that row.

When you next press **Enter** or **F3** or issue one of the UTR-related commands (CONFIG, EXTEND, FILLER, or QUALIFY) by pressing a function key, the order numbers are automatically adjusted to ascending order and into multiples of ten.

Example of Adding a Row

Assume that you want to add the number of commits and rollbacks to the accounting SQL DML block. You want these rows to print after the existing rows.

An example of the accounting SQL DML block looks like this:

```
SQL DML    AVERAGE    TOTAL
--------   --------  --------
SELECT       3.00        3
INSERT       4.00        4
UPDATE       3.00        3
DELETE       0.00        0

DESCRIBE     0.00        0
DESC.TBL     0.00        0
PREPARE      0.00        0
OPEN         3.00        3
FETCH        3.00        3
CLOSE        2.00        2

DML-ALL     18.00       18
```

Figure 53. Example SQL DML Activity Block

The report you want to produce contains rows for the number of commits and rollbacks. It looks like this:

```
SQL DML    AVERAGE    TOTAL
--------   --------  --------
SELECT       3.00        3
INSERT       4.00        4
UPDATE       3.00        3
DELETE       0.00        0

DESCRIBE     0.00        0
DESC.TBL     0.00        0
PREPARE      0.00        0
OPEN         3.00        3
FETCH        3.00        3
CLOSE        2.00        2

DML-ALL     18.00       18
COMMITS      1.00        1
ROLLBACK     0.00        0
```

Figure 54. Modified SQL DML Activity Block

To produce the example report shown in Figure 54, you include the *COMMITS* and *ROLLBACK* rows by specifying an order number next to them. Because you want the new rows to print after the existing rows, you specify for them order numbers greater than the order number of the last existing row, as shown in Figure 55.

See "Adding Blank Lines and Rows" on page 148 for information about how to add a blank line between the *DML-ALL* and *COMMITS* rows.

```
DGOBROW3                    UTR Table Row Selection        Row 11 to 15 of 15
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
110    CLOSE
CLOSE statements executed (QXCLOSE)
120    FILLER
Filler length:  1
130    DML-ALL
Total Number of DML statements executed (ASCDML)
131    COMMITS
Number of COMMITS (QWACCOMM)
132
ROLLBACK
Number of ROLLBACKS (QWACABRT)
F1=Help    F2=Split  F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 55. Adding a Row - before Pressing **Enter**

To adjust the order of the rows, press **Enter**. The fields are now ordered in
ascending sequence and the order numbers of the *COMMITS* and *ROLLBACK*
rows are adjusted to the next multiple of ten, 140 and 150, as shown in Figure 56.

```
DGOBROW3                    UTR Table Row Selection        Row 11 to 15 of 15
Command ===>
_____
DGOB036 Changes have been accepted. Press ENTER again to continue
Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
110    CLOSE
CLOSE statements executed (QXCLOSE)
120    FILLER
Filler length:  1
130    DML-ALL
Total Number of DML statements executed (ASCDML)
140    COMMITS
Number of COMMITS (QWACCOMM)
150    ROLLBACK
Number of ROLLBACKS (QWACABRT)
F1=Help    F2=Split  F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 56. Adding a Row - after Pressing **Enter**

The modified accounting layout now prints the *COMMITS* and *ROLLBACK* rows at
the end of the SQL DML block.

Deleting a Row

To delete a row, blank out the number in the *Order* column next to the row.

When you press **Enter** after you have blanked out the order number of a row, it returns to its original position on the panel. This means that you can always see your selections summarized at the top of the UTR Table Row Selection panel.

Example of Deleting a Row

Assume that you want to delete the *COMMITS* and *ROLLBACK* rows which you added to the accounting SQL DML block in the previous example.

To do this, you blank out the order number next to the *COMMITS* and *ROLLBACK* rows, as shown in Figure 57.

```
DGOBROW3                    UTR Table Row Selection         Row 11 to 15 of 15
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
110    CLOSE
CLOSE statements executed (QXCLOSE)
120    FILLER
Filler length:  1
130    DML-ALL
Total Number of DML statements executed (ASCDML)
COMMITS
Number of COMMITS (QWACCOMM)
ROLLBACK
Number of ROLLBACKS (QWACABRT)
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up       F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 57. Deleting a Row

Press **Enter** to readjust the order of the fields, but because the fields were in their original positions on the panel, no adjustments are made.

Moving a Row

To move a row, change its order number.
- If you want to move the row before another row, specify an order number less than the order number of the row you want it to precede.
- If you want to move the row after another row, specify an order number greater than the order number of the row you want it to follow.

Example of Moving a Row

Assume that you want to change the order of the rows on the standard accounting SQL DML block, so that the *DML-ALL* row is printed at the top of the block.

The report you want to produce looks like this:

```
SQL DML     AVERAGE     TOTAL
--------    --------    --------
DML-ALL      18.00           18
SELECT        3.00            3
INSERT        4.00            4
UPDATE        3.00            3
DELETE        0.00            0

DESCRIBE      0.00            0
DESC.TBL      0.00            0
PREPARE       0.00            0
OPEN          3.00            3
FETCH         3.00            3
CLOSE         2.00            2
```

Figure 58. Changing the Order of Rows

To produce this report, you change the order number of the rows, as shown in Figure 59.

```
DGOBROW3                 UTR Table Row Selection          Row 11 to 15 of 15
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
110    CLOSE
CLOSE statements executed (QXCLOSE)
120    FILLER
Filler length:  1
1
DML-ALL
Total Number of DML statements executed (ASCDML)
99999  COMMITS
Number of COMMITS (QWACCOMM)
99999  ROLLBACK
Number of ROLLBACKS (QWACABRT)
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 59. Moving a Row - before Pressing **Enter**

The order numbers of all the rows following the *DML-ALL* row are adjusted automatically.

To adjust the order of the rows, press **Enter**. The blocks are now ordered in ascending sequence. Press **F7** (Up) until the top of the field list is reached, as shown in Figure 60.

```
DGOBROW3                    UTR Table Row Selection          Row 1 to 5 of 15
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
10     DML-ALL
Total Number of DML statements executed (ASCDML)
20     SELECT
SELECT statements executed (QXSELECT)
30     INSERT
INSERT statements executed (QXINSRT)
40     UPDATE
UPDATE statements executed (QXUPDTE)
50     DELETE
DELETE statements executed (QXDELET)
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 60. Moving a Row - after Pressing **Enter** *and F7*

The modified accounting SQL DML block layout now prints the *DML-ALL* row as the first row.

Renaming a Row

To rename a row, type a new name over the label of an existing row. For example, the *SELECT* row can be renamed *SELECTSTMTS*, as shown in Figure 61.

```
DGOBROW3                    UTR Table Row Selection          Row 1 to 5 of 15
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
10
SELECTSTMTS
SELECT statements executed (QXSELECT)
20     INSERT
INSERT statements executed (QXINSRT)
30     UPDATE
UPDATE statements executed (QXUPDTE)
40     DELETE
DELETE statements executed (QXDELET)
50     FILLER
Filler length:  1
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 61. Renaming a Row

Note: The description of the row cannot be changed.

The UTR Column Selection Panel

When you press **Enter** or **F3** (Exit) on the UTR Table Row Selection panel, the UTR Table Column Selection panel is displayed, as shown in Figure 62.

You use this panel to add, delete, move, and rename columns.

```
DGOBCOL3                 UTR Table Column Selection        Row 1 to 3 of 3
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table column, blank out the Order column

Order  Label
Description                                              Length
10     AVERAGE
Average number of DML statements                            8
20     TOTAL
Number of DML statements                                    8
99999  /COMMIT
Number of DML statements per commit                         8
****************************** Bottom of data ********************************



F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F12=Cancel
```

Figure 62. UTR Table Column Selection Panel

The fields on the panel are:

Order Use this field to:
- Add a column by adding a number next to it.
- Delete a column by deleting the number next to it.
- Move a column by changing the number next to it.

Label/Description
This column shows the column label and description, if you are using the extended display as in this example. For more information see "EXTEND Command" on page 105.

The label is printed on reports and traces; the description is only shown on the panel.

Length
Shows the length of the column.

Adding a Column

To add a column to a block, enter a number next to it in the *Order* column. Specify the order number as follows:

- If you want the new column to be printed to the left of another column, specify a number less than the order number of that column.
- If you want the new column to be printed to the right of another column, specify a number greater than the order number of that column.

When you next press **Enter** or **F3**, the order numbers are automatically adjusted to ascending order and into multiples of ten.

Example of Adding a Column

Assume that you want to add the column showing */COMMIT* to the end of the accounting SQL DML block. You want this column to be printed to the right of the existing columns.

The standard accounting SQL DML block looks like this:

```
SQL DML    AVERAGE     TOTAL
--------   --------   --------
SELECT       3.00         3
INSERT       4.00         4
UPDATE       3.00         3
DELETE       0.00         0

DESCRIBE     0.00         0
DESC.TBL     0.00         0
PREPARE      0.00         0
OPEN         3.00         3
FETCH        3.00         3
CLOSE        2.00         2

DML-ALL     18.00        18
```

Figure 63. Example SQL DML Activity Block

The report you want to produce looks like this:

```
SQL DML    AVERAGE     TOTAL     /COMMIT
--------   --------   --------   --------
SELECT       3.00         3       3.00
INSERT       4.00         4       4.00
UPDATE       3.00         3       3.00
DELETE       0.00         0       0.00

DESCRIBE     0.00         0       0.00
DESC.TBL     0.00         0       0.00
PREPARE      0.00         0       0.00
OPEN         3.00         3       3.00
FETCH        3.00         3       3.00
CLOSE        2.00         2       2.00

DML-ALL     18.00        18      18.00
```

Figure 64. Modified SQL DML Activity Block

To produce the example report shown in Figure 64, you include the */COMMIT* column by specifying an order next to it. Because you want the new column to be printed to the right of the existing columns, you specify an order number greater than the order number of the rightmost existing column, as shown in Figure 65.

```
DGOBCOL3                   UTR Table Column Selection          Row 1 to 3 of 3
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table column, blank out the Order column

Order  Label
Description                                                      Length
10     AVERAGE
Average number of DML statements                                    8
20     TOTAL
Number of DML statements                                            8
21
/COMMIT
Number of DML statements per commit                                 8
***************************** Bottom of data ***********************************




F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up     F8=Down    F9=Swap
F10=Config F12=Cancel
```

Figure 65. Adding a Column - before Pressing **Enter**

To adjust the order of the columns, press **Enter**. The columns are now ordered in
ascending sequence and the order number of the *⁄COMMIT* column is adjusted to
the next multiple of ten, 30, as shown in Figure 66.

```
DGOBCOL3                   UTR Table Column Selection          Row 1 to 3 of 3
Command ===>
_____
DGOB036 Changes have been accepted. Press ENTER again to continue
Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table column, blank out the Order column

Order  Label
Description                                                      Length
10     AVERAGE
Average number of DML statements                                    8
20     TOTAL
Number of DML statements                                            8
30     /COMMIT
Number of DML statements per commit                                 8
***************************** Bottom of data ***********************************




F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up     F8=Down    F9=Swap
F10=Config F12=Cancel
```

Figure 66. Adding a Column - after Pressing **Enter**

The modified accounting report now prints the *⁄COMMIT* column in the SQL DML
block.

Deleting a Column

To delete a column, blank out the number in the *Order* column next to it.

When you press **Enter** after you have blanked out the order number of a column, it returns to its original position on the panel. This means that you can always see your selections summarized at the top of the UTR Table Column Selection panel.

Example of Deleting a Column

Assume that you want to delete the */COMMIT* column which you added to the accounting SQL DML block in the previous example.

To do this, you blank out the order number next to */COMMIT*, as shown in Figure 67.

```
DGOBCOL3                    UTR Table Column Selection        Row 1 to 3 of 3
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table column, blank out the Order column

Order  Label
Description                                             Length
10     AVERAGE
Average number of DML statements                           8
20     TOTAL
Number of DML statements                                   8
/COMMIT
Number of DML statements per commit                        8
****************************** Bottom of data ******************************




F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F12=Cancel
```

Figure 67. Deleting a Column

Press **Enter** to readjust the order of the columns, but because the columns were in their original position on the panel, no adjustments are made.

Moving a Column

To move a column, change its order number.
- If you want to move the column to the left of another column, specify an order number less than the order number of the column you want it to precede.
- If you want to move the column to the right of another column, specify an order number greater than the order number of the column you want it to follow.

Example of Moving a Column

Assume that you want to change the order of the columns on the standard accounting SQL DML block, so that the *TOTAL* column is printed to the left of the *AVERAGE* column.

The report you want to produce looks like this:

```
SQL DML   TOTAL   AVERAGE
--------  ------- --------
SELECT        3     3.00
INSERT        4     4.00
UPDATE        3     3.00
DELETE        0     0.00

DESCRIBE      0     0.00
DESC.TBL      0     0.00
PREPARE       0     0.00
OPEN          3     3.00
FETCH         3     3.00
CLOSE         2     2.00

DML-ALL      18    18.00
```

Figure 68. Changing the Order of Rows

To produce this report, you need to change the order number of the columns by entering 1 next to *TOTAL*, as shown in Figure 69.

```
DGOBCOL3                 UTR Table Column Selection          Row 1 to 3 of 3
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table column, blank out the Order column

Order  Label
Description                                                   Length
10    AVERAGE
Average number of DML statements                                8
1
TOTAL
Number of DML statements                                        8
99999  /COMMIT
Number of DML statements per commit                             8
****************************** Bottom of data ******************************




F1=Help    F2=Split  F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F12=Cancel
```

Figure 69. Moving a Column - before Pressing **Enter**

To adjust the order of the columns, press **Enter**. The columns are now ordered in ascending order, as shown in Figure 70.

```
DGOBCOL3                   UTR Table Column Selection         Row 1 to 3 of 3
Command ===>
_____
DGOB036 Changes have been accepted. Press ENTER again to continue
Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table column, blank out the Order column

Order  Label
Description                                                   Length
10     TOTAL
Number of DML statements                                        8
20     AVERAGE
Average number of DML statements                                8
99999  /COMMIT
Number of DML statements per commit                             8
***************************** Bottom of data ********************************



F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F12=Cancel
```

Figure 70. Moving a Column - after Pressing **Enter**

The modified accounting SQL DML block layout now prints the *TOTAL* column to the left of the *AVERAGE* column.

Renaming a Column

To rename a column, type a new name over the label of an existing column. For example, the *TOTAL* column can be renamed *TOTALDML*, as shown in Figure 71.

```
DGOBCOL3                   UTR Table Column Selection         Row 1 to 3 of 3
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table column, blank out the Order column

Order  Label
Description                                                   Length
10     AVERAGE
Average number of DML statements                                8
20
TOTALDML
Number of DML statements                                        8
99999  /COMMIT
Number of DML statements per commit                             8
***************************** Bottom of data ********************************



F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F12=Cancel
```

Figure 71. Renaming a Column

Note: The description of the column cannot be changed.

When you have completed the changes to your layout, exit from the UTR selection panels by pressing **Enter**. The UTR Block Selection panel is redisplayed.

Displaying the Layout

You can display your layout by pressing **F6** (Browse) on the UTR Block Selection panel. The layout is displayed after a short period of time. A portion of an example layout is shown in Figure 72.

```
DGOFBRWS SYS94354.T110119.RA000.SERKAN.R0000071 ---- Line 00000000 Col 001 080
Command ===>
_____ Scroll ===>
PAGE
******************************* Top of Data *********************************
LOCATION:                            DB2 PERFORMANCE MONITOR (V6)
GROUP:                               ACCOUNTING REPORT - SHORT
MEMBER:
SUBSYSTEM:
DB2 VERSION:

TOP FIELD:                                                    TOP NUMB


#OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLAS
#DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLAS
-------------------------- ------- ------- ------- ------- ------- ------- ----


TYPE           SQLS
#OCCURS  CL7 ELAP.T
--------------------------------------------------------  --------  ----------


F1=Help    F2=Split   F3=Exit    F5=Rfind   F7=Up     F8=Down    F9=Swap
F10=Left   F11=Right  F12=Cancel
```

Figure 72. Browsing a Sample Layout

Depending on the width of your report, you might have to scroll right (**F11**) and down (**F8**) to view the entire report.

Press **F3** (Exit) or **F12** (Cancel) to return to the UTR Block Selection panel.

Saving the Layout

When you exit the UTR Block Selection panel, the UTR Save Layout Details panel is displayed, as shown in Figure 73.

```
  DGOBPSAV                    UTR Save Layout Details                        ⌐

   Report set ..... : Accounting Report

   Provide the Layout Details and press Enter to save the layout
      or
   Cancel to make further changes to the layout.

   Layout ... SHORT
   Description   Accounting Report   Short

   Is each new record or entry to start on a new page ?   2   1=yes 2=no


    F1=Help     F2=Split    F9=Swap    F12=Cancel
                                                              ⌐
```

Figure 73. Saving the Layout

The name and description on the UTR Save Layout Details panel show the original layout you used as a basis for your layout.

If you want to save the modified layout with the same name, press **Enter**. In this case, the modified layout is used instead of the existing sample layout whenever you generate reports or traces. However, it is not recommended that you give the modified layout the same name as the sample layout.

You can give the layout a new name by typing over the existing name. The name can have up to six characters. You can also type over the existing description, as shown in Figure 74.

```
   DGOBPSAV                    UTR Save Layout Details                        ⌐

    Report set ..... : Accounting Report

    Provide the Layout Details and press Enter to save the layout
       or
    Cancel to make further changes to the layout.
                                                              |
    Layout ...
 MYREP

    Description
 Modified short accounting report


    Is each new record or entry to start on a new page ?   2   1=yes 2=no


     F1=Help     F2=Split    F9=Swap    F12=Cancel
                                                              ⌐
```

Figure 74. Changing the Name and the Description of a Layout

In Figure 74 you called the layout MYREP and changed the description. At this point, you can reduce the size of your reports by choosing to place many report and trace entries on the same page. Typically, longer reports and traces have each entry starting on a new page, while shorter reports and traces have multiple entries

per page. For example, if you create a layout suitable for ordering by package, you should specify 2 (for No) in the *Is each new record or entry to start on a new page ?* field.

Press **Enter** to save the new layout, MYREP, or **F12** to return to the UTR Block Selection panel without saving any changes. After saving your layout, the UTR Layout Selection panel is displayed with the new layout, as shown in Figure 75.

```
DGOBPLAY                  UTR Layout Selection              Row 1 to 3 of 3
Command ===>
_____

Report set ..... : Accounting Report

Select a Layout then press Enter.

Layout  Description
_    LONG     Accounting Report - Long
_    MYREP    Modified short accounting report
_    SHORT    Accounting Report - Short
****************************** Bottom of data ********************************




 DGOB043 The layout has been saved


F1=Help    F2=Split   F3=Exit    F7=Up      F8=Down    F9=Swap   F12=Cancel
```

Figure 75. Displaying the List of Layouts

The layouts you have created are saved into your DPMPARMS data set. You specified the name of your DPMPARMS data set when you started to tailor your layout, on the User-Tailored Reporting Layout Generation panel.

The member names of your layouts in the DPMPARMS data set are always preceded by a 2-character prefix showing the report set and the output type they belong to. The first letter of the prefix is either A (accounting) or S (statistics) and the second letter is R (report) or T (trace). This prefix is not, however, used in the DB2 PM panels or command language. You cannot use any editor other than the IRF to change the layout.

You can now generate reports using the modified layout.

Canceling Layout Changes

You can cancel all changes to your layout or only a single modification made on a panel, by using the CANCEL command (**F12**):

• If you press **F12** on the UTR Block Selection panel after making changes to the layout, the UTR Confirm Layout Cancel panel is displayed, as shown in Figure 76. Use this panel to discard all changes to your layout by pressing **Enter**.

• If you press **F12** on any other panel, only the changes you entered on that panel are discarded.

```
  DGOBPCAN    UTR Confirm Layout Cancel

  Report set ..... : Accounting Report
  Layout ....... : MYREP

  The layout has been modified but not saved.

  Press Enter to discard any modifications
    or
  Cancel to make further changes to the layout.


   F1=Help     F2=Split    F9=Swap    F12=Cancel
```

Figure 76. UTR Confirm Layout Cancel Panel

Chapter 13. Advanced Functions

This chapter shows how to tailor the formatting of your report layouts in detail.

Formatting Blocks

You can change the formatting of a block using the CONFIG and FILLER commands.

Changing Block Attributes

There are several attributes that control how a block is printed on a page. You can change these attributes using the UTR Block Configuration panel. This panel is displayed using the CONFIG command. The CONFIG command is available when you select a block. You can issue the command by entering it on the command line or by pressing **F10** on the UTR Field, Row, Column, Block Category, or Block Qualifier Selection panel for the block.

```
 DGOBPCON                UTR Block Configuration

 Report set ..... : Accounting Report
 Layout    ....... : SHORT
 Block label..... : DISTRIBUTED ACTIVITY
 Block type ..... : COLUMN

 New page .......  2  1=yes 2=no
 Print label......  1  1=yes 2=no
 Every page ......  2  1=yes 2=no
 New line .......  1  1=yes 2=no


  F1=Help     F2=Split    F9=Swap    F12=Cancel
```

Figure 77. UTR Block Configuration Panel

The fields on the panel are:

New page
Specifies whether the block is to start on a new page. In the case of repeating blocks, such as buffer pool blocks or distributed activity blocks, only the first block starts on a new page.

Print label
Specifies whether the block label is printed. You can save space on your report by suppressing the printing of a block label. Print label is applicable to list and table blocks, not to column blocks.

Every page
Specifies whether the block is printed on every page. The thread identification block is an example of a block that you might want to print on every page.

For column block types with a running style heading, such as the general accounting block of the accounting short report, this attribute is ignored.

New line
Specifies whether the block is printed to the right of another block or

whether it should start on a new line. If you specify NO, the block is printed to the right, and if you specify YES, the block is printed on a new line.

Note: If you create a layout with several entries per page, specify NO for *New Page* and *New Line* for the identification (*ORDER IDS*) block. A typical example is a layout suitable for reports ordered by package.

Adding Blank Lines and Rows

Use a filler to specify that blank space is to be created within a block. You can define blank fields in list and column blocks and blank rows in table blocks.

You can issue the FILLER command by entering it on the command line or by pressing **F11** on the UTR Field Selection panel or on the UTR Table Row Selection panel with the cursor on the previous field.

Note that any changes you have made since you last pressed **Enter** are discarded when you enter the FILLER command.

Assume that you want to add a blank row in the accounting SQL DML block you modified in the example of adding rows to a table block. The layout looks like this.

```
SQL DML     AVERAGE      TOTAL
--------   --------   --------
SELECT        3.00          3
INSERT        4.00          4
UPDATE        3.00          3
DELETE        0.00          0

DESCRIBE      0.00          0
DESC.TBL      0.00          0
PREPARE       0.00          0
OPEN          3.00          3
FETCH         3.00          3
CLOSE         2.00          2

DML-ALL      18.00         18
COMMITS       1.00          1
ROLLBACK      0.00          0
```

Figure 78. Modified SQL DML Activity Block without Filler

You want to add the blank row between the *DML-ALL* row and the *COMMITS* row.

```
       SQL DML      AVERAGE       TOTAL
       --------     --------     --------
       SELECT         3.00           3
       INSERT         4.00           4
       UPDATE         3.00           3
       DELETE         0.00           0

       DESCRIBE       0.00           0
       DESC.TBL       0.00           0
       PREPARE        0.00           0
       OPEN           3.00           3
       FETCH          3.00           3
       CLOSE          2.00           2

       DML-ALL       18.00          18

       COMMITS        1.00           1
       ROLLBACK       0.00           0
```

Figure 79. Modified SQL DML Activity Block with Filler

To do that, you have to add a filler after the *DML-ALL* row in the UTR Table Row
Selection panel.

```
DGOBROW3                  UTR Table Row Selection        Row 11 to 15 of 15
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
110    CLOSE
CLOSE statements executed (QXCLOSE)
120    FILLER
Filler length:  1
130    DML-ALL
Total Number of DML statements executed (ASCDML)
99999  COMMITS
Number of COMMITS (QWACCOMM)
99999  ROLLBACK
Number of ROLLBACKS (QWACABRT)
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 80. Adding a Filler

To add the filler, you place the cursor on the line showing the *DML-ALL* label and
press **F11** (Filler).

The filler is inserted and the order numbers are adjusted.

```
DGOBROW3                  UTR Table Row Selection        Row 11 to 15 of 16
Command ===>
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
110    CLOSE
CLOSE statements executed (QXCLOSE)
120    FILLER
Filler length:  1
130    DML-ALL
Total Number of DML statements executed (ASCDML)
140    FILLER
Filler length: 1
99999  COMMITS
Number of COMMITS (QWACCOMM)
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 81. Adding a Filler - Filler Inserted

The modified layout now contains a blank line between the *DML-ALL* and
COMMITS rows in the SQL DML block.

By default the filler is one character long. You can make it longer by specifying the
length on the command line before you press **F11**. The maximum length of the filler
can be 132 characters.

Assume that you wanted to make the filler 20 characters long.

```
DGOBROW3                    UTR Table Row Selection        Row 11 to 15 of 15
Command ===>

20
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
110    CLOSE
CLOSE statements executed (QXCLOSE)
120    FILLER
Filler length:  1
130    DML-ALL
Total Number of DML statements executed (ASCDML)
99999  COMMITS
Number of COMMITS (QWACCOMM)
99999  ROLLBACK
Number of ROLLBACKS (QWACABRT)
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 82. Adding a Filler - Increasing Filler Length

To add the filler, type 20 on the command line, place the cursor on the line showing the *DML-ALL* label, and press **F11** (Filler).

The filler is inserted and the order numbers are adjusted.

```
DGOBROW3                    UTR Table Row Selection        Row 11 to 15 of 16
Command ===>

_____

Report set ..... : Accounting Report
Layout ....... : SHORT
Block label..... : SQL DML

1.  To include and order, modify/add a number in the Order column
2.  To exclude a table row, blank out the Order column

Order  Label
Description
110    CLOSE
CLOSE statements executed (QXCLOSE)
120    FILLER
Filler length:  1
130    DML-ALL
Total Number of DML statements executed (ASCDML)
140    FILLER
Filler length: 20
99999  COMMITS
Number of COMMITS (QWACCOMM)
F1=Help    F2=Split   F3=Exit    F5=Extend  F7=Up      F8=Down    F9=Swap
F10=Config F11=Filler F12=Cancel
```

Figure 83. Adding a Filler - Filler Length Increased

Alternatively, you can enter both the command and the length on the command line, place the cursor on the line showing the *DML-ALL* label, and press **Enter**.

```
DGOBROW3                    UTR Table Row Selection        Row 11 to 15 of 16
Command ===>

FILLER 20
_____

Report set ..... : Accounting Report
Layout ....... : SHORT
```

Figure 84. Adding a Filler and Increasing Filler Length at the Same Time

The length of the filler can determine the layout of the entire block, so be careful not to make it longer than necessary.

Part 5. Exception Processing

This part of the *DB2 PM Report Reference* describes exception processing. It is
divided into the following chapters:

- "Chapter 14. Introduction to Exception Processing" on page 155 provides an
  overview of exception processing.

- "Chapter 15. Exception Processing Output Types" on page 157 describes the
  types of output that are affected by exception processing such as accounting and
  statistics reports, traces, and file data sets, as well as the exception log and the
  exception log file data set.

- "Chapter 16. Exception Threshold Data Set" on page 159 describes how to
  access the exception threshold data set and the input fields of the relevant
  panels.

- "Chapter 17. Exception Profiling" on page 169 describes exception profiling and
  shows an example of an exception profiling report.

Exception Processing

Chapter 14. Introduction to Exception Processing

Exception reporting identifies accounting and statistics records that contain fields with exceptional values. This helps you recognize performance problems in the DB2 subsystem and in threads.

Exception processing is accomplished by setting values in the exception threshold data set. You define exception thresholds for specific accounting and statistics fields. When exception processing is requested, the instrumentation data is checked against these values. Only records with at least one field containing a value outside the user-specified limits are reported.

Exception processing checks all fields with defined exception thresholds even those that are not listed in your accounting or statistics report or trace.

You can set the thresholds in the exception threshold data set by using exception profiling and with the help of the example exception threshold data sets delivered with DB2 PM. Exception profiling can also be used to produce a report showing the details of the distribution and expected number of exceptions for each field.

Exception reports and traces are available in the accounting and statistics report sets. Each of these relates separately to accounting or statistics data.

In addition, the exception log lists both accounting and statistics exception records in the same report, in timestamp order. The contents of the exception log file data set are similar to the exception log. The exception log file data set can be used by the DB2 load utility.

Chapter 15. Exception Processing Output Types

This chapter describes the exception processing output:
- Accounting and statistics exception reports
- Accounting and statistics exception traces
- Accounting and statistics exception file data sets
- Exception log
- Exception log file data set

For more information specific to accounting reports, traces, and file data sets, refer to Chapter 26. Accounting Report and Trace Blocks. For more information specific to statistics reports, traces, and file data sets, refer to Chapter 34. Statistics Report and Trace Blocks.

Exception thresholds are specified in the exception threshold data set, ddname EXCPTDD. Therefore, the data set information for EXCPTDD must be specified in your JCL when you want to produce any of the listed output types.

Accounting and Statistics Exception Reports

Both report types contain entries that have at least one value outside the limits you have specified in the exception threshold data set.

An exception report is produced when you specify the EXCEPTION option in the REPORT subcommand.

After each report entry, information about the fields in exception status is printed.

Accounting and Statistics Exception Traces

Both trace types show records with fields containing values outside limits that you have previously specified in the exception threshold data set.

You can produce an exception trace by specifying the EXCEPTION option in the TRACE subcommand.

After each trace entry, information about the fields in exception status is printed.

Accounting and Statistics Exception File Data Sets

The exception file data set contains records that have at least one value outside the limits you have specified in the exception threshold data set.

You can produce an example file data set by specifying EXCEPTION in the FILE subcommand.

Exception Log

The exception log presents a list, in timestamp order, of DB2 accounting and statistics records with at least one field outside user-specified limits. It is produced automatically when EXTRCDD1 is specified.

For more information, refer to "Chapter 8. Exception Log" on page 85.

Exception Log File Data Set

The exception log file data set is a sequential data set suitable to load into the DB2 PM performance database. Use the performance database to produce tailored reports using a reporting facility such as Query Management Facility (QMF). See "Part 8. The Performance Database" on page 557 for more information.

The exception log file contains a list of accounting and statistics exception records similar to the list in the exception log. The exception log file data set is generated automatically for a DB2 PM execution when EXFILDD1 is defined in your JCL.

To prevent generation of the exception log file data set, omit the EXFILDD1 statement from your JCL (the preferred method), or specify DUMMY in the definition.

The amount of data reported in the exception log file data set can be controlled by the GLOBAL INCLUDE/EXCLUDE and FROM/TO specifications.

Allocation values for EXFILDD1 are:

RECFM:
> VB

LRECL:
> 512

BLKSIZE:
> 4096

Chapter 16. Exception Threshold Data Set

The exception threshold data set is used to contain the exception thresholds for the statistics and accounting fields. When exception processing is requested, the instrumentation data is checked against these thresholds. Only records with at least one field containing a value outside these thresholds are reported.

A sample threshold set is supplied in **DGOETV61** in the SDGODATA library. These data sets are used as input to exception profiling (see "Chapter 17. Exception Profiling" on page 169), but they can also be used without any modifications for defining an exception threshold data set suitable for your installation.

Note: You can use a new exception threshold data set. It can be a sequential data set or a member of a partitioned data set. Preallocate this new data set as follows:

RECFM:
> VB

LRECL:
> ≥ 255

BLKSIZE:
> 5104

The editor for the exception threshold data set validates the exception conditions. For example, it checks that the field identifier entered belongs to the list of valid field identifiers, and that the threshold is a valid numeric value.

Specifying Exceptions

Exception thresholds are set, and exception threshold data sets are maintained, using the exception threshold data set editor, which is accessed through the Interactive Report Facility (IRF). Select option 4 (*Maintain parameter data sets*) from the DB2 PM main menu, as shown in Figure 85.

```
DGOFMENU           IBM Database 2 Performance Monitor

Select one of the following.

4
_ 1. Create and execute DB2PM commands
2. Display and print graphs
3. View online DB2 activity
4. Maintain parameter data sets
5. Customize DB2PM report and trace layouts
6. Exception profiling









Command ===>
_____
F1=Help    F2=Split    F3=Exit    F9=Swap    F12=Cancel
```

Figure 85. DB2 PM Main Menu

Press **Enter**. The Data Set Maintenance Menu panel is displayed.

Type 1 in the input field to select *Maintain exception thresholds*, and type the name of your exception data set on the line below *Exception data set* on the panel as shown in Figure 86.

```
DGOPMENU                 Data Set Maintenance Menu

Select one of the following.

1
1. Maintain exception thresholds
2. Maintain correlation translations
3. Maintain time zone information
4. Maintain MAINPACK definitions

Exception data set
'DGO.V6R1M0.THRESH'
_____

DPMPARMS data set
'DGO.V6R1M0.DPMPARMS'_____




Command ===>
_____
F1=Help    F2=Split    F3=Exit    F9=Swap    F12=Cancel
```

Figure 86. Selecting Maintain Exception Threshold Data Set

Press **Enter**. The Exception Threshold Category Selection panel is displayed.

This panel displays the categories of exception threshold fields you can choose from. The name of the category indicates the area where the exception applies: *per plan* or *per program* exceptions are reported in accounting and *per system* exceptions are reported in statistics.

Fields that have previously been selected are marked with a greater than (>) symbol and sorted to the top. To update the category, select it again.

You can select any number of categories by typing a slash (/) or S in the selection field.

In Figure 87, the *Elapsed, CPU and Waiting Times per Plan Execution* field is selected.

```
DGOPXDS1            Exception Threshold Category Selection
Command ===>
_____

Select one or more categories, then press Enter.  Overtype with space to
deselect any category.  Request EXIT when complete.

Category
S   Elapsed, CPU and Waiting Times per Plan Execution
_   Elapsed, CPU and Waiting Times per Program Execution
_   CPU Times per Address Space
_   SQL Statements per Plan Execution
_   SQL Statements per Program Execution
_   SQL Statements per System
_   Subsystem Events per Plan Execution
_   Subsystem Events per System
_   Locking Activity per Plan Execution
_   Locking Activity per System
_   RID List Processing per Plan Execution
_   RID List Processing per System
_   Query Parallelism per Plan Execution
_   Query Parallelism per System
_   Buffer Pools Activity per Plan Execution
_   Buffer Pools Activity per System
_   Distributed Activity per Location per Plan Execution
_   Distributed Activity per System
_   Distributed Activity per Location per System
_   IFI and Data Capture Activity per Plan Execution
_   IFI Activity per System
_   EDM Pool Activity per System
_   Open/Close Activity per System
_   Plan/Package Processing per System
F1=Help    F2=Split   F3=Exit    F7=Up      F8=Down    F9=Swap   F12=Cancel
```

Figure 87. Exception Threshold Category Selection Panel

When you press **Enter**, the Exception Threshold Field Selection panel is displayed showing all fields associated with this category.

Fields that have been selected previously are marked with a greater than (>) symbol and sorted to the top.

Select a field to specify the exception thresholds for it. Type a slash (/) or S in the selection field as shown in Figure 88 on page 162.

```
DGOPXDS2              Exception Threshold Field Selection
Command ===>
_____

Select one or more fields, then press Enter.  Overtype with space to
deselect any field.  Request EXIT when complete.

Field category .. : Elapsed, CPU and Waiting Times per Plan Execution

Field      Description
>
ADTCPU    CPU time in application (Class 1)
S ADRECETT  Elapsed time in application (Class 1)
_ ADTWTAP   Total wait time in application (Class 1)
_ ADDB2ETT  Elapsed time in DB2 (Class 2)
_ ADDBCPUT  CPU time in DB2 (Class 2)
_ ADTWTDB   Total wait time in DB2 (Class 2)
_ ADTSUST   Total Class 3 suspensions time
_ ADTSUSC   Total Class 3 suspensions
_ QWACAWTL  Lock/latch suspensions time (Class 3)
_ ADLLSUSC  Lock/latch suspensions (Class 3)
_ QWACAWTI  Synchronous I/O susp. time (Class 3)
_ ADIOSUSC  Synchronous I/O suspensions (Class 3)
_ QWACAWTR  Other read I/O susp. time (Class 3)
_ ADARSUSC  Other read I/O suspensions (Class 3)
_ QWACAWTW  Other write I/O susp. time (Class 3)
_ ADAWSUSC  Other write I/O suspensions (Class 3)
_ QWACAWTE  Serv.task switch susp. time (Class 3)
_ ADSTSUSC  Serv.task switch suspensions (Class 3)
-- End of Items --

F1=Help    F2=Split   F3=Exit    F7=Up      F8=Down    F9=Swap   F12=Cancel
```

Figure 88. Exception Threshold Field Selection Panel

Press **Enter**. The Exception Threshold Field Details (Figure 89) panel is displayed.

```
DGOPXDSN              Exception Threshold Field Details
Command ===>
_____

ENTRY 1 OF 1

Category ..... : Elapsed, CPU and Waiting Times per Plan Execution
Field ID ..... : ADRECETT
Description.... : Elapsed time in application (Class 1)


More:    +
Active ............. 1  1=Yes   2=No

By .............. 1  1=Total    2=Minute    3=Second
4=Commit  5=Thread

Compare operator ........ <  <=Less than >
=Greater than
Warning threshold........ 4
Problem threshold........ _____

Local location ......... *
Group name ........... *
Member name........... *
Subsystem ID .......... *
Requester location ....... *
Connect............. *
Planname ............ *
Corrname ............ *
Corrnmbr ............ *
Primauth ........... *

F1=Help       F2=Split      F3=Exit      F4=Prompt    F5=Add        F6=Delete
F7=Up         F8=Down       F9=Swap      F10=Previous F11=Next      F12=Cancel
```

Figure 89. Exception Threshold Field Details

The top right-hand side of this panel shows the entry number for this specification. You can specify more than one entry for the same exception field using different criteria. To add a new entry, you use the ADD command or **F5** (Add). Remove entries that are no longer needed to avoid extra processing by using the DELETE command or **F6** (Delete).

The first three fields on the panel show the category of the selected exception field, the field identifier, and the description of the field.

On this panel you can specify:

• How you want the field value calculated before it is checked against the exception thresholds (*By*). If you want the value in the field used as is, without any calculation, specify *total*. Alternatively, you can specify that the value for the field is divided by *minutes*, *seconds*, or the number of *commits*, or you can specify that the exception threshold is checked for the average value per *thread*, which is especially useful in reports. The effect of these specifications varies according to the report or trace you produce.

• The comparison *operator*. It can be greater or less than the threshold.

• The thresholds. You can specify two kinds of thresholds for a field: *warning* and *problem* thresholds. Specify a warning threshold to alert you to potential problems and a problem threshold to indicate a more serious condition.

• The additional criteria for the data for which the exception thresholds apply. These criteria are useful when you want to specify different exception thresholds depending on the environment. For example, you might want to specify different

elapsed time thresholds for online transactions and batch jobs, in which case you would supply a specific connection name on this panel, press **F5**, and specify a different connection name on the second panel.

You can specify a generic name using an asterisk (*).

Notes on Specifying Exception Thresholds

During exception processing, instrumentation data records are tested against matching thresholds in the exception threshold data set. When a record matches more than one threshold, DB2 PM chooses the best matching threshold of those detecting an exception.

The key fields of a record are: *Location*, *Group*, *Subsystem ID*, *Member*, *Requesting Location*, *Connection*, *Plan Name*, *Correlation Name*, *Correlation Number*, and *Primary Authorization ID*. DB2 PM compares these key fields with the corresponding fields in the thresholds, and chooses the threshold that best matches the record. This is done by comparing the *Location* of the record with the *Location* field of the matching thresholds first. A key field *not* containing an asterisk is considered a better match than one containing asterisks. If two thresholds are found to match the record equally, then the *Group* fields are compared with the record. If these fields *also* match the record equally, the *Subsystem ID* fields are compared with the record, and so on for the *Member*, *Requesting Location*, *Connection*, *Plan Name*, *Correlation Name*, *Correlation Number*, and *Primary Authorization ID* fields.

Exception checking in the reporting phase is performed on entries which are constructed according to your ORDER specification, containing a maximum of three DB2 PM identifiers. For example, if you qualify a field by both PLANNAME and CONNECT, the exception checking on the field is performed only if you have specified both PLANNAME and CONNECT in ORDER.

Package-related fields are supported on a "by total" and "by thread" basis only.

Example of Producing an Accounting Exception Report

The following example shows the benefits of using exception reporting. It also describes how to produce an accounting exception report.

Assume that you regularly want to produce an accounting short report like the example shown in Figure 90 and that the report is over ten pages long.

```
LOCATION: DSNCAT                    DB2 PERFORMANCE MONITOR (V6)                         PAGE: 1-1
GROUP: DSNCAT                       ACCOUNTING REPORT - SHORT           REQUESTED FROM: NOT SPECIFIED
MEMBER: SSDQ                                                                      TO: NOT SPECIFIED
SUBSYSTEM: SSDQ                       ORDER: PRIMAUTH-PLANNAME          INTERVAL FROM: 05/10/99 18:47:13.28
DB2 VERSION: V6                          SCOPE: MEMBER                             TO: 05/10/99 20:55:28.69

PRIMAUTH             #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
PLANNAME             #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------ ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

TRANUS1                    2       0    1.00    0.00    0.00    0.00       6.510536           N/P    44.00     9.50     0.00
PLANTRNC                   0      16    0.00    0.00    0.00    0.00       0.759452           N/P     0.00     0.00        0

TRANUS1                   10       0    0.00    0.00    0.00    0.00       3.083686           N/P   625.50    19.40     3.00
PLANTRNB                   0      87    0.00    0.00    0.00    0.00       1.899589           N/P   315.10     7.60        0

ADMF003                   10       0    0.00    0.00    0.00    0.00      11.989512           N/P    23.00     0.20     0.00
PLANBATA                   0      10    1.00    1.00    0.00    1.00       0.041995           N/P     0.00     0.00        0

TRANUS4                    6       0    0.00    0.00    0.00    0.00       2.881992           N/P    54.67     2.50     1.00
PLANTRNA                   0      36    0.00    0.00    0.00    0.00       0.119407           N/P    15.83     2.50        0

ADMF005                    1       0    0.00    0.00    0.00    0.00       9.526350           N/P   587.00    46.00     3.00
PLANBATB                   0       1   76.00    3.00    3.00    3.00       0.326120           N/P     8.00    17.00        0
    .
    .
    .
```

Figure 90. Accounting Report - without Exception

If you wanted to use this report to find out, for example, whether the class 1 elapsed time per thread is unacceptably high, you would have to check every entry on every page even though you are not interested in entries that fall within normal bounds.

To save yourself time, you can specify exception thresholds for the class 1 time field per thread, and produce accounting exception reports that show only entries that have exceptionally high values for this field. You can further limit the data by only checking online transactions because you would expect to find a high elapsed time for batch jobs.

In this example transactions have a plan name PLANTRNn and batch jobs have a plan name PLANBATn. Assume that the connection ID for the CICS address space is CICSA.

Use the sample exception threshold data set DGOETV41 in SDGODATA, access it through IRF, and specify the thresholds in the Exception Threshold Field Details panel.

```
DGOPXDSN           Exception Threshold Field Details
Command ===>
_____

ENTRY 1 OF 1

Category ..... : Elapsed, CPU and Waiting Times per Plan Execution
Field ID ..... : ADRECETT
Description.... : Elapsed time in application (Class 1)


More:    +
Active ............. 1  1=Yes   2=No

By ............... 5  1=Total   2=Minute   3=Second
4=Commit  5=Thread

Compare operator ........ >
<=Less than >
=Greater than
Warning threshold........ 3
Problem threshold........ 6

Local location ......... *
Group name ........... *
Member name........... *
Subsystem ID .......... *
Requester location ....... *
Connect............. CICSA
Planname ............ *
Corrname ........... *
Corrnmbr ............ *
Primauth ........... *

F1=Help      F2=Split     F3=Exit      F4=Prompt    F5=Add       F6=Delete
F7=Up        F8=Down      F9=Swap      F10=Previous F11=Next     F12=Cancel
```

Figure 91. Specifying Exceptions

This example specifies that:

- Exceptions are checked for the class 1 elapsed time field ADRECETT.
- The elapsed time thresholds are checked for the average value per thread, that is, the value in this field is divided by the number of threads.
- The comparison is *greater than*.
- The class 1 elapsed time value is flagged as a warning exception if it exceeds 3 seconds per thread and as a problem exception if it exceeds 6 seconds per thread.
- Only data with a connection ID of CICSA (CICS transactions) are checked for exceptions.

After you have completed the specifications, press **Enter**. The exception threshold specification is complete.

Now you can run the accounting exception report. Remember to specify the name of your exception threshold data set for the EXCPTDD ddname in your JCL. You use the following command to produce the report:

```
:
ACCOUNTING
REPORT
EXCEPTION
:
```

<div style="text-align:center">This is what the accounting exception report looks like:</div>

```
LOCATION: THISLOCN                       DB2 PERFORMANCE MONITOR (V6)                            PAGE: 1-1
GROUP: N/P                               ACCOUNTING REPORT - SHORT               REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P                                     EXCEPTION                                    TO: NOT SPECIFIED
SUBSYSTEM: D41Y                           ORDER: PRIMAUTH-PLANNAME               INTERVAL FROM: 08/14/99 07:38:08.57
DB2 VERSION: V6                                 SCOPE: MEMBER                                 TO: 08/14/99 08:00:47.59

PRIMAUTH                   #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
PLANNAME                   #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

USRT001                        17       2    0.29    0.24    0.00    0.18 1:13.735817                N/P   107.6K   228.82     1.76
TPCDV2B                          0      15  149.06    0.76    0.65    0.00 1:00.860931                N/P  1155.06   563.12        0

***********************************************************************************************************************************
* TYPE           FIELD ID  FIELD DESCRIPTION                                         BY                VALUE   THRESHOLD       *
*                          FIELD QUALIFIER                                                                                     *
* WARNING        ADRECETT  ELAPSED TIME IN APPLICATION (CLASS 1)                     TOTAL        1253.508887 >                *
1000        *
*                                                                                                                             *
***********************************************************************************************************************************

ACCOUNTING REPORT COMPLETE
```

Figure 92. Accounting Exception Report

The exception report is much shorter than the original accounting report. It only lists transactions that have a class 1 elapsed time that has exceeded the exception threshold and flags them as warnings or problems.

If you had specified more than one exception threshold, all records that contained any fields reaching an exception threshold value would be listed.

Which Exception Fields to Choose

DB2 PM provides a comprehensive set of exception fields and it can be hard to decide which ones to choose for your site. As a rule, most sites only need to define a limited number of thresholds.

In general, long response times are a good indicator of a performance problem. Therefore, always start by defining exception thresholds for time fields.

To make it easier for you to decide which exception fields to choose, there is a sample threshold set (DGOETV41) in the SDGODATA library. These members are provided only as examples and can be modified to suit your installation.

To use exception processing efficiently, consider what are the most important applications or transactions in your system. Always define exception thresholds for critical business applications. In addition, frequently executed applications are good candidates for exception thresholds.

Application-specific thresholds are defined by specifying the plans for which the threshold applies. An efficient way of determining which plans or connection IDs should be the focus of exception reporting is to produce accounting TOP lists.

Carefully consider the fields for which to specify exception thresholds. The more fields you specify, the greater the impact on processing.

Which Thresholds to Specify

The sample exception threshold set in SDGODATA has predefined warning and problem values specified for some fields, but not for all. This is because the values of some fields, such as greater than zero for the number of deadlocks, apply to most sites. Other fields, such as elapsed times, vary from site to site and application to application. These fields are marked with a threshold of asterisk (*) in the sample data set DGOETV41.

If you know which thresholds to specify, fill them in. The performance objectives stated in your service level agreement are a good starting point. Accounting TOP lists and TOP ONLY reports are a good reference when determining which threads to monitor with exception processing. You can modify the predefined thresholds and specify additional exception fields.

If you are not sure what thresholds to specify, use exception profiling to fill them in for you. Mark all the thresholds you want exception profiling to determine with an asterisk.

Chapter 17. Exception Profiling

Exception profiling is used to set the thresholds in an exception threshold data set and to produce a report showing the details of the distribution and expected number of exceptions for each field.

Exception profiling is performed by a batch job. The data sets which are essential for exception profiling are:

- *Input data set*

  You can specify any combination of DPMOUT, SMF, or GTF data sets which contain DB2 instrumentation data. Exception profiling uses this data to estimate your workload and decide which warning and problem thresholds to assign to the DB2 fields you specified in the *input threshold data set*. The more representative the data set, the more accurate the calculation of the thresholds.

- *Input threshold data set*

  This is the data set where you specify *which* DB2 fields should be monitored as exceptions. There are many fields to choose from and you can include those fields which are most applicable to your DB2 installation. You should only specify the fields where excessively high or low values signal an exceptional situation in your DB2 system. For some fields, you do not need to use exception profiling. For example, the elapsed time for a transaction might be negotiated in a service level agreement, and any value greater than the agreed value should trigger an exception. Another example is the EDM pool full counter, which triggers an exception as soon as it is greater than zero. Exception profiling does not process fields specified with predefined thresholds in the *input threshold data set*. You may tolerate "low" values for some fields (specific to your installation) and do not want to trigger exceptions unless the field values are "high". Exception profiling is most beneficial in this case. To mark these fields, enter an asterisk (*) as the threshold. An example threshold is provided in DGOETV41 in the SDGODATA library.

Note that these data sets are only samples and contain fields which should be monitored for exceptions for most DB2 installations. Some fields are given with predefined thresholds and others have an asterisk for the threshold, indicating that exception profiling should be used to calculate the thresholds.

- *Output threshold data set*

  This is the data set which contains all the fields specified in the input threshold data set. The fields which were specified with predefined thresholds are not changed. However, for fields which were specified with an * as the threshold in the *input threshold data set*, thresholds are estimated based on the *input data set* content. The *output threshold data set* should then be used as your input exception threshold data set in subsequent DB2 PM executions. You can either manually adjust thresholds or replace a field value with an *, and then request exception profiling using this data set as the *input threshold data set* for recalculation to create a new *output threshold data set*. This process can be repeated as often as you desire, thereby tuning your exception threshold data set to your DB2 installation.

You can request a profile report to contain details about each field, including a table of the expected number of exceptions for various thresholds.

Exception Profiling Panel

To use exception profiling, access the IRF and select option 6, *Exception profiling*, from the DB2 PM main menu. The Exception Profiling panel is displayed, as shown in Figure 93.

Use the Exception Profiling panel to specify the required data sets and profiling criteria required to calculate the thresholds in an exception threshold data set. A report showing the details of the distribution and expected number of exceptions for each field can also be produced.

```
DGOFEP00                    Exception Profiling

Complete the following control information, then press Enter.

Warning exceptions...........  _____   (% of input data)
Problem exceptions...........  _____   (% of input data)
Produce profile report......... _       (1=yes 2=no)


Input data set
_____

Input threshold data set
_____

Output threshold data set
_____

Output report data set
_____

Command ===>
_____
F1=Help      F2=Split    F3=Exit     F6=Browse    F9=Swap    F10=Global
F11=Inclexcl F12=Cancel
```

Figure 93. Exception Profiling Panel

On this panel:
- Specify the percentage of input data you want to be flagged as warnings and the percentage of input data you want flagged as problems.
- Choose whether you want to produce a profile report. The profile report documents the results of exception profiling showing the expected number of exceptions for various thresholds.
- Specify the name of the input data set containing data from your DB2 subsystem. It can be a GTF, SMF, or DPMOUT data set.

  If you want to use several input data sets, you can concatenate them by editing the generated job stream using option 2, *Edit the generated job stream*, on the Job Processing Selections panel (see Figure 94).

  The records in this data set should be representative of the type of data you usually monitor. The input data should also contain a sufficient number of records to allow the profiling to be performed with reasonable confidence. The data should also cover an appropriate span of time.
- Specify the name of the input exception threshold data set that contains entries for the fields you want to be checked. It can be the exception threshold data set

provided in SDGODATA (DGOETV41) or your own data set. The thresholds for which you want values should be marked with an asterisk on the Exception Threshold Field Details panel.

- Specify the name of the output exception threshold data set to contain the thresholds.
- Specify the data set information for the profiling report.

After you have completed the specifications, press **Enter** to generate the exception profiling job stream. The Job Processing Selections panel is displayed.

```
DGOOJOBM                Job Processing Selections

Update the job statements as required, then select one of the following.

1. Browse the generated job stream
2. Edit the generated job stream
3. Store the job stream for future use
4. Submit the job stream for background execution

Job statement information
_____
_____
_____
_____
_____




Command ===>
_____
F1=Help    F2=Split   F3=Exit    F9=Swap   F12=Cancel
```

Figure 94. Submitting the Exception Profiling Job

To submit the job, select option 4, enter your appropriate job statement information, and press **Enter**. Alternatively, you can browse, edit, or store the job stream for subsequent processing.

The new exception threshold data set is created. It contains a copy of the input threshold data set together with the thresholds DB2 PM has determined using the input data and the profiling criteria.

Check the profiling report to make sure that the exception thresholds and the number of exceptions are satisfactory. If you need to, you can modify the thresholds using the data set editor.

Now you can generate exception reports using the threshold data set created by the exception profiling function.

Exception Profiling Method

Each record in the input data set is processed as it would be for normal exception processing. However, instead of checking each field for exception, the value of the field is recorded. When all records have been processed, you can use the statistics on the exception profiling report to determine the thresholds.

The thresholds are set to a value that would generate the percentage of warning and problem level exceptions you requested.

For example, suppose the field QIESECT has been specified in the exception threshold data set for location DSNAPC5, with the operator set to >, and the warning and problem thresholds set to *. The profiling criteria are specified to 5% for warning and 2.5% for problem thresholds on the Exception Profiling panel. If the data set is processed and 320 records are found for field QIESECT with the location DSNAPC5, exception profiling sets the warning threshold to the 17th highest record. This would generate 16 warning exceptions on average, which is 5% of the records (as requested). Similarly, the problem threshold is set to the 9th largest record, averaging 8 problem exceptions, which is 2.5% of the records.

Exception Profiling Report

An example of an exception profiling report is shown in Figure 95.

```
ACTUAL AT:  02/17/99 11:21:58.26              DB2 PERFORMANCE MONITOR (V6)                              PAGE:    1
INPUT FROM: 01/02/99 06:02:12.11                EXCEPTION PROFILING REPORT
INPUT TO:   02/15/99 02:30:00.00


WARNING THRESHOLD %  10.00
PROBLEM THRESHOLD %   5.00

LOCATION                   CONNECT
FIELD ID REQLOC            GROUP    CORRNAME PLANNAME PER      BY     OPERATOR OCCURRENCES DESCRIPTION
FLD.QUAL SUBSYSTEMID       MEMBER   CORRNMBR PRIMAUTH
-------- ----------------  -------  -------- -------- -------- ------ -------- ----------- ---------------------------------------
*                          *
QBACGET  *                 *        *        *        PLAN     TOTAL    >
103 GETPAGES
N/A      *                 *        *        *


---------------------------------------------------------------------------------------------------------------------
|                        | PROBLEM  | WARNING  |    0.50 % |    1.25 % |    2.50 % |    5.00 % |    7.50 % |   10.00 % |
---------------------------------------------------------------------------------------------------------------------
| SPECIFIED THRESHOLD    |      22  |      21  |       39  |       37  |       37  |       22  |       21  |       21  |
---------------------------------------------------------------------------------------------------------------------
| EXCEPTIONS GENERATED   |       5  |       8  |        1  |        2  |        2  |        5  |        8  |        8  |
---------------------------------------------------------------------------------------------------------------------
*                          *
SLRSUSP  *                 *        *        *        SYSTEM   TOTAL    >
150 TOTAL ALL SUSPENSIONS
N/A      *                 *        *        *


---------------------------------------------------------------------------------------------------------------------
|                        | PROBLEM  | WARNING  |    0.50 % |    1.25 % |    2.50 % |    5.00 % |    7.50 % |   10.00 % |
---------------------------------------------------------------------------------------------------------------------
| SPECIFIED THRESHOLD    |  423603  |  402603  |   444603  |   441603  |   435603  |   423603  |   411603  |   402603  |
---------------------------------------------------------------------------------------------------------------------
| EXCEPTIONS GENERATED   |       8  |      15  |        1  |        2  |        4  |        8  |       12  |       15  |
---------------------------------------------------------------------------------------------------------------------
*                          *
SSCDML   *                 *        *        *        SYSTEM   TOTAL    >
150 TOTAL SQL DML STATEMENTS
N/A      *                 *        *        *


---------------------------------------------------------------------------------------------------------------------
|                        | PROBLEM  | WARNING  |    0.50 % |    1.25 % |    2.50 % |    5.00 % |    7.50 % |   10.00 % |
---------------------------------------------------------------------------------------------------------------------
| SPECIFIED THRESHOLD    | 1410145  | 1340145  |  1480145  |  1470145  |  1450145  |  1410145  |  1370145  |  1340145  |
---------------------------------------------------------------------------------------------------------------------
| EXCEPTIONS GENERATED   |       8  |      15  |        1  |        2  |        4  |        8  |       12  |       15  |
---------------------------------------------------------------------------------------------------------------------

EXCEPTION PROFILING REPORT COMPLETE
```

Figure 95. Exception Profiling Report Example

Field Descriptions

For each field, a table shows the expected number of exceptions for different thresholds. These thresholds are multiples of the percentage specified for problem

exceptions. In the example shown in Figure 95, the problem threshold has been set to 5%. The columns on the report show thresholds corresponding to 0.1, 0.25, 0.5, 1.0, 1.5, and 2 times 5%.

The problem and warning thresholds in the output threshold data set are also shown.

The following fields are shown on the exception profiling report:

ACTUAL AT
The date at which the report was produced.

INPUT FROM
The date and time of the first IFC record in the input data set.

INPUT TO
The date and time of the last IFC record in the input data set.

WARNING THRESHOLD
The percentage of input data flagged as warnings.

PROBLEM THRESHOLD
The percentage of input data flagged as problems.

FIELD ID
The unique identifier of the exception field.

FIELD QUALIFIER
The field qualifier name.

LOCATION
The location name.

PLAN The plan name.

CONNECT
The connection ID.

BY The basis for comparison.

PER Indicates whether the scope is per plan, program, or system.

OPERATOR
The operator (< or >) used for the comparison.

OCCURRENCES
The number of times the exception field was found.

DESCRIPTION
The description of the exception field.

REQLOC
The requester location.

SUBSYSTEMID
The subsystem ID.

GROUP
The name of the group.

MEMBER
The name of the member.

CORRNAME
The correlation name associated with the specific thread.

CORRNMBR
> The correlation number associated with the specific thread.

PRIMAUTH
> The primary authorization ID.

Part 6. The Accounting Report Set

Accounting

Accounting

Chapter 18. Introduction to the Accounting Report Set

The DB2 PM accounting report set is based on the DB2 accounting records. Accounting data collection begins when a thread is created by DB2. Accounting records are written when:

- A thread terminates.
- A thread is reused.
- A DBAT becomes inactive.
- A parallel task completes when query CP or Sysplex query parallelism is exploited.

The accounting records are used to produce:

- Reports.
- Traces.
- File and save data sets.
- Graphs. For information on how to produce graphs, refer to the *DB2 PM Batch User's Guide*.

You can produce both member-scope and group-scope reports. In member-scope reports, a group's instrumentation data is presented member by member, without the data being merged. In group-scope reports, instrumentation data produced by members of a data sharing group is merged and presented for the entire group. Events are aggregated by user-defined identifiers within the group, regardless of which member actually generated them.

The reports and save data sets (which present consolidated, averaged accounting data by selected DB2 PM identifiers and time intervals), traces, and file data sets (which present individual records) can be used for accounting and application monitoring and tuning. The typical usage of the DB2 PM accounting report set is to:

- Summarize the local and distributed DB2 activity associated with the execution of specified DB2 plans.
- Summarize the composite DB2 activity associated with the execution of threads that exploit query CP parallelism or Sysplex query parallelism.
- Summarize the DB2 activity associated with the execution of the specified DB2 packages and DBRMs.
- Detect potential problem areas within DB2 applications.
- Track DB2 resource usage on a regular basis by DB2 PM identifiers such as location, authorization ID, or plan name. You can use this information to study trends or deviations from trends.
- Identify DB2 threads that fail to meet certain user-specified criteria.

DB2 accounting records provide summary data about DB2 resource usage for:

- A given thread
- In a thread reuse situation, for the interval of time between two signons
- All tasks within a thread exploiting query CP or Sysplex query parallelism

This data provides information about:

- Identification of the record
- Elapsed, CPU, and wait times
- SQL statements counters

- RID list processing
- Query parallelism
- Buffer pool activity
- Group buffer pool activity
- Data sharing locking
- Stored procedures
- Locking activity
- Data capture
- Resource limit facility (RLF)
- Distributed data facility (DDF)
- Packages and DBRMs executed

Exception processing is supported in the accounting report set. You define exception thresholds for certain accounting fields. When you request exception processing, the values in these fields are checked against the thresholds. Only those records containing fields with values outside the limits you specify are reported on the reports and traces and in file data sets.

To identify the main consumers of DB2 resources, the *TOP* keyword is provided. When you specify this keyword, an index-like report is generated at the end of the report or trace, pointing out the main consumers in this trace or report. If you only want to see the main resource consumers, you can specify the ONLY option with the TOP keyword to filter the report or trace.

Note: By analyzing DB2 PM accounting data, you can assign DB2 resource costs to individual authorization IDs and tune individual programs. DB2 PM does not, however, provide for tasks such as charge-back or billing.

Chapter 19. General Accounting Information

> **Tuning DB2**
>
> This chapter identifies and describes the specific DB2 data which is reported for the purpose of tuning DB2. For general tuning advice on DB2, refer to the DB2 Administration Guide 'Performance, Monitoring, and Tuning' chapters for the specific release of DB2.

This chapter provides detailed descriptions of functions and parameters common to various subcommands of accounting.

Functions of the Accounting Report Set

The following functions are provided in the accounting report set:

REPORT

REPORT enables you to show DB2 accounting data, such as timing information, SQL activity, or buffer-pool activity summarized by DB2 PM identifiers. For example, you can produce a report showing the accounting information for threads, plans, or users. The report shows totals and subtotals of fields.

Your reports can be in member scope or group scope. Member-scope reports present a group's instrumentation data member by member, without merging the data. In group-scope reports, instrumentation data produced by members of a data sharing group is merged and presented for the entire group. Events are aggregated by user-defined identifiers within the group, regardless of which member actually generated them.

TRACE

TRACE enables you to show DB2 accounting data for a particular thread. Unlike reports, traces show the accounting data without aggregation. This means the records are listed individually, in the order of occurrence. If the thread exploited parallelism, however, all parallel activity is aggregated and presented as a single trace entry.

Note: Traces can be very long, you should consider running them only to resolve a specific problem.

FILE FILE enables you to format DB2 accounting records and store them in sequential data sets suitable for loading into DB2 tables. You can then produce tailored reports using a reporting facility such as Query Management Facility (QMF). FILE can also be used to produce data sets containing only exception records.

REDUCE

REDUCE enables you to reduce the volume of data that is input to the REPORT and SAVE functions. REDUCE is invoked automatically when you use REPORT or SAVE. You must specify it explicitly when you want to:
- Specify an interval that can be used to order data on accounting reports.
- Define the interval and input filters for DISTRIBUTE.
- Produce several reports covering different time periods.

SAVE

SAVE enables you to produce VSAM data sets containing reduced accounting records. When the data is saved, you can:

- Produce graphs using the graphic subsystem of the Interactive Report Facility (IRF).
- Combine it with new data to produce long-term reports.
- Use the Save-File utility to convert the saved files to sequential data sets suitable for use by the DB2 load utility.

REDUCE and SAVE can be used to keep historical accounting data about DB2 performance. You can define the interval and the input filters for the data that is saved into the save data set. After reducing data, the resulting data set is much smaller than the original input data set. However, reducing data uses a considerable amount of system resources.

RESTORE

RESTORE enables you to reload a previously-saved data set for additional use. Saved data can be restored and resaved as often as required.

DISTRIBUTE

DISTRIBUTE enables you to calculate frequency distributions for selected fields. You can define 10 ranges to be used in the frequency distribution. The results can be plotted using the graphics function of the IRF.

Thread Types

The accounting report set can process data originating at a number of different DB2 locations in the same DB2 PM run. Several input data sets (in any SMF, GTF, DPMOUT, and Online Monitor trace output data set format) can be logically concatenated in the DD statements for INPUTDD. The data is sorted in the primary sequence of location and reported according to the parameters specified in the ACCOUNTING command.

The DB2 thread or, in a thread reuse situation, the part of it that is between two consecutive signons or resignon is the basic unit of reporting for the accounting report set. DB2 PM uses the following categorization of DB2 threads:

- **Allied thread**

  An allied thread does not involve distributed activity, that is, neither is it initiated by a remote location nor does it request data from another location. The accounting record representing an allied thread contains the following set of data:
  - Identification of the thread
  - General timing
  - SQL and RID list usage
  - Query parallelism
  - Buffer pool activity
  - Group buffer pool activity
  - Data sharing locking
  - Stored procedures
  - Data capture
  - Locking activity
  - Packages and DBRMs executed

     – Resource limit facility data

This set of data is called *non-DDF data* in the accounting section of the book.

- **Allied-distributed thread**

  An allied-distributed thread is not initiated by a remote location but it requests data from one or more server locations. The accounting record representing an allied-distributed thread consists of:

  – Non-DDF data.
  – One block of *DDF data* for each participating server location.

    DDF data includes such information as the number of messages, statements, rows, and bytes that have been sent and received.

- **Database access thread (DBAT)**

  A DBAT is initiated, created, and performed by a thread on behalf of a remote (requester) location. The accounting record representing a DBAT contains:

  – Non-DDF data
  – DDF data for the requester location

- **DBAT-distributed thread**

  A DBAT-distributed thread is initiated by a requester location that in turn requests data from another server location.

  For example, when location A uses application-directed access to data at location B and, in the same unit of work, accesses data at location C (using system-directed access), the thread created at location A is an allied-distributed thread, the thread created at location B is a DBAT-distributed thread, and the thread created at location C is a DBAT.

  The accounting record representing a DBAT-distributed thread consists of:

  – Non-DDF data
  – DDF data for the requester location
  – One block of DDF data for each participating server location

The following DB2 PM terms can be helpful in understanding the concepts of the different thread types and merged processing:

- **Nondistributed transaction** is initiated by DB2 and performed at one location without interaction with other locations, represented by an accounting record.

  For example, if an allied thread is not reused, it represents a nondistributed transaction. If it is reused, a nondistributed transaction is DB2 activity between two signons.

- **Distributed transaction** is initiated by DB2 at one (requester) location and performed at one or more remote (server) locations.

  Distributed transactions consist of local activity represented by an allied-distributed thread, and in case of a loopback from a DBAT, remote activity represented by one or more DBATs. Therefore, distributed transaction requires accounting records for the allied-distributed thread as well as all the corresponding DBATs.

- Reports and traces are location-oriented. Activity performed at one or more locations is shown. For a given location, the accounting data for the following is reported:

  – Nondistributed transactions, that is, the allied threads at that location.
  – Local activity of distributed transactions originating at that location, that is, the allied-distributed threads from that location without the corresponding DBATs at other locations.

- Remote activity performed at that location as part of distributed transactions requested from other locations, that is, the DBATs at that location.

Traces and reports can be single-site or multi-site:
- Single-site and reports present accounting data for one location. You can obtain a single-site nonmerged trace or report by processing input data that only contains records from a single location or by specifying a single location using the INCLUDE/EXCLUDE option.
- Multi-site nonmerged traces and reports present accounting data for more than one location in the same DB2 PM run. The data is arranged in alphabetical order by location name.

Distributed Activity

DB2 PM supports communication between:
- Two DB2 for OS/390 subsystems
- A DB2 for OS/390 subsystem and a non-DB2 requester such as SQL/DS, DB2/400, or ORACLE
- A DB2 for OS/390 subsystem and one of the common servers DB2/2 or DB2/6000

For detailed information on the communication between these systems, produce an accounting trace.

For communication between two DB2 subsystems, the accounting trace provides you with information on the requester locations (for DBATs) and on the server locations (for requester threads).

For communication between a DB2 subsystem and a non-DB2/MVS requester, DB2 PM can only present performance data on the DBATs. However, the accounting trace helps you identify the requester. It supplies the identifier and release level of the requester involved. For requesters from the common servers, it also provides the client platform, application name, and authorization ID, and a user-supplied part. In addition, the value DISTSERV of the DBAT plan name is replaced with the first 8 bytes of the application name. Because the DBAT plan name now changes with the application name you no longer need the MAINPACK identifier to distinguish between the records presented in a trace.

Query Parallelism Considerations

If a query exploits query CP parallelism or Sysplex query parallelism, several tasks (called parallel tasks) perform the parallel work. For each of these tasks an accounting record is generated, which contains counters and timers pertinent to the work performed by the particular task. In addition, an accounting record is created that contains the details on nonparallel work within the thread as well as data related to parallel work.

DB2 PM summarizes all accounting records generated for such a query and presents them as one logical accounting record. Table 26 describes which values are taken from both the originating and parallel records and which are taken from the originating record only.

Table 26. Data Related to Query CP and Sysplex Query Parallelism

Accounting Data	Derivation
Identifiers (such as PRIMAUTH or PLANNAME)	Originating record
Class 1 elapsed times	Originating record
Class 1 TCB times	Originating and parallel records
Class 2 elapsed times	Originating record
Class 2 TCB times	Originating and parallel records
Class 7 elapsed times	Originating record
Class 7 TCB times	Originating and parallel records
Class 2 and 7 DB2 entry/exit events	Originating record
Class 3 and 8 times and events	Originating and parallel records
Class 5 times	Originating record
SQL counters	Originating record
RID list counters	Originating and parallel records
Query parallelism counters	Originating record
Locking (including data sharing) counters	Originating and parallel records
RLF data	Originating record
Buffer pool counters	Originating and parallel records
Group buffer pool counters	Originating and parallel records
DDF counters	Originating record
Data capture counters	Originating record
SU counters	Originating and parallel records

The elapsed time is taken from the originating record while CPU and suspension times are calculated from all the parallel and originating records. Consequently, both CPU time and suspension times can be larger than the elapsed time. Therefore, you can only get the full picture of response time distribution if the times for each participating task are known. If you suspect that the CPU times or suspension times for a thread where query CP or Sysplex query parallelism is used are, for other reasons, larger than the times being added for several tasks, produce a long record trace for IFCID 3. Then all parallel and originating accounting records are reported separately.

In Sysplex query parallelism, the CPU times of the parallel records are *normalized* so that you can add up the times across multiple DB2s running on different machines. Normalized means that the CPU times are converted to a common unit, called *service unit (SU)*, using a conversion factor. The conversion factor depends on the machine being used.

Headers Used in Accounting

DB2 PM header information is printed at the top of each page of an accounting report or trace. For a report, the header differs depending on whether it is a member-scope or group-scope report.

```
       LOCATION: DSNCAT                       DB2 PERFORMANCE MONITOR (V6)                              PAGE: 1-1
          GROUP: DSNCAT                         ACCOUNTING REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
         MEMBER: SSDQ                                                                              TO: NOT SPECIFIED
      SUBSYSTEM: SSDQ                            ORDER: PRIMAUTH-PLANNAME              INTERVAL FROM: 05/10/98 18:47:13.28
    DB2 VERSION: V6                              SCOPE: MEMBER                                      TO: 05/10/98 19:55:28.69
```

Figure 96. Accounting Report Header—Member-Scope

```
       LOCATION: DSNCAT                       DB2 PERFORMANCE MONITOR (V6)                              PAGE: 1-1
          GROUP: DSNCAT                         ACCOUNTING REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
                                                                                                  TO: NOT SPECIFIED
                                                ORDER: PRIMAUTH-PLANNAME              INTERVAL FROM: 05/10/98 18:47:13.28
    DB2 VERSION: V6                              SCOPE: GROUP                                      TO: 05/10/98 19:55:28.69
```

Figure 97. Accounting Report Header—Group-Scope

```
       LOCATION: STLEC1                       DB2 PERFORMANCE MONITOR (V6)                              PAGE: 7-1
          GROUP: N/P                            ACCOUNTING TRACE - SHORT              REQUESTED FROM: NOT SPECIFIED
         MEMBER: N/P                                                                               TO: NOT SPECIFIED
      SUBSYSTEM: V41A                                                                  ACTUAL FROM: 08/25/98 22:02:59.55
    DB2 VERSION: V6                                                                     PAGE DATE: 08/25/98
```

Figure 98. Accounting Trace Header

The accounting headers, shown in Figure 96, Figure 97, and Figure 98 contain the
following information:

LOCATION
> The DB2 reporting location. If the DB2 subsystem is installed without a
> location name, either the DB2 subsystem ID (in a non-data-sharing
> environment) or the data sharing group name is shown.

GROUP
> The data sharing group the DB2 subsystem belongs to.

MEMBER
> The DB2 subsystem's member name.

SUBSYSTEM
> The ID of the DB2 subsystem that generated the data.

DB2 VERSION
> The DB2 version number of the subsystem that generated the data.

DB2 PERFORMANCE MONITOR (V6)
> The product name and version.

Title - layout
> The title of the report and the layout. The layout can be a default layout
> provided with DB2 PM or a layout you have tailored yourself.

ORDER
> If the ORDER option of the REPORT subcommand was used to arrange
> the report entries, the selected keywords are shown in this field.

SCOPE
> The scope of the report, which can be MEMBER or GROUP.

PAGE The page number in the format *lll-nnnnnn*, where *lll* denotes the location
> number within the report and *nnnnnn* the page number within the location.

REQUESTED FROM/TO

> The FROM/TO dates and times specified in the REPORT subcommand. NOT SPECIFIED is printed if no FROM/TO was specified.

INTERVAL FROM

> The start date and time of the first reduction interval covered by the report.

INTERVAL TO

> The end date and time of the last reduction interval covered by the report.

PAGE DATE

> The date of the timestamps printed on this page. This is useful when a trace page contains more than one entry and the date is not shown for each entry. A date change causes a page break.

Input to Accounting Reports and Traces

Accounting uses the DB2 IFCIDs 3 and 239 (DB2 trace type and class: Accounting 1) as input for the reports and traces. Timing data is taken from all classes:

- Application times (class 1)
- DB2 times (class 2)
- Suspension times (class 3) and counts
- IFI times (class 5)
- DB2 times on a per package/DBRM basis (class 7)
- Suspensions times on a per package/DBRM basis (class 8) and counts
- Internal DB2 latching (class 9)

If an accounting record represents an allied-distributed thread, additional time fields for DDF data are reported. These DDF times are obtained from accounting class 1.

DB2 accounting trace classes are started either at DB2 start time, using the installation panel, DSNTIPN (the recommended approach), or by entering the DB2 START TRACE command at the terminal. For example:

```
-START TRACE(ACCTG) CLASS(1,2,3,5,7,8,9) DEST(SMF)
```

It is recommended that accounting classes 1 and 3 be always active. The overhead of running them permanently is not significant whereas the information they provide is crucial for all aspects of performance monitoring.

When class 3 or class 8 is active, class 9 must also be active to report internal DB2 latching.

The cost of collecting accounting class 2 is significantly less than in earlier versions, so it can also be useful to run this class permanently. Note that qualification of accounting class 2 by plan only exists up to DB2 Version 3. If you do not always have class 3 active, then activate class 3 when you activate class 2.

Classes 7 and 8 provide you with valuable information on a per package or per DBRM basis. They are equivalent to classes 2 and 3, respectively. Package or DBRM accounting is probably most beneficial for a DB2 server of a non-DB2 requester or when an application plan can execute many packages or DBRMs, but actually executes 10 or less for a given accounting record. If class 2 is active, then also activate class 7 if package accounting is needed. If class 3 is active, then also activate class 8 if package accounting is needed. Note that more than 10 packages

or DBRMs introduce additional overhead in data collection reducing the benefit versus cost. However, this cost is still significantly less than a DB2 performance class trace.

Refer to the *DB2 PM Batch User's Guide* for more information on using DB2 installation parameters and the START TRACE command in order to generate input data for accounting reports and traces.

Accounting Record Generation

Accounting data collection begins when a thread connects to DB2. A completed accounting record is written when:

- The thread terminates.
- The authorization identifier changes, that is, the thread is reused.
- A DBAT becomes inactive.
- A parallel task completes when query CP or Sysplex query parallelism is exploited.

Notes:

1. NEW USER is reported when DB2 accounting records are reported in the IMS thread and CICS thread reuse situations where a new AUTHID is used.

2. If TOKENE=YES on the TYPE=ENTRY statement in the RCT table is specified, the CICS attachment facility requests an accounting record to be produced during thread reuse even if the user authorization ID does not change. A CICS LU6.2 token is also passed to DB2 allowing correlating CICS and DB2 trace records.

3. For thread reuse, all values are accumulated since the last accounting record.

4. When a CICS application program causes more than one SYNC point commit or rollback, DB2 can produce several out-of-sequence accounting records for the application if CICS attach thread swapping occurs.

5. If a thread is reused with the same user authorization ID and TOKENE has not been specified, the DB2 accounting record represents several CICS transactions.

Missing Data Sections

Following are examples of DB2 threads and the data sections which are not produced in each circumstance:

- Attaching to QMF generates a unique DB2 thread.

  Under this thread no SQL, buffer, or locking information is gathered.

- Running a dynamic SQL generates a unique DB2 thread.

  Under this thread, SQL, buffer, and locking activity can be performed. A data section is produced if activity in the data section occurs. Resource limit activity is only reported in the accounting record for dynamic SQL activity.

- Ending a QMF session creates a unique DB2 thread.

  Under this thread no SQL, buffer, or locking information is gathered.

- Running a batch job creates a unique DB2 thread.

  Under this thread SQL, buffer, and locking activity can be performed. No resource limit activity is tracked for this thread.

- If location A uses DRDA protocol to access data at location B and does not do any local work, no SQL information is gathered for the corresponding allied-distributed thread at location A.

Chapter 20. The ACCOUNTING Command

You use the ACCOUNTING command to generate reports, traces, and file data sets. You can also use it to reduce, save, and restore data. The command can be used once in a job step. However, it can be used in the same job step with commands of the other report sets. The following subcommands are associated with the ACCOUNTING command:

- REDUCE
- REPORT
- SAVE
- RESTORE
- TRACE
- FILE

Building a Command Stream

Figure 99 is a sample of the JCL required to produce accounting reports and traces. See "DD Statements" on page 10 for descriptions of the DD statements.

```
//DB2PM   JOB (INSTALLATION DEPENDENCIES)
//*
//* ===============================================================*
//*          D B 2  P M   R E P O R T   G E N E R A T I O N       *
//* ===============================================================*
//*
//        EXEC PGM=DB2PM
//* FOLLOWING ARE DB2PM SYSTEM DDNAMES
//STEPLIB  DD  DSN=DGO.V6R1M0.SDGOLOAD,DISP=SHR
//DPMPARMS DD  DSN=DGO.V6R1M0.DPMPARMS,DISP=SHR
//INPUTDD  DD  DSN=DGO.V6R1M0.DPMIN61,DISP=SHR
//DPMLOG   DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//JOBSUMDD DD  SYSOUT=*
//EXCPTDD  DD  DSN=DGO.EXCEPT.THRESH,DISP=OLD
//EXTRCDD1 DD  SYSOUT=*
//EXFILDD1 DD  DSN=DGO.EXCEPT.LOGFILE,DISP=OLD
//SYSPRMDD DD  SYSOUT=*
//DPMOUTDD DD  DSN=DGO.V6R1M0.DPMOUT.DATA,DISP=OLD
//JSSRSDD  DD  DSN=DGO.V6R1M0.JSSRS.DATA,DISP=OLD
//DISTDD   DD  DSN=DGO.V6R1M0.DIST.DATA,DISP=OLD
//SYSUDUMP DD  DUMMY
//* FOLLOWING ARE DB2PM REPORT SET DDNAMES
//ACRPTDD  DD  SYSOUT=*
//ACTRCDD1 DD  SYSOUT=*
//ACSAVDD  DD  DSN=DGO.V6R1M0.ACSAV.DATA,DISP=OLD
//ACRSTDD  DD  DSN=DGO.V6R1M0.ACRST.DATA,DISP=SHR
//ACFILDD1 DD  DSN=DGO.V6R1M0.ACC.FILE,DISP=OLD
//ACWORK   DD  DSN=DGO.V6R1M0.ACC.WORKDD,DISP=OLD
//* FOLLOWING IS THE DB2PM COMMAND STREAM
//SYSIN    DD  *
  ACCOUNTING
       REDUCE
       RESTORE
       TRACE
       FILE
       REPORT
       SAVE
  EXEC
```

Figure 99. Sample JCL for Requesting Accounting Functions

The DB2 PM command language shown in this example may not be appropriate in all circumstances. You must modify it to meet your requirements.

Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by DB2 PM. See the individual DD statement descriptions for more information.

Notes:

1. There is an advantage in omitting DPMOUTDD from your JCL. For more information, see the description of DPMOUTDD on page "DPMOUTDD" on page 13.

2. If you omit the EXEC statement, a report is not produced, the syntax of the DB2 PM command stream is checked and written together with any information, warning, or error messages generated to the DBPMLOG data set. All statements following the EXEC are ignored.

Using the ACCOUNTING Command

You use the ACCOUNTING command to generate accounting reports, traces, and data sets. The subcommands are described in detail, together with their various options, in the following sections.

The command can be used once in a job step.

```
                        ┌─REPORT subcommand¹─┐
                      ┌─▼────────────────────┴─┐
►►──ACCOUNTING────────┤                        ├──────────────────►◄
                      ├─REDUCE subcommand³──┤
                      ├─SAVE subcommand─────┤
                      ├─RESTORE subcommand──┤
                      ├─TRACE subcommand²───┤
                      └─FILE subcommand─────┘
```
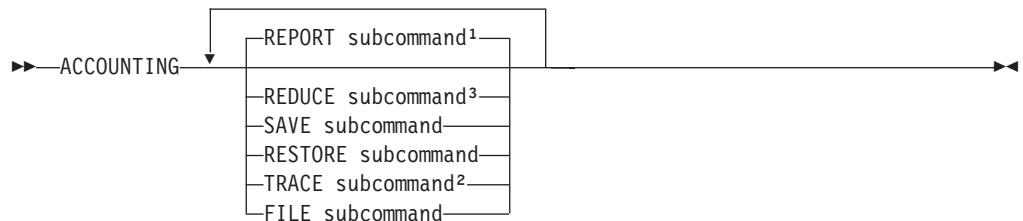
Notes:
1. You can specify REPORT up to 35 times.
2. You can specify TRACE up to 5 times.
3. You can specify FILE once.
4. You cannot specify REDUCE without specifying at least one REPORT or SAVE.

Figure 100. Syntax of the ACCOUNTING Command

Using the REDUCE Subcommand

You use the REDUCE subcommand to reduce the volume of data that is input to the REPORT and SAVE subcommands. REDUCE consolidates records with certain common characteristics into one record. REDUCE can be used once in an ACCOUNTING command.

REDUCE is invoked automatically when you use REPORT or SAVE. You must specify REDUCE, however, if you want to:
- Specify an interval that can be used to order data on accounting reports.
- Produce several reports with different time spans.
- Define the interval and input filters for DISTRIBUTE and SAVE. DISTRIBUTE and SAVE do not have their own FROM/TO and INCLUDE/EXCLUDE filters. Instead, they use REDUCE FROM/TO and INCLUDE/EXCLUDE filters.

In most cases, the reduced records contain totals of the values from the individual records. In some cases, the reduced records contain maximum values.
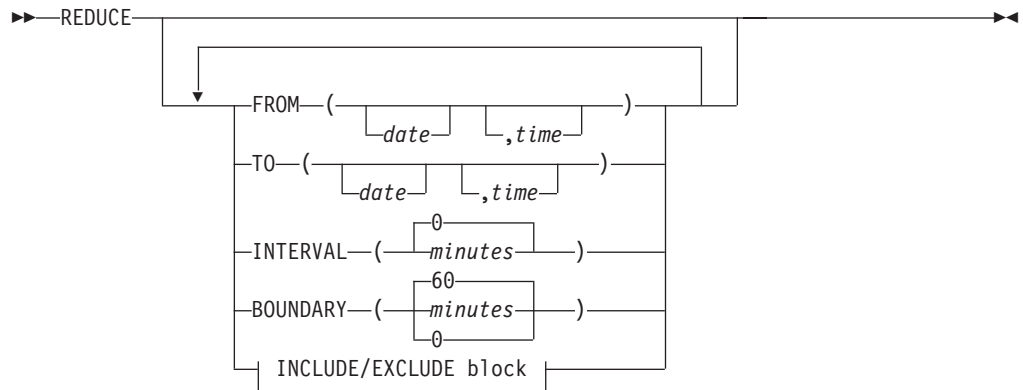
Figure 101. Syntax of the REDUCE Subcommand

The following options can be used with the REDUCE subcommand:

FROM/TO
Limits the range of records included in the reduction process by date and time.

INTERVAL
Defines the time interval over which accounting data is summarized.

Note: INTERVAL has an impact on performance. Always use the largest interval that meets your reporting requirements. If interval processing is not required, the default INTERVAL (0) is recommended for optimum performance. For more information on intervals, refer to "Processing Intervals" on page 225.

BOUNDARY
Controls the alignment of the intervals used to summarize records in the reduction process.

If you use RESTORE and REDUCE in the same job stream, the interval and boundary specified in REDUCE should match the interval and boundary that were used to reduce the data being restored. If these values are different, the interval and boundary from the restored data is used. For more information on boundaries, refer to "Processing Intervals" on page 225.

INCLUDE/EXCLUDE
Includes or excludes data associated with specific DB2 PM identifiers.

Using the REPORT Subcommand

You use the REPORT subcommand to generate reports from reduced records. Up to 35 REPORT subcommands can be specified within each ACCOUNTING command.

```
►►─REPORT─┬──────────────────────────────────────────────────────────────┬─►◄
          │  ┌──────────────────────────────────────────────────────────┐ │
          └──┼─FROM──(─┬───────┬─┬───────┬─)─────────────────────────────┼─┘
             │         └─date──┘ └─,time─┘                               │
             │                                                           │
             ├─TO──(─┬───────┬─┬───────┬─)────────────────────────────── │
             │       └─date──┘ └─,time─┘                                 │
             │        ┌─MEMBER─┐                                         │
             ├─SCOPE──(─┼────────┼─)────────────────────────────────── │
             │        └─GROUP──┘                                         │
             │         ┌─SHORT─┐                                         │
             ├─LAYOUT──(─┼───────┼─)────────────────────────────────── │
             │         └─name──┘                                         │
             │ ┌─NOEXCEPTION─┐                                          │
             ├─┴─EXCEPTION───┴────────────────────────────────────── │
             │                                                          │
             │        ┌─10─────┐                 ┌──────────────┐      │
             │        │        │                 │ ┌─INAPPLET─┐  │      │
             ├─TOP──(─┼────────┼─┬──────┬─┬───────┬─┴─┴─keyword──┴──┴─)─ │
             │        └─number─┘ └─ONLY─┘ └─TOTAL─┘                     │
             │        ┌─ACRPTDD─┐                                       │
             ├─DDNAME──(─┼─────────┼─)───────────────────────────── │
             │        └─ddname──┘                                      │
             ├─ ORDER block ───────┤                                   │
             └─ INCLUDE/EXCLUDE block ─┤
```
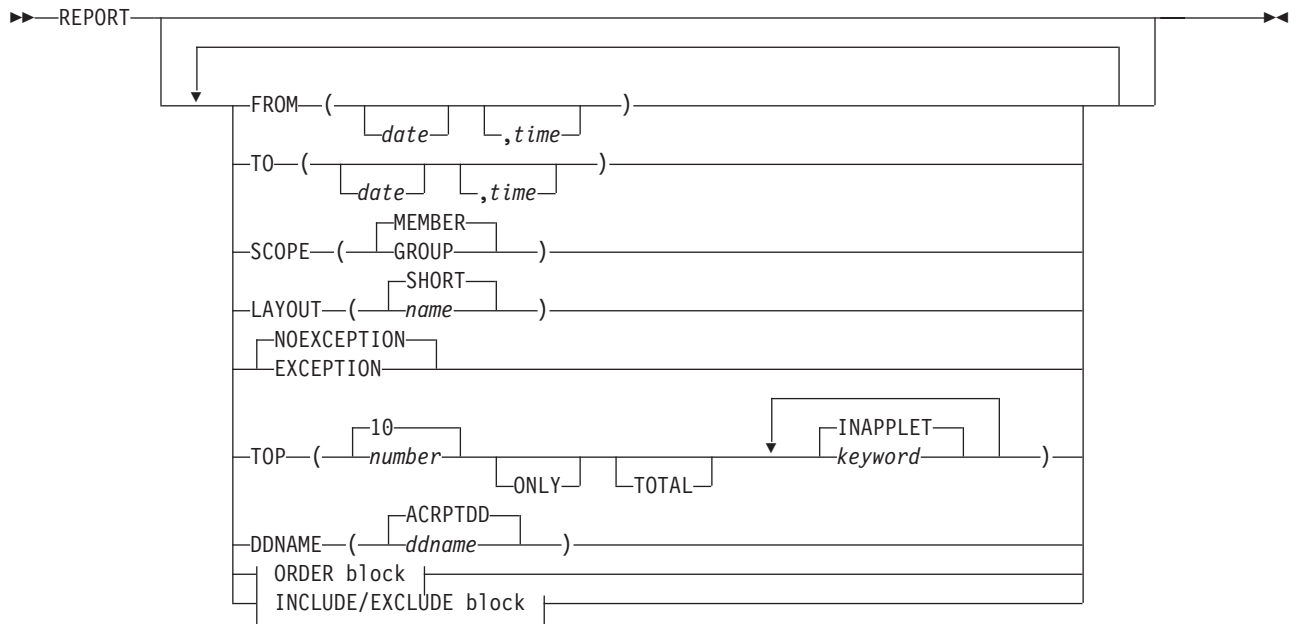
Figure 102. Syntax of the REPORT Subcommand

The following options can be used with the REPORT subcommand:

FROM/TO

Limits the range of records included in the reporting process by date and time.

Refer to "FROM/TO" on page 21 for more information.

LAYOUT

Specifies the name of a report layout. You can specify one of the supplied layouts or one that you have previously tailored. The following sample layouts are supplied:

SHORT (the default)

LONG

SCOPE

Specifies the scope of the report in a data sharing environment. You can specify MEMBER or GROUP. The default is MEMBER.

In member-scope reports, a data sharing group's instrumentation data is presented member by member. The events are reported in the specified ORDER sequence within the DB2 subsystem (member) where they occurred. Member-scope reports are used for DB2 subsystems that are not involved in data sharing.

In group-scope reports, instrumentation data belonging to individual members is merged and presented for the entire group. The events are reported in the specified ORDER sequence within the DB2 data sharing group, regardless of which member of the group actually generated the events.

NOEXCEPTION/EXCEPTION

Specify EXCEPTION if you want to report only those entries on accounting reports with at least one field in exception status. Specify NOEXCEPTION to produce a standard report. NOEXCEPTION is the default.

The thresholds for exception fields are defined in the exception threshold data set. Refer to Exception processing for more information about the exception threshold data set.

If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. Refer to "DD Statements" on page 10 for more information about required ddnames.

TOP   To identify report entries with a high value in certain fields, you can produce an accounting report with TOP lists. TOP lists indicate which entries on the report have the highest value in the field you have specified using the TOP keyword.

By default, the TOP list contains the top ten entries, but you can change the number to anything from one to fifty.

The ONLY only indicates the use of TOP as a filter. When TOP is requested as a filter, the index is not shown. For example, the report produced by the command following shows only the top 3 entries for the default TOP field, elapsed time in application (INAPPLET).

```
ACCOUNTING
   REPORT
        TOP (3 ONLY)
```

Figure 103. Example Accounting TOP Option

The option TOTAL produces reports that show total values instead of averages.

For more information about TOP processing, refer to "TOP Processing" on page 221.

You can generate reports showing TOP lists for all the fields available for use with the TOP option. Any combination of the fields can be specified, including all of the fields (by specifying TOP (*)). If no TOP keyword is specified, the default is class 1 elapsed time (INAPPLET). The following list shows the keywords by which these fields are specified.

INAPPLET	The class 1 elapsed time (in an application). This value is an average.
INDB2ET	The class 2 elapsed time accumulated in DB2. This value is an average.
OUTDB2ET	The elapsed time outside DB2. This value is an average.
INAPPLPT	The class 1 CPU time in an application. This value is an average.
INDB2PT	The class 2 CPU time in DB2. This value is an average.
OUTDB2PT	The CPU time outside DB2. This value is an average.
INAPPLWT	The class 1 waiting time in an application. This value is an average.
INDB2WT	The class 2 waiting time in DB2. This value is an average.
OUTDB2WT	The waiting time outside DB2. This value is an average.
TOTSUSTM	The waiting time for all class 3 suspensions. This value is an average.
DMLSTAT	The total number of SQL DML statements executed. This value is an average.

DCLSTAT	The total number of DCL statements executed. This value is an average.
DDLSTAT	The total number of DDL statements executed.
UPDPERCM	The sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements executed.
CMPERUPD	The ratio of the sum of commits and rollbacks to the sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements.
TOTSUSP	The number of suspensions. This value is an average.
GETPAGES	The number of GETPAGE requests. This value is an average.
NOTACCT	The time not accounted in DB2. You use this time to determine whether there is a large percentage of time that has not been captured within the DB2 accounting record. This value is an average.
BUFUPDTS	The number of buffer updates. This value is an average.
SYNCREAD	The number of synchronous read I/O operations. This value is an average.
TOTPREF	The number of all types of prefetch requests. This value is an average.
PINDBET	The total elapsed time for executing the package or DBRM. This value is an average.
PINDBPT	The CPU time spent by the package or DBRM (class 7). This value is an average.
PTSUSTME	The waiting time for the package or DBRM due to a class 8 suspension. This value is an average.
PNOTACCT	The total unaccounted time in DB2 due to the execution of the package or DBRM. This value is an average.

Note: TOP lists for package fields report the maximum values of these fields in individual packages within a report entry. TOP lists for buffer pool fields contain the totals for all buffer pools.

DDNAME

Specifies the data set to which the report is written. You can specify any valid ddname including the default, provided that your JCL contains a DD statement for it. If a DD statement is omitted, it will be dynamically allocated to the SYSOUT message class of the job. The default ddname for report is ACRPTDD.

ORDER

Specifies which DB2 PM identifiers are used to aggregate accounting records and, unless TOP ONLY is specified, identifies the presentation sequence of the report entries. . The default for ORDER is PRIMAUTH-PLANNAME.

In addition to these DB2 PM identifiers, you can use the REDUCE INTERVAL to order data on accounting and statistics reports.

For example, you might want to report data at daily intervals. In this case you would specify INTERVAL (1440) in the REDUCE subcommand and ORDER(INTERVAL) in the REPORT subcommand.

The use of INTERVAL requires significantly more processing. Use the default interval (0) on REDUCES unless you intend to produce reports showing the performance of your system at time intervals.

> **Important Note**
>
> In a distributed environment, order your reports by REQLOC or CONNTYPE. If you do not, the accounting portion of *all* threads (including DBATs) where the combination of DB2 PM identifiers is the same are reported as one entry.

See "ORDER" on page 26 for more information.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific DB2 PM identifiers.

Refer to "Chapter 1. DB2 PM Identifiers" on page 3 for definitions of DB2 PM identifiers.

Refer to "INCLUDE/EXCLUDE" on page 28 for more information on how to use the INCLUDE/EXCLUDE option.

Examples Using REPORT

Example 1:

```
⋮
REPORT
   LAYOUT  (LONG)
   INCLUDE (LOCATION(R(LOCN01 LOCN05)))
   FROM    (03/18/99,10:00:00.00)
   TO      (03/19/99,12:00:00.00)
⋮
```

This example specifies the following:

- An accounting long report
- Data is included that is only associated with the location in the range of LOCN01 to LOCN05
- Using records between and including the FROM and TO times

Using the SAVE Subcommand

You use the SAVE subcommand to produce a VSAM data set containing reduced records. After the data has been saved, you can:

- Convert the save files to sequential data sets using the save-file utility and load it to DB2 for subsequent use.
- Produce graphs using the graphics subsystem of the IRF.
- Restore and combine it with newly reduced data to produce long-term reports.
- Restore it and use it in later reporting.

Note: VSAM data sets cannot be concatenated.

```
►►──SAVE──────────────────────────────────────────────►◄
           │              ┌─ACSAVDD─┐       │
           └─DDNAME──(───┴─ddname──┴───)──┘
```
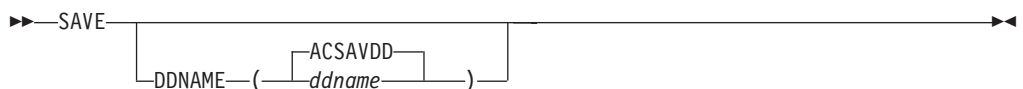
Figure 104. Syntax of the SAVE Subcommand

The option used with the SAVE subcommand is DDNAME.

DDNAME

Specifies the ddname to which the save data is written. The default ddname is ACSAVDD.

The VSAM data set defined by the default ddname must already exist when you run DB2 PM. Either specify an existing data set from a previous DB2 PM run (when restoring data), or specify a new data set allocated using the IDCAMS DEFINE CLUSTER function.

Using the RESTORE Subcommand

You use the RESTORE subcommand to reload previously saved data for additional processing. After the data is restored, you can produce reports from the restored data alone, or from the restored data combined with newly reduced data. Saved data can be restored as often as required.

```
►►──RESTORE──┬──────────────────────────────┬──────────────────────────►◄
             │            ┌─ACRSTDD─┐        │
             └─DDNAME──(──┴─ddname──┴──)─────┘
```
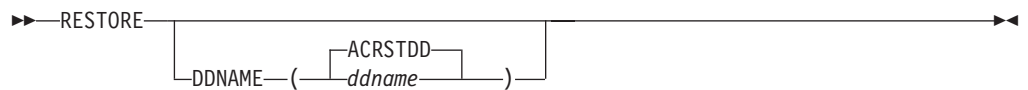
Figure 105. Syntax of the RESTORE Subcommand

The option used with the RESTORE command is DDNAME.

DDNAME

Specifies the ddname used to reload a previously saved file for additional use

Using the TRACE Subcommand

You use the TRACE subcommand to produce traces with an entry for each of the following:

- An IFCID 3 with associated IFCIDs 239 if more than 10 packages or DBRMs are executed within the plan
- Several IFCIDs 3 (and 239) generated at different locations for a distributed transaction (in merged traces only)
- Several IFCIDs 3 (and 239) generated for the originating and associated parallel tasks in CP parallelism

An entry in an accounting trace is referred to as a logical accounting record as it can consist of several physical accounting records (IFCIDs 3 and 239).

Up to five traces can be requested in a job step.

```
►►──TRACE──────────────────────────────────────────────────────────────────────►

►─┬──────────────────────────────────────────────────────────────────────┬─►◄
  │  ┌─◄───────────────────────────────────────────────────────────────┐  │
  └──┤                                                                  ├──┘
     │  ┌─◄────────────┐                                                │
     ├──▼─FROM──(──┬──────────┬──┬────────┬──)──                        │
     │             └──date──┘  └──,time──┘                             │
     ├─TO──(──┬──────────┬──┬────────┬──)──                            │
     │        └──date──┘  └──,time──┘                                  │
     │              ┌─SHORT─┐                                          │
     ├─LAYOUT──(──┴──name──┴──)──                                     │
     │  ┌─NOEXCEPTION─┐                                                │
     ├──┴─EXCEPTION──┴──                                              │
     │           ┌─10─────┐     ┌─◄──────────┐                        │
     ├─TOP──(──┴──number─┴──┬───────┬──▼──┬─INAPPLET─┬──)──          │
     │                      └─ONLY─┘      └─keyword──┘               │
     │              ┌─ACTRCDD*─┐                                     │
     ├─DDNAME──(──┴──ddname──┴──)──                                 │
     └──┤ INCLUDE/EXCLUDE block ├──                                 
```
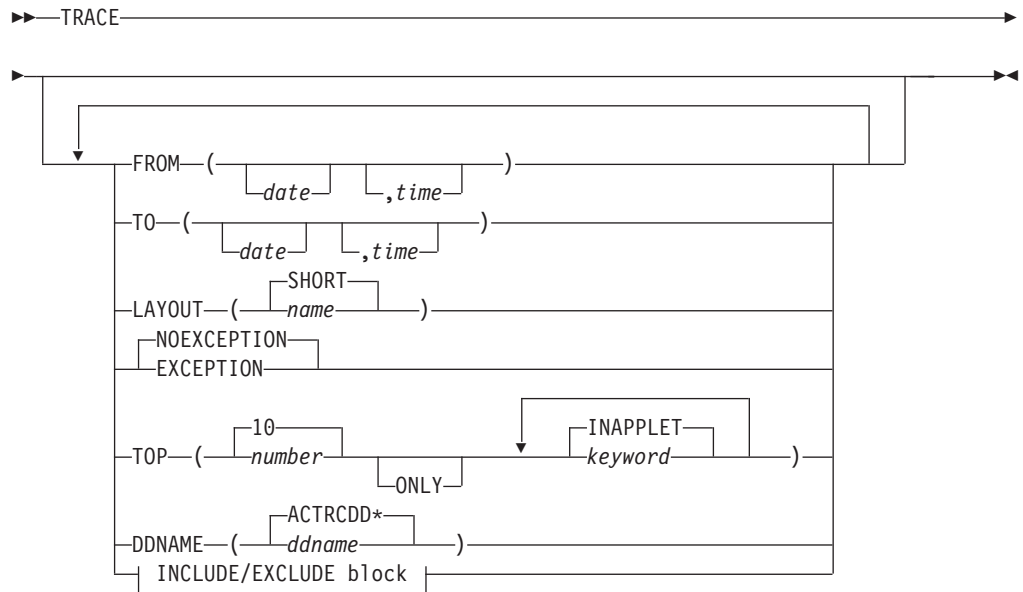
Figure 106. Syntax of the TRACE Subcommand

The following options can be used with the TRACE subcommand:

FROM/TO

Limits the range of records included in the trace by date and time.

LAYOUT

Specifies the name of a trace layout. You can specify one of the supplied layouts or one that you have previously tailored. The following sample layouts are supplied:

SHORT (the default)

LONG

NOEXCEPTION/EXCEPTION

Specify EXCEPTION if you want to show those accounting trace entries with at least one field in exception status. NOEXCEPTION is the default.

The thresholds for exception fields are defined in the exception threshold data set. Refer to Exception processing for more information about the exception threshold data set.

TOP To identify trace entries with a high value in certain fields, you can produce an accounting trace with TOP lists. TOP lists indicate which entries on the trace have the highest value in the field you have specified using the TOP keyword.

By default, the TOP list contains the top ten entries, but you can change the number to anything from one to fifty.

The keyword ONLY indicates the use of TOP as a filter. When TOP is requested as a filter, the index is not shown. For example, the trace produced by the command following only shows the top 3 entries for the default TOP field, elapsed time in application (INAPPLET). The option ONLY is valid wherever a resource name can be used.

```
ACCOUNTING
  TRACE
     TOP (3 ONLY)
```

Figure 107. Example Accounting TOP Option

For more information about TOP processing, refer to "TOP Processing" on page 221 .

You can generate traces showing TOP lists for all the fields available for use with the TOP option. Any combination of the fields can be specified, including all of the fields (by specifiying TOP (*)). If no TOP keyword is specified, the default is class 1 elapsed time (INAPPLET). The following list shows the keywords by which these fields are specified.

INAPPLET	The class 1 elapsed time (in an application). This value is an average.
INDB2ET	The class 2 elapsed time accumulated in DB2. This value is an average.
OUTDB2ET	The elapsed time outside DB2. This value is an average.
INAPPLPT	The class 1 CPU time in an application. This value is an average.
INDB2PT	The class 2 CPU time in DB2. This value is an average.
OUTDB2PT	The CPU time outside DB2. This value is an average.
INAPPLWT	The class 1 waiting time in an application. This value is an average.
INDB2WT	The class 2 waiting time in DB2. This value is an average.
OUTDB2WT	The waiting time outside DB2. This value is an average.
TOTSUSTM	The waiting time for all class 3 suspensions. This value is an average.
DMLSTAT	The total number of SQL DML statements executed. This value is an average.
DCLSTAT	The total number of DCL statements executed. This value is an average.
DDLSTAT	The total number of DDL statements executed.
UPDPERCM	The sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements executed.
CMPERUPD	The ratio of the sum of commits and rollbacks to the sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements.
TOTSUSP	The number of suspensions. This value is an average.
GETPAGES	The number of GETPAGE requests. This value is an average.
NOTACCT	The time not accounted in DB2. You use this time to determine whether there is a large percentage of time that has not been captured within the DB2 accounting record. This value is an average.
BUFUPDTS	The number of buffer updates. This value is an average.
SYNCREAD	The number of synchronous read I/O operations. This value is an average.
TOTPREF	The number of all types of prefetch requests. This value is an average.

PINDBET	The total elapsed time for executing the package or DBRM. This value is an average.
PINDBPT	The CPU time spent by the package or DBRM (class 7). This value is an average.
PTSUSTME	The waiting time for the package or DBRM due to a class 8 suspension. This value is an average.
PNOTACCT	The total unaccounted time in DB2 due to the execution of the package or DBRM. This value is an average.

Note: TOP lists for package fields report the maximum values of these fields in individual packages within a trace entry. TOP lists for buffer pool fields contain the totals for all the buffer pools.

DDNAME

Specifies the data set to which the trace is written. The default ddname for the first trace is ACTRCDD1. The default ddnames for the second to fifth traces are ACTRCDD2 through ACTRCDD5.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific DB2 PM identifiers.

Refer to "INCLUDE/EXCLUDE" on page 28 and "Chapter 1. DB2 PM Identifiers" on page 3.

Examples Using TRACE

Example 1:

⋮

```
TRACE
```

⋮

This example specifies:

- An accounting short trace
- Exception data is not presented
- Written to ACTRCDD1

Using the FILE Subcommand

You use the FILE subcommand to format unreduced DB2 data and store it in sequential data sets suitable for use by the DB2 load utility. Note that in the case of CP parallelism, the logical accounting record (aggregation of all the activity within the thread) is stored in the data set. The records can be placed in DB2 tables and you can produce reports using a reporting facility such as Query Management Facility (QMF).

```
►►──FILE─────────────────────────────────────────────────────────────────►◄
         ┌──────────────────────────────────────────┐
         │ ┌─FROM──(─────────────────────)           │
         └─▼            └─date─┘  └─,time─┘           │
           ├─TO──(─────────────────────)             │
           │       └─date─┘  └─,time─┘               │
           ├─NOEXCEPTION───────────────              │
           ├─EXCEPTION─────────────────              │
           ├─┤ INCLUDE/EXCLUDE block ├─              │
           │              ┌─ACFILDD1─┐               │
           └─DDNAME──(─────────────────)
                          └─ddname───┘
```
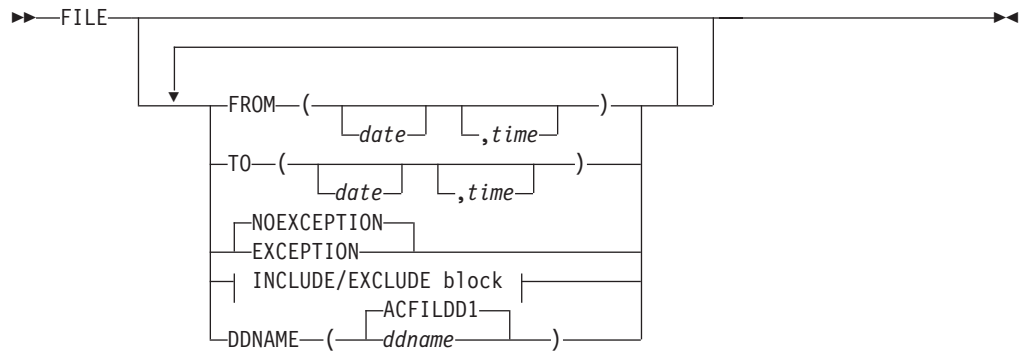
Figure 108. Syntax of the FILE Subcommand

The following options are used with the FILE subcommand:

FROM/TO

Limits the range of records included in the data set by date and time. You can specify combinations of beginning date and time, and ending date and time. Records are included from the first with a timestamp greater than or equal to the FROM date and time, to the last with a timestamp less than the TO date and time.

If FROM/TO dates and times are specified in GLOBAL, all records outside those dates and times are discarded by DB2 PM. If the date and time is not specified in GLOBAL, all records in the input data are available.

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the record timestamp before FROM/TO processing.

If you are reducing data, the FROM/TO times specified in REDUCE affect the data available for filing.

Refer to "The GLOBAL command" on page 40 for more information about the GLOBAL command.

Refer to "FROM/TO option" on page 41 for more information on how to use the FROM/TO option.

NOEXCEPTION/EXCEPTION

Specify EXCEPTION to include only those file entries containing fields with values outside the user-specified limits. Specify NOEXCEPTION to include all records. NOEXCEPTION is the default.

The thresholds for exception fields are defined in the exception threshold data set. Refer to "Exception processing" on page 153 for more information about the exception threshold data set.

If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. Refer to "Building a Command Stream" on page 389 for more information about required ddnames.

DDNAME

Specifies the ddname to which the file data set is written. You can specify any valid ddname including the default, provided that your JCL contains a DD statement for it. If you omit the DDNAME option, the default value is applied. The default ddname is ACFILDD1.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific DB2 PM identifiers. If

you omit this option, all records are included in the file data set. The following DB2 PM identifiers can be used with INCLUDE/EXCLUDE:

- CONNECT (connection ID)
- CONNTYPE (connection type)
- CORRNAME (correlation name)
- CORRNMBR (correlation number)
- INSTANCE (instance number)
- LOCATION (location)
- ORIGAUTH (original authorization ID)
- MAINPACK (main package)
- PACKAGE or PROGRAM (package)
- PLANNAME (plan name)
- PRIMAUTH/AUTHID (primary authorization ID/authorization ID)
- REQLOC (requesting location)
- SUBSYSTEMID (DB2 subsystem ID)
- THREADTYPE (thread type)

Refer to "INCLUDE/EXCLUDE" on page 28 for more information on how to use the INCLUDE/EXCLUDE option.

Refer to "Chapter 1. DB2 PM Identifiers" on page 3 for definitions of DB2 PM identifiers.

Example Using FILE

```
:
FILE
    EXCEPTION
    INCLUDE (PRIMAUTH(USER10 USER11 USER12))
:
```

This example specifies a file which includes only exception records for User10, User11, and User12. The file is generated on ddname ACFILDD1 by default.

Examples of Accounting Processing

Following are examples of the ACCOUNTING command using a number of the available subcommands and options.

Example 1

```
:
ACCOUNTING
    REPORT
        TOP     (3 INDB2ET)
        ORDER   (CONNECTION-PLANNAME-PRIMAUTH,PRIMAUTH-PLANNAME)
        INCLUDE (PRIMAUTH(UID0001 UID0005 UID0009))
:
```

This example specifies that two reports are produced:

- Both reports use the SHORT layout by default.
- The first report is ordered by primary authorization ID within plan name within connection ID.

- The second report is ordered by plan name within primary authorization ID.
- For both reports, a top list is produced identifying the top three report entries for INDB2ET (elapsed time spent in DB2).
- Both reports include data for the following primary authorization IDs:
  - UID0001
  - UID0005
  - UID0009.
- As no ddname was specified, both reports are written to the data set with the default ddname ACRPTDD.

Example 2

```
⋮
ACCOUNTING
    REPORT
        LAYOUT  (LONG)
        ORDER   (REQLOC)

    REPORT
        LAYOUT  (LONG)
        ORDER   (REQLOC)
        INCLUDE (CONNTYPE(DRDA))
⋮
```

This example demonstrates how you can produce accounting reports to show all accounting data for different requesting locations.

Because the statistics report set does not offer a break-down of the activity of DRDA protocol requests, an accounting report showing the DDF statistics can be useful.

The first report shows fields summarized by the requesting location.

The information is shown for every requesting location, including the reporting location, regardless of the method of access.

The second report shows accounting data summarized by requesting location for all locations (except the reporting location) using DRDA protocol.

Chapter 21. Creating Effective Accounting Reports

For a DB2 PM report to be effective it must deliver the information you need efficiently in terms of resources required to produce it, the volume of data produced, and the time it takes for you to interpret the report.

Processing Considerations

Because accounting is one of the most used report sets, you should consider the impact on batch resourses. To reduce DB2 PM processing time when producing accounting reports and traces, only ask for the information you really need, as a lot of accounting data is usually collected.

Before producing a report or trace, consider how much detail you need.

Use the short (default) layouts of reports and traces whenever possible. In most instances these provide enough detail for monitoring and problem determination.

A detailed report using all input data gathered over a long period uses a lot of system resource and you end up with pages of information you are probably not interested in.

So, to avoid unnecessary processing overhead and to save time:
- Consider carefully how detailed a report you need.
- Filter the input data - preferably using GLOBAL.
- Disable DB2 PM internal sort if appropriate.
- Define groups for identifiers you want reported as a single entry.
- Specify a REDUCE INTERVAL only if you want to report by intervals or produce several reports with different time spans.
- Define exception thresholds only for fields you are interested in.
- Specify DPMOUT or keep a save data set only if you are sure you want to report the data again.
- Use UTR to remove blocks of data that are of no interest.

Choosing the Right Level of Detail

Before producing a report or trace, consider how much detail you need.

Use the LAYOUT option of the accounting reports and traces to control the amount of data to be produced. Do not use the most comprehensive layouts showing all the possible fields unless you need to. In most situations the default layouts, which are short versions of reports and traces, provide enough detail for monitoring and problem determination.

Another way of to reduce the amount of data to be reported is to tailor your own report and trace layouts according to your needs (see Part 4. User-Tailored Reporting). In this way, you can avoid processing data you are not interested in, focus your attention on meaningful information, and make the most efficient use of DB2 PM. Removing one or more blocks from your layout can reduce DB2 PM processing time. However, removing fields within a particular block does not give a significant improvement.

Filtering Data

You can limit the amount of data to be processed by filtering the input data. You can specify filters in the GLOBAL command or in the REDUCE, REPORT, TRACE, or FILE subcommand.

Specify the filters in GLOBAL whenever you can, because only the data that passes the GLOBAL filters is processed further. The less data DB2 PM needs to process, the better the performance.

Make sure, however, that you do not exclude records needed in DB2 PM processing.

FROM and TO

The simplest filter is the start and end date and time of the data to be reported. Specify the start and end dates and times using the FROM and TO options.

Assume that you want to monitor the performance of your system only during peak hours and to produce the default versions of a report. You could specify the following:

```
:
GLOBAL
     FROM (09/25/98,08:30)
     TO   (09/25/98,17:00)
ACCOUNTING
:
```

The report shows information from 8:30 a.m. to 5:00 p.m. for the specified day.

Presuming that your input data set contains data for more than one day, for example a week, you can generate a report that shows the performance of your system during peak hours for the whole week by specifying:

```
:
GLOBAL
     FROM (,08:30)
     TO   (,17:00)
ACCOUNTING
:
```

The report shows information from 8:30 a.m. to 5:00 p.m. for every day of the week.

INCLUDE and EXCLUDE

Another way to filter data is to include data only for particular DB2 PM identifier values, for example, user IDs or plans. You can do this using the INCLUDE and EXCLUDE options. For more information, refer to "Chapter 1. DB2 PM Identifiers" on page 3.

As an example, you have a problem with applications coming from one location, USIBMSNEWY11, you know the CICS transactions are not causing a problem, specify:

```
            :
        GLOBAL
            INCLUDE (LOCATION (USIBMSNEWY11))
            EXCLUDE (CONNTYPE (CICS))
            :
```

Continuing the example, suppose the report indicated a problem with authorization identifier USERID01 using plan PVLDD4C3. You are only interested in data belonging to that user ID and plan. You can now specify:

```
            :
        GLOBAL
            INCLUDE (LOCATION (USIBMSNEWY11))
              INCLUDE (AUTHID   (USERID01))
                INCLUDE (PLANNAME (PVLDD4C3))
            :
```

Suppressing the DB2 PM Internal Sort

When requesting accounting functions only, it is often possible to avoid the DB2 PM internal sort of the input data. This reduces the size of the sort work files which must be allocated, and the processing time.

The PRESORTED option of the GLOBAL command controls the internal sort.

For example, to produce an accounting report without sorting the input data, specify:

```
            :
        GLOBAL
            PRESORTED (ACCEPT)

        ACCOUNTING
            :
```

The resulting accounting report shows accounting data for all locations in the input data set, without performing an internal sort.

Grouping Data

Use the GROUP command to define a set of DB2 PM identifier values that can be used when requesting certain reports. The information for the set is reported as a single entry on the reports.

In GROUP processing the data for all items of the set is consolidated into one record. This improves DB2 PM performance because fewer records need to be processed.

Sets are also useful for reporting purposes, for example when you want to report data for an entire department instead of every individual person in it.

This is how sets can be specified:

Assume that your sales department consists of three users, USER001, USER002, and USER003, and that you want to produce an accounting report showing performance data for that department. You can specify:

```
      ⋮
GROUP (
    PRIMAUTH (
        SALES (USER001,
               USER002,
               USER003)))

ACCOUNTING
    REDUCE
        INCLUDE (PRIMAUTH(G(SALES)))
    REPORT
        ORDER   (PRIMAUTH)
      ⋮
```

The accounting report shows information for the sales department as a single entry.

The DB2 PM identifiers where GROUP can be applied in accounting are:

- CONNECT
- CONNTYPE
- CORRNAME
- CORRNMBR
- MAINPACK
- ORIGAUTH
- PLANNAME
- PRIMAUTH
- REQLOC

Specifying Intervals

If you want to use DB2 PM for trend analysis, you probably want to report data by interval. To do this, first reduce the input data for your accounting reports using an interval other than the default zero. Then order the report by intervals.

For example, you might want to report the data at daily intervals. In this case you would specify INTERVAL(1440) in the REDUCE subcommand and ORDER(INTERVAL) in the REPORT subcommand. If you do not intend to produce reports showing the performance of your system at time intervals, use the default (0) for INTERVAL, which means that no interval processing is performed.

Specifying Exception Thresholds for Specific Fields Only

Exception processing is an effective way to find out if there are problems in your system performance. You can set exception thresholds for virtually all the accounting fields. You should, however, carefully consider the fields for which to specify exception thresholds. The more fields you specify, the greater the impact on processing.

Specify exception thresholds only for those fields that you believe will signal poor performance in your environment.

Note that you can also use the TOP ONLY option to identify problems instead of specifying exception thresholds. TOP processing is more economical than exception processing.

Using a DPMOUT Data Set

After DB2 PM has generated all the reports you requested, the preprocessed input data is either discarded or written to the DB2 PM output data set, DPMOUT, depending on what you specified. The DPMOUT data set can be used as input to DB2 PM, so if you want to produce reports from the same data in several executions and your SMF/GTF data set is large, you might want to keep the DPMOUT data set.

If you do not specify DPMOUTDD, only the records required for the current job step are processed, which improves DB2 PM performance. If you want to keep a DPMOUT data set for the only purpose of producing future accounting reports and traces, specify GLOBAL INCLUDE IFCID(3 239) in the DB2 PM command stream within your JCL. This reduces the size of the DPMOUT data set.

Saving Reduced Data

If you need to keep historical accounting data about DB2 performance, you might consider using REDUCE and SAVE. Reducing and saving data uses a considerable amount of system resources, but the resulting save data set is much smaller than the original input data set.

The size of the data set depends on the reduction interval you have specified and the type of environment the data is from (for example the number of different users and plans present in the input data), but it is always much smaller than the original input data set.

You can produce reports from the reduced and saved data by using the RESTORE command. Remember that you cannot produce traces from reduced data.

The save data sets are also needed as input to accounting graphs.

Exception Processing

Exception processing is used to identify accounting report, trace, and file data set entries with fields containing values outside limits that you have previously specified. These limits are called *thresholds* and are set in the exception threshold data set. When exception processing is requested, the data to be reported is checked against these thresholds. There are two threshold types that you can set: warning and problem. A warning message is printed if a value is outside the first threshold and a problem message is printed if a value is outside the second threshold.

Accounting exception reports, traces, and file data sets are identical to the usual accounting reports, traces, and file data sets, except that they only contain entries that have at least one field in exception status. For reports and traces, a block of data showing the fields which have been found in exception status is printed next to the report or trace entry. Exception reports, traces, and file data sets are obtained using the EXCEPTION option in accounting subcommands.

Exception processing checks all fields with defined exception thresholds even those that are not listed in your accounting report or trace.

Exception logs contain accounting and statistics fields that are in exception status in one report in timestamp order. The exception log is generated for a DB2 PM

execution when the EXTRCDD1 DD statement is defined in your JCL. The exception log file data set is generated when the EXFILDD1 DD statement is defined in your JCL. Refer to "Part 3. DB2 PM Logs" on page 79 for more information.

If EXCEPTION is specified in the REPORT or TRACE subcommand, the entry is formatted and printed in the requested layout followed by the exception messages block, an example of which is shown in Figure 109. The exception messages block identifies the fields in exception.

```
*********************************************************************************************************************
* TYPE        FIELD ID   FIELD DESCRIPTION                                    BY            VALUE    THRESHOLD    *
*                        FIELD QUALIFIER                                                                         *
* PROBLEM     QXINCRB    INCREMENTAL BINDS                                    TOTAL           1 > 0              *
*                                                                                                               *
* PROBLEM     ASCDML     TOTAL SQL DML STATEMENTS                             COMMIT      127.25 > 100           *
*                                                                                                               *
* WARNING     QBACGET    GETPAGES                                            THREAD      2589.00 > 2500          *
*                        TOTAL                                                                                   *
*********************************************************************************************************************
```

Figure 109. Accounting Exception Messages Block

The following columns of data are presented:

TYPE The type of threshold. WARNING or PROBLEM can be printed in this field.

FIELD ID
The name of the field from the exception threshold data set.

FIELD DESCRIPTION
The description of the field.

FIELD QUALIFIER
The qualifier of the field. It can be blank (for the majority of fields), a buffer pool ID, group buffer pool ID, package or DBRM name, or a remote location name.

BY The basis for the comparison. The following can be printed in this column:

TOTAL
The threshold is specified as a *total* value.

MINUTE
The threshold is specified as a *by minute* value. The value in the report or trace entry is divided by the number of minutes (class 1 elapsed time) before making the comparison.

SECOND
The threshold is specified as a *by second* value. The value in the report or trace entry is divided by the number of seconds (class 1 elapsed time) before making the comparison.

COMMIT
The threshold is specified as a *by commit* value. The value in the report or trace entry is divided by the number of commits before making the comparison.

THREAD
The threshold is specified as a *by thread* value. The value in the report or trace entry is divided by the number of threads before the comparison. For traces it is equivalent to *by total*.

VALUE
The actual field value on the report or trace entry used for the comparison.

For by minute, by second, by commit, or by thread comparisons, the value that you get after the division is printed. The symbols > or < are printed between this column and the THRESHOLD column indicating whether the value is larger or smaller than the threshold value.

THRESHOLD
The threshold defined in the exception threshold data set.

The fields available for accounting exception processing are shown in the table in "Chapter 27. Accounting Fields" on page 299.

ORDER Processing

Unless TOP ONLY is specified, data on accounting traces is presented in a chronological order and data on accounting reports is, by default, summarized by plan names within primary authorization IDs. You can change the way reports are summarized using the ORDER option of the REPORT subcommand.

You use ORDER to specify the DB2 PM identifiers to be used in aggregating accounting records. Unless TOP ONLY is specified, ORDER also determines the sequence for sorting a report. You can aggregate records using one, two, or three identifiers, separated by a dash, and specify up to five sets of these identifiers per entry of ORDER. You can specify one entry of ORDER per REPORT subcommand.

See "DB2 PM Identifiers used with INCLUDE/EXCLUDE" on page 30 for identifiers applicable to ORDER.

The default for ORDER is PRIMAUTH-PLANNAME.

In addition to these DB2 PM identifiers, you can use the REDUCE INTERVAL to order data on accounting and statistics reports. Refer to "Example of Ordering by Interval" on page 220 for an example of a report ordered by interval.

The following examples demonstrate ORDER processing.

Examples of Using ORDER

The following examples show the same input data ordered in three different ways on an accounting report.

The default order is plan names within primary authorization IDs.

The report produced is shown in Figure 110.

```
   LOCATION: DSNCAT                       DB2 PERFORMANCE MONITOR (V6)                            PAGE: 1-1
      GROUP: DSNCAT                        ACCOUNTING REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
     MEMBER: SSDQ                                                                            TO: NOT SPECIFIED
  SUBSYSTEM: SSDQ                          ORDER: PRIMAUTH-PLANNAME               INTERVAL FROM: 05/10/99 18:47:13.28
DB2 VERSION: V6                                  SCOPE: MEMBER                                  TO: 05/10/99 19:55:28.69

PRIMAUTH          #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
 PLANNAME         #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------ ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

ADMF001                       2       7    1.00    0.00    0.00    0.00  12:22.510536            N/P    44.00     9.50     0.00
 DDLD3P04                     0      16    0.00    0.00    0.00    0.00       0.759452            N/P     0.00     0.00        0

ADMF001                      10       2    0.00    0.00    0.00    0.00   3:05.083686            N/P   625.50    19.40     0.10
 DSNUTIL                      0      87    0.00    0.00    0.00    0.00       1.899589            N/P   315.10     7.60        0

ADMF001                      10      10    0.00    0.00    0.00    0.00   1:06.989512            N/P    23.00     0.20     3.00
 QMF311                       0       0    1.00    1.00    0.00    1.00       0.041995            N/P     0.00     0.00       10

*** TOTAL ***
ADMF001                      22      19    0.09    0.00    0.00    0.00   3:02.079684            N/P   298.77     9.77     1.41
                              0     103    0.45    0.45    0.00    0.45       0.951579            N/P   143.23     3.45       10

ADMF002                       2     159    1.50    0.00   81.00    0.00 1:54:45.002759           N/P  2589.00   284.50   207.50
 DDLD3P08                     0       4  170.00    1.50    0.50    0.00       8.915043            N/P   362.50   121.00      156

ADMF003                       2      34   25.50    0.00    0.00    1.00 1:54:00.564496           N/P  1459.50    93.00    82.00
 DDLD3P16                     0       1    0.00    0.00    0.00    0.00       6.607316            N/P    77.00    54.50       32

ADMF005                       6       0    0.00    0.00    0.00    0.00   1:26.881992            N/P    54.67     2.50     1.00
 DSNUTIL                      0      36    0.00    0.00    0.00    0.00       0.119407            N/P    15.83     2.50        0

ADMF006                       1       0    0.00    0.00    0.00    0.00    54.526350            N/P   587.00    46.00     3.00
 DSNTEP31                     0       1   76.00    3.00    3.00    3.00       0.326120            N/P     8.00    17.00        0

ADMF006                       2       0    0.00    0.00    0.00    0.00    56.913775            N/P    53.50     0.50     1.50
 DSNUTIL                      0      16    0.00    0.00    0.00    0.00       0.447878            N/P     8.00     2.50        0

*** TOTAL ***
ADMF006                       3       0    0.00    0.00    0.00    0.00    56.117967            N/P   231.33    15.67     2.00
                              0      17   25.33    1.00    1.00    1.00       0.407292            N/P     8.00     7.33        0

*** GRAND TOTAL ***
                             35     212    1.60    0.00    4.63    0.06  15:18.472383            N/P   448.34    29.49    17.77
                              0     161   12.17    0.46    0.11    0.37       1.540508            N/P   118.54    13.26      198

ACCOUNTING REPORT COMPLETE
```

Figure 110. Accounting Report - Default Order

The data is ordered according to various authorization IDs and plans. All primary
authorization IDs and plans present in the input data are shown.

The TOTAL rows are printed for primary authorization IDs containing more than one
plan.

You can order the report by the connection ID:

```
.
.
.
ACCOUNTING
     REPORT
         ORDER (CONNECT)
.
.
.
```

The report produced is shown in Figure 111.

```
        LOCATION: DSNCAT                    DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-1
           GROUP: DSNCAT                     ACCOUNTING REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
          MEMBER: SSDQ                                                                         TO: NOT SPECIFIED
       SUBSYSTEM: SSDQ                            ORDER: CONNECT                 INTERVAL FROM: 05/10/99 18:47:13.28
     DB2 VERSION: V6                              SCOPE: MEMBER                              TO: 05/10/99 19:55:28.69

                          #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
CONNECT                   #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

BATCH                           7     200    8.00    0.00   23.14    0.29 1:09:01.525990            N/P  1253.14   117.14    83.14
                                0      22   59.43    0.86    0.57    0.43       4.698535            N/P   126.71    52.57      188

DB2CALL                        10      10    0.00    0.00    0.00    0.00 1:06.989512             N/P    23.00     0.20     3.00
                                0       0    1.00    1.00    0.00    1.00       0.041995            N/P     0.00     0.00       10

UTILITY                        18       2    0.00    0.00    0.00    0.00 2:18.108687             N/P   371.67    11.67     0.56
                                0     139    0.00    0.00    0.00    0.00       1.144894            N/P   181.22     5.33        0

*** GRAND TOTAL ***
                               35     212    1.60    0.00    4.63    0.06 15:18.472383            N/P   448.34    29.49    17.77
                                0     161   12.17    0.46    0.11    0.37       1.540508            N/P   118.54    13.26      198

ACCOUNTING REPORT COMPLETE
```

Figure 111. Accounting Report - Ordered by Connection ID

Three connection IDs are reported: information for connection ID BATCH is reported on the first two lines followed by information for connections DB2CALL and UTILITY.

The grand total is printed at the end of the report; it shows the aggregated values for all three connection IDs.

You can also identify the task using correlation data:

```
:
ACCOUNTING
    REPORT
        ORDER (CORRNAME)
:
```

The report produced is shown in Figure 112.

```
                          #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
CORRNAME                  #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

RECOVER0                       10       2    0.00    0.00    0.00    0.00    3:05.083686            N/P   625.50    19.40     0.10
                                0      87    0.00    0.00    0.00    0.00       1.899589            N/P   315.10     7.60        0

RUNPRG16                        2      34   25.50    0.00    0.00    1.00 1:54:00.564496            N/P  1459.50    93.00    82.00
                                0       1    0.00    0.00    0.00    0.00       6.607316            N/P    77.00    54.50       32

RUNPRG4                         2       7    1.00    0.00    0.00    0.00   12:22.510536            N/P    44.00     9.50     0.00
                                0      16    0.00    0.00    0.00    0.00       0.759452            N/P     0.00     0.00        0

RUNPRG8                         2     159    1.50    0.00   81.00    0.00 1:54:45.002759            N/P  2589.00   284.50   207.50
                                0       4  170.00    1.50    0.50    0.00       8.915043            N/P   362.50   121.00      156

RUNUTL10                        2       0    0.00    0.00    0.00    0.00    1:43.715927            N/P    38.00     0.50     1.00
                                0      12    0.00    0.00    0.00    0.00       0.081900            N/P    17.00     0.50        0

RUNUTL11                        2       0    0.00    0.00    0.00    0.00    1:57.605935            N/P    62.50     0.50     1.00
                                0      12    0.00    0.00    0.00    0.00       0.136053            N/P    15.00     4.00        0

RUNUTL12                        3       0    0.00    0.00    0.00    0.00      56.117967            N/P   231.33    15.67     2.00
                                0      17   25.33    1.00    1.00    1.00       0.407292            N/P     8.00     7.33        0

RUNUTL13                        2       0    0.00    0.00    0.00    0.00      39.324115            N/P    63.50     6.50     1.00
                                0      12    0.00    0.00    0.00    0.00       0.140269            N/P    15.50     3.00        0

SYSADM                         10      10    0.00    0.00    0.00    0.00    1:06.989512            N/P    23.00     0.20     3.00
                                0       0    1.00    1.00    0.00    1.00       0.041995            N/P     0.00     0.00       10

*** GRAND TOTAL ***
                               35     212    1.60    0.00    4.63    0.06   15:18.472383            N/P   448.34    29.49    17.77
                                0     161   12.17    0.46    0.11    0.37       1.540508            N/P   118.54    13.26      198

ACCOUNTING REPORT COMPLETE
```

Figure 112. Accounting Report - Ordered by Correlation Name

> **Note:** In a distributed environment it is recommended that reports be ordered by REQLOC or CONNTYPE. If REQLOC or CONNTYPE are *not* used in the ORDER option of REPORT, the accounting portion of *all* threads (including DBATs) where the combination of DB2 PM identifiers is the same is reported as one entry.

Examples of Ordering by Plan, Main Package, and Package

The following examples show data ordered by PLANNAME, MAINPACK, and PACKAGE identifiers.

The data shown in Figure 113 is used for producing the reports shown in Figure 114, Figure 115, and Figure 116. The data in the Figure 113 has been simplified for the purpose of the examples to follow.

```
        LOCATION: STLEC1                         DB2 PERFORMANCE MONITOR (V6)                              PAGE: 7-1
           GROUP: N/P                             ACCOUNTING TRACE - SHORT               REQUESTED FROM: NOT SPECIFIED
          MEMBER: N/P                                                                               TO: NOT SPECIFIED
       SUBSYSTEM: V41A                                                                  ACTUAL FROM: 08/25/99 22:02:59.55
     DB2 VERSION: V6                                                                    PAGE DATE: 08/25/99

     PRIMAUTH CORRNAME CONNECT    ACCT TIMESTAMP  COMMITS   OPENS UPDATES INSERTS  EL. TIME(CL1)  EL. TIME(CL2) GETPAGES SYN.READ LOCK SUS
     PLANNAME CORRNMBR THR.TYPE   TERM. CONDITION SELECTS FETCHES DELETES PREPARE  CPU TIME(CL1)  CPU TIME(CL2) BUF.UPDT TOT.PREF LOCKOUTS
     -------- -------- -------    -------------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

     XXUSER01 CORRXXXX BATCH      12:00:00.000000       1       1       0       0      10.000000       4.444444        2        0        0
     PLANX    'BLANK'  ALLIED     NORM DEALLOC          0       1       0       0       0.100000       0.044444        2        0        0

              --------------------------------------------------------------------------------
              |PROGRAM NAME         TYPE    SQLSTMT  CL7 ELAP.TIME   CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
              |PACKA                PACKAGE       1     1.000000       0.010000       0.000000         0|
              |PACKB                PACKAGE       1     2.000000       0.020000       0.000000         0|
              |PACKC                PACKAGE       1     1.000000       0.010000       0.000000         0|
              --------------------------------------------------------------------------------

     XXUSER01 CORRXXXX BATCH      12:01:00.000000       1       1       0       0      20.000000      15.555555        1        0        0
     PLANX    'BLANK'  ALLIED     NORM DEALLOC          0       1       0       0       0.200000       0.155555        1        0        0

              --------------------------------------------------------------------------------
              |PROGRAM NAME         TYPE    SQLSTMT  CL7 ELAP.TIME   CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
              |PACKB                PACKAGE       1    10.000000       0.100000       0.000000         0|
              |PACKD                PACKAGE       1     4.000000       0.040000       0.000000         0|
              --------------------------------------------------------------------------------

     XXUSER01 CORRXXXX BATCH      12:02:00.000000       1       1       0       0      30.000000      16.666666        4        0        0
     PLANY    'BLANK'  ALLIED     NORM DEALLOC          0       1       0       0       0.300000       0.166666        0        0        0

              --------------------------------------------------------------------------------
              |PROGRAM NAME         TYPE    SQLSTMT  CL7 ELAP.TIME   CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
              |PACKD                PACKAGE       1    10.000000       0.100000       0.000000         0|
              |PACKA                PACKAGE       1     5.000000       0.050000       0.000000         0|
              --------------------------------------------------------------------------------

     XXUSER01 CORRXXXX BATCH      12:03:00.000000       1       1       0       0      30.000000       8.888888        3        0        0
     PLANX    'BLANK'  ALLIED     NORM DEALLOC          0       1       0       0       0.300000       0.088888        0        0        0

              --------------------------------------------------------------------------------
              |PROGRAM NAME         TYPE    SQLSTMT  CL7 ELAP.TIME   CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
              |PACKB                PACKAGE       1     6.000000       0.060000       0.000000         0|
              |PACKD                PACKAGE       1     2.000000       0.020000       0.000000         0|
              --------------------------------------------------------------------------------
```

Figure 113. Accounting Trace - Input Data for Ordering Reports

The input data contains information about:

- Two plans. PLANX is used by three threads and PLANY by one thread. The first instance of PLANX shows that three packages (PACKA, PACKB, and PACKC) are executed. The elapsed time for the entire PLANX is 10 seconds and CPU times for the individual packages are 0.01, 0.02, and 0.01 seconds, respectively.

- Four packages. Different combinations of packages were executed under the different plans, because a plan does not necessarily invoke the same packages each time it is executed. This can happen when, for example, a number of packages are bound in a single plan in a CICS environment and different packages are executed in different circumstances.

Ordering by Plan

This example shows the result of ordering the input data by plan. The following command was used to produce the example shown in Figure 114.

```
:
ACCOUNTING
     REPORT
         ORDER (PLANNAME)
:
```

The report in Figure 114 contains an entry for both plans in the input data.

```
  LOCATION: DSNCAT                      DB2 PERFORMANCE MONITOR (V6)                             PAGE: 1-1
     GROUP: DSNCAT                      ACCOUNTING REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
    MEMBER: SSDQ                                                                           TO: NOT SPECIFIED
 SUBSYSTEM: SSDQ                             ORDER: PLANNAME                   INTERVAL FROM: 05/10/99 18:47:13.28
DB2 VERSION: V6                             SCOPE: MEMBER                                   TO: 05/10/99 19:55:28.69

                  #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
PLANNAME          #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

PLANX                   3       0    0.00    0.00    0.00    0.00      20.000000       9.629629     2.00     0.00     0.00
                        0       3    1.00    1.00    1.00    0.00       0.200000       0.096292     1.00     0.00        0

        ------------------------------------------------------------------------------------
        |PROGRAM NAME     TYPE    #OCCURS  SQLSTMT  CL7 ELAP.TIME  CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
        |PACKA            PACKAGE       1     1.00       1.000000      0.010000       0.000000      0.00|
        |PACKB            PACKAGE       3     1.00       6.000000      0.060000       0.000000      0.00|
        |PACKC            PACKAGE       1     1.00       1.000000      0.010000       0.000000      0.00|
        |PACKD            PACKAGE       2     1.00       3.000000      0.030000       0.000000      0.00|
        ------------------------------------------------------------------------------------

PLANY                   1       0    0.00    0.00    0.00    0.00      30.000000      16.666667     4.00     0.00     0.00
                        0       1    1.00    1.00    1.00    0.00       0.300000       0.166667     0.00     0.00        0

        ------------------------------------------------------------------------------------
        |PROGRAM NAME     TYPE    #OCCURS  SQLSTMT  CL7 ELAP.TIME  CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
        |PACKD            PACKAGE       1     1.00      10.000000      0.100000       0.000000      0.00|
        |PACKA            PACKAGE       1     1.00       5.000000      0.050000       0.000000      0.00|
        ------------------------------------------------------------------------------------
```

Figure 114. Accounting Report - Ordered by Plan

Data for the different packages is summarized under the plans. Also, different DB2 executions of PLANX are summarized in one entry.

Ordering by Plan and MAINPACK

The MAINPACK identifier is used to distinguish between records with the same plan name, but which executed different packages.

This example shows the result of ordering the input data by plan and MAINPACK.

MAINPACK identifies a representative package within the plan. The first package ID is the default for MAINPACK. However, in this example, the MAINPACK member of the DPMPARMS data set has been modified so that it is the package ID of the last executed package (refer to *DB2 PM Batch User's Guide* for information on customizing the MAINPACK member).

In the input data shown in Figure 113, it is assumed that PACKC is the last executed package in the first entry for PLANX, PACKD for the second and third entries of PLANX, and PACKA for the entry of PLANY.

The following command was used to produce the report in Figure 115.

```
:
ACCOUNTING
      REPORT
          ORDER (PLANNAME-MAINPACK)
:
```

The report in Figure 115 shows an entry for each combination of PLANNAME and MAINPACK.

```
       LOCATION: DSNCAT                        DB2 PERFORMANCE MONITOR (V6)                         PAGE: 1-1
          GROUP: DSNCAT                          ACCOUNTING REPORT - SHORT               REQUESTED FROM: NOT SPECIFIED
         MEMBER: SSDQ                                                                              TO: NOT SPECIFIED
      SUBSYSTEM: SSDQ                            ORDER: PLANNAME-MAINPACK              INTERVAL FROM: 05/10/99 18:47:13.28
    DB2 VERSION: V6                              SCOPE: MEMBER                                      TO: 05/10/99 19:55:28.69

PLANNAME                      #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
 MAINPACK                     #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

PLANX                            1       0    0.00    0.00    0.00    0.00      10.000000       4.444444     2.00     0.00     0.00
 PACKC                           0       1    1.00    1.00    0.00    0.00       0.100000       0.044444     2.00     0.00        0

        ----------------------------------------------------------------------------------------
        |PROGRAM NAME     TYPE      #OCCURS  SQLSTMT  CL7 ELAP.TIME   CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
        |PACKA            PACKAGE         1     1.00       1.000000       0.010000       0.000000      0.00|
        |PACKB            PACKAGE         1     1.00       2.000000       0.020000       0.000000      0.00|
        |PACKC            PACKAGE         1     1.00       1.000000       0.010000       0.000000      0.00|
        ----------------------------------------------------------------------------------------

PLANX                            2       0    0.00    0.00    0.00    0.00      25.000000      12.222222     2.00     0.00     0.00
 PACKD                           0       1    1.00    1.00    1.00    0.00       0.250000       0.122222     0.50     0.00        0

        ----------------------------------------------------------------------------------------
        |PROGRAM NAME     TYPE      #OCCURS  SQLSTMT  CL7 ELAP.TIME   CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
        |PACKB            PACKAGE         2     1.00       8.000000       0.080000       0.000000      0.00|
        |PACKD            PACKAGE         2     1.00       3.000000       0.030000       0.000000      0.00|
        ----------------------------------------------------------------------------------------

PLANY                            1       0    0.00    0.00    0.00    0.00      30.000000      16.666666     4.00     0.00     0.00
 PACKA                           0       1    1.00    1.00    1.00    0.00       0.300000       0.166666     0.00     0.00        0

        ----------------------------------------------------------------------------------------
        |PROGRAM NAME     TYPE      #OCCURS  SQLSTMT  CL7 ELAP.TIME   CL7 CPU TIME  CL8 SUSP.TIME  CL8 SUSP|
        |PACKD            PACKAGE         1     1.00      10.000000       0.100000       0.000000      0.00|
        |PACKA            PACKAGE         1     1.00       5.000000       0.050000       0.000000      1.00|
        ----------------------------------------------------------------------------------------
```

Figure 115. Accounting Report - Ordered by Plan and MAINPACK

There are two entries for PLANX:

- One entry where PACKC is the last package executed.
- Another entry where PACKD is the last package executed. Threads 2 and 4 are combined in this entry.

There is one entry for PLANY with the representative package PACKA.

You cannot use this report to attribute the general accounting data to one package, unless only one package exists within a plan.

Ordering by Package or DBRM

The previous examples presented packages within plans. In order to summarize the package accounting data regardless of the plan under which the packages or DBRMs have been executed, you can order by package.

This example shows the result of ordering the input data by package.

The following command was used to produce the report in Figure 116.

```
⋮
ACCOUNTING
     REPORT
        ORDER (PACKAGE)
⋮
```

The report in Figure 116 shows the use of resources on a per package/DBRM basis, regardless of the plan under which a particular package is executed.

```
      LOCATION: DSNCAT              DB2 PERFORMANCE MONITOR (V6)                       PAGE: 1-1
         GROUP: DSNCAT                ACCOUNTING REPORT - SHORT          REQUESTED FROM: NOT SPECIFIED
        MEMBER: SSDQ                                                                 TO: NOT SPECIFIED
     SUBSYSTEM: SSDQ                      ORDER: PACKAGE                 INTERVAL FROM: 05/10/99 18:47:13.28
   DB2 VERSION: V6                        SCOPE: MEMBER                             TO: 05/10/99 19:55:28.69

                                                  TYPE        SQLSTMT   CL7.CPU TIME  CL8 SUSP
   PACKAGE                                       #OCCURS  CL7 ELAP.TIME  CL8 SUSP.TIME
   ------------------------------------------    -------  -------------  -------------  --------
   APC1.COLL1.PACKA                              PACKAGE          1.00       0.030000      0.00
                                                       2      3.000000       0.000000

   APC1.COLL1.PACKB                              PACKAGE          1.00       0.060000      0.00
                                                       3      6.000000       0.000000

   APC1.COLL1.PACKC                              PACKAGE          1.00       0.010000      0.00
                                                       1      1.000000       0.000000

   APC1.COLL1.PACKD                              PACKAGE          1.00       0.053333      0.00
                                                       3      5.333333       0.000000
```

Figure 116. Accounting Report - Ordered by Package

Example of Ordering by Interval

The following example shows how to produce a report that presents DB2 activity at time intervals.

To produce a report by interval, the input data first needs to be reduced to the intervals you want to use in reporting.

The following command was used to generate the sample report in Figure 117.

```
⋮
ACCOUNTING
    REDUCE
        INTERVAL (5)
    REPORT
        ORDER   (INTERVAL)
⋮
```

In this command the data is reduced to 5-minute intervals. The report is ordered by this interval, that is, an entry is produced showing the activity during every 5-minute interval.

```
         LOCATION: DSNCAT                    DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-1
            GROUP: DSNCAT                     ACCOUNTING REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
           MEMBER: SSDQ                                                                         TO: NOT SPECIFIED
        SUBSYSTEM: SSDQ                            ORDER: INTERVAL                 INTERVAL FROM: 05/10/99 18:47:13.28
      DB2 VERSION: V6                              SCOPE: MEMBER                             TO: 05/10/99 20:55:28.69

                             #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
INTERVAL                     #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

05/10 19:50 - 05/10 19:55       1       1    3.00    0.00    0.00    0.00    5:23.338584            N/P    51.00    20.00     1.00
                                0       3    0.00    0.00    0.00    0.00       0.087963            N/P     0.00     0.00        0

05/10 19:55 - 05/10 20:00       6       8   11.00    0.67    0.00    0.00    2:29.264737            N/P   231.00    17.67    22.00
                                0      36    0.00    0.00    0.00    0.00       4.134166            N/P     0.67     1.00        0

05/10 20:00 - 05/10 20:05       1       1    2.00    0.00    0.00    0.00   12:20.702202            N/P  6232.00   299.00    23.00
                                0       0    5.00    5.00    5.00    0.00       7.753375            N/P  2931.00     8.00        1
05/10 20:05 - 05/10 20:10       7      10    2.57    0.00    0.00    0.00   10:01.005681            N/P   552.57    26.00    21.43
                                0       6    0.00    0.00    0.00    0.14       2.235738            N/P   192.86     0.29        5

***   GRAND TOTAL   ***
                               15      20    5.93    0.27    0.00    0.00    6:51.111265            N/P   769.13    40.47    20.40
                                0      45    0.33    0.33    0.33    0.07       3.219767            N/P   285.67     1.07        6

ACCOUNTING REPORT COMPLETE
```

Figure 117. Accounting Report - Ordered by Interval

Reports ordered by INTERVAL, with or without another identifier, are especially useful in trend analysis. You may, for example, want to reduce and save your data using INTERVAL(1440), and produce reports showing the day-by-day activity of your DB2 subsystem.

TOP Processing

It is useful to identify the report entries that might indicate a problem application. The sign of a problem can be a long elapsed or processing time, or a high number of suspensions, commits per update, or buffer updates. Identifying these entries is especially useful when your report covers many users or a long period so that it is not immediately clear which applications are causing performance problems.

To identify report entries with a high value in certain fields, you can produce an accounting report or trace with TOP lists. TOP lists are index-like reports at the end of a report or trace pointing out the most interesting entries in the report or trace. You generate such lists using the TOP option.

Note: Entries with 0 or undetermined values are not shown. Moreover, if your input data contains only 0 or undetermined values for the TOP fields requested, a TOP list is not generated.

You can also filter a report or trace such that only the main resource consumers are shown, ordered by descending resource value. To get a filtered report or trace, you specify the TOP ONLY option.

The resource values shown are average values. To get total values, that is, the main resource consumers calculated by taking into account how often they consumed resources, you specify the TOTAL option with the TOP keyword. TOTAL only applies to reports. If you specify it with a trace, it is ignored.

Examples

To produce a short accounting report with a list of the top ten plans that spent the longest time in an application, specify:

```
                  :
              GLOBAL
                INCLUDE (LOCATION (USIBMSNEWY11))
                EXCLUDE (CONNTYPE (CICS))
              ACCOUNTING
               REPORT
                 ORDER (PLANNAME)
                  TOP
                  :
```

The last page of the generated report shows a list of the ten plans that had the
highest value for elapsed time in application, as shown in Figure 118. The TOP list
also shows the page on which the report entries can be found.

```
      LOCATION: USIBMNEWY11                  DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-1
         GROUP: DSNCAT                       ACCOUNTING REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
        MEMBER: SSDQ                                                                            TO: NOT SPECIFIED
     SUBSYSTEM: SSDQ                             ORDER: PLANNAME                    INTERVAL FROM: 05/10/99 18:47:13.28
    DB2 VERSION: V6                              SCOPE: MEMBER                                   TO: 05/10/99 19:55:28.69

    ELAPSED TIME SPENT IN APPLICATION                             TOP NUMBER REQUESTED:  10

            PLANNAME                                                  VALUE        PAGE
     ----   -------------------------------------------------------  ---------------  ----------
       1    PVLDD4C3                                                 13:36.924222     1-1
       2    PVLDD4B3                                                 11:25.333551     1-1
       3    PVLDD4D1                                                 10:19.115316     1-1
       4    PVLDD4A4                                                  9:18.056476     1-1
       5    DSNBIND                                                   8:50.415594     1-1
       6    DSNTEP31                                                  8:14.506780     1-1
       7    PVLDD4D6                                                  5:23.338584     1-1
       8    PVLDD4A5                                                  4:06.067683     1-1
       9    PVLDD4C4                                                  3:10.939686     1-1
      10    PVLDD4D2                                                  2:34.389670     1-1

    ACCOUNTING REPORT COMPLETE
```

Figure 118. Accounting Report - TOP Listing

To produce a trace with a TOP list for the number of GETPAGE requests, use the
following command:

```
                  :
              ACCOUNTING
                  TRACE
                      TOP (5 GETPAGES)
                  :
```

The TOP list on the last page of the trace consists of the five entries that had the
highest number of GETPAGE requests, as shown in Figure 119. Each entry consists
of TIMESTAMP, PRIMAUTH, and PLANNAME information, the value of the number
of GETPAGE requests, and the page number where the trace entry can be found.

```
   LOCATION: STLEC1                       DB2 PERFORMANCE MONITOR (V6)                              PAGE: 7-1
      GROUP: N/P                            ACCOUNTING TRACE - SHORT                REQUESTED FROM: NOT SPECIFIED
     MEMBER: N/P                                                                               TO: NOT SPECIFIED
  SUBSYSTEM: V41A                                                                  ACTUAL FROM: 08/25/99 22:02:59.55
DB2 VERSION: V6                                                                     PAGE DATE: 08/25/99

GETPAGE REQUESTS                                            TOP NUMBER REQUESTED:   5

        TIMESTAMP
          PRIMAUTH
            PLANNAME                                                    VALUE          PAGE
    ----    -------------------------------------------------    --------------    ---------
            03/10/93 20:04:20.248358
              SYSADM
     1         PVLDD4B3                                                    6232       1-1
            03/10/93 20:06:02.809223
              SYSADM
     2         PVLDD4C3                                                    2422       1-1
            03/10/93 20:05:27.859210
              SYSADM
     3         PVLDD4D1                                                     675       1-1
            03/10/93 19:55:02.046545
              SYSADM
     4         PVLDD4D2                                                     584       1-1
            03/10/93 20:05:17.508593
              SYSADM
     5         DSNBIND                                                     446       1-1

ACCOUNTING TRACE COMPLETE
```

Figure 119. Accounting Trace - TOP Listing

You can generate accounting reports and traces showing TOP lists for all the fields available for use with the TOP option, for example, as shown in the following command:

```
⋮
ACCOUNTING
     REPORT
         TOP (*)
⋮
```

More information about the fields available for use with the TOP option is shown on page 196 and on page 200.

To produce a filtered trace that shows only the top 3 entries for the default TOP field, namely ELAPSED TIME IN APPLICATION, use the following command:

```
⋮
 ACCOUNTING
     TRACE
          TOP (3 ONLY)
⋮
```

Figure 120 on page 224 shows what such a trace looks like.

```
      LOCATION: STLEC1                        DB2 PERFORMANCE MONITOR (V6)                           PAGE: 7-1
         GROUP: N/P                            ACCOUNTING TRACE - SHORT              REQUESTED FROM: NOT SPECIFIED
        MEMBER: N/P                                                                             TO: NOT SPECIFIED
     SUBSYSTEM: V41A                                                                 ACTUAL FROM: 08/25/99 22:02:59.55
   DB2 VERSION: V6                                                                    PAGE DATE: 08/25/96
```

```
ELAPSED TIME SPENT IN APPLICATION                               TOP NUMBER REQUESTED:   3

PRIMAUTH CORRNAME CONNECT  ACCT TIMESTAMP COMMITS    OPENS UPDATES INSERTS  EL. TIME(CL1)  EL. TIME(CL2) GETPAGES SYN.READ LOCK SUS
PLANNAME CORRNMBR THR.TYPE TERM. CONDITION SELECTS FETCHES DELETES PREPARE  TCB TIME(CL1)  TCB TIME(CL2) BUF.UPDT TOT.PREF LOCKOUTS
-------- -------- -------- -------------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

ALAN     ALAN     DB2CALL  06:10:27.947430      1       0       0       0       7.875259       7.866377       20        0        1
RXSQL    'BLANK'  ALLIED   NORM DEALLOC         0       0       1       0       0.023011       0.017931        6        1        0

ALAN     ALAN     DB2CALL  06:09:06.509263      1       0       0       0       4.175839       4.167954       20        0        1
RXSQL    'BLANK'  ALLIED   NORM DEALLOC         0       0       1       0       0.020973       0.016198        6        1        0

ALAN     ALAN     DB2CALL  06:07:59.399773      1       0       0       1       2.698825       2.689779       15        0        1
RXSQL    'BLANK'  ALLIED   NORM DEALLOC         0       0       0       0       0.017036       0.012228        2        0        0

ACCOUNTING TRACE COMPLETE
```

Figure 120. Accounting Trace - TOP ONLY List

> **Note:** The TOP ONLY option changes the presentation sequence of accounting reports and traces. Report and trace entries are ordered according to the TOP resource instead of the timestamp or ORDER options. The summarization in reports is not affected by the changed sequence caused by TOP filtering.

Reducing Data

You can consolidate records with certain common characteristics into a single record with the REDUCE subcommand. With REDUCE, you can limit the range of records included in your reports by date and time. You can specify multiple ranges of time, this can be useful for monitoring peek-time performance for example.

Within the time range that you have specified, you can also specify the interval within which records will be consolidated.

The start time of the first interval processed by REDUCE is influenced by BOUNDARY, INTERVAL, and FROM.

DB2 PM attempts to reduce all data that falls between FROM and TO dates and times. The first interval processed starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval cannot be aligned with the FROM time, the first properly aligned interval starting before the FROM time is used.

Although there is no restriction on the INTERVAL and BOUNDARY combination, your specification should comply with the following recommendations:
- For intervals of less than 60 (excluding 0), there should be a whole number of intervals in an hour. Choose one of the following values:

    1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30.
- For intervals of 60 or greater, there should be a whole number of intervals in a day. Choose one of the following values:

    60, 120, 180, 240, 360, 480, 720, or 1440.
- For intervals of one day (1440) or greater, INTERVAL should be a multiple of 1440.
- Select your interval and boundary so that the first interval starts at the FROM time.

Examples of Interval Calculation

Example 1:
```
   .
   .
   .
REDUCE
    FROM     (,08:00)
    TO       (,10:00)
    INTERVAL (30)
    BOUNDARY (60)
   .
   .
   .
```

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the FROM time (08:00). Subsequent intervals start every 30 minutes (08:30, 09:00, and 09:30 each day).

Example 2:
```
   .
   .
   .
REDUCE
    INTERVAL (1440)
    BOUNDARY (60)
   .
   .
   .
```

The following defaults are applied:
- FROM defaults to all dates, and a time of 00:00:00.00.
- TO defaults to all dates, and a time of 23:59:59.99.

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the FROM time (00:00). Subsequent intervals cover 1440 minutes or one day; an interval starts at 00:00 each day.

Example 3:
```
   .
   .
   .
REDUCE
    FROM     (,08:30)
    TO       (,12:00)
    INTERVAL (60)
    BOUNDARY (60)
REPORT
    FROM     (,08:30)
    TO       (,12:00)
   .
   .
   .
```

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the hour of the FROM time (08:00). Subsequent intervals start every hour (09:00, 10:00, and 11:00).

Processing Intervals

Interval processing within the REDUCE subcommand determines the time intervals used for reducing accounting data, and it affects how data is reported. You use intervals for:
- Reporting by intervals
- Producing reports with different timespans
- DISTRIBUTE processing for producing graphs

The data that is saved into the save data set if SAVE accompanies REDUCE.

This section provides you with some examples of interval processing to help you understand it.

How Intervals Are Calculated

The start time of the first interval processed by REDUCE is influenced by BOUNDARY, INTERVAL, and FROM.

DB2 PM attempts to reduce all data that falls between the FROM and TO times. The first interval processed starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval cannot be aligned with the FROM time, the first properly aligned interval starting *before* the FROM time is used. Note that an interval starting before the FROM time only contains data between the FROM time and the start of the next interval. Input data before the FROM time is not processed.

Although there is no restriction on the INTERVAL and BOUNDARY combination, your specification should comply with the following recommendations:
- For intervals of less than 60 (excluding 0), there should be a whole number of intervals in an hour. Choose one of the following values:

    1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30
- For intervals of 60 or greater, there should be a whole number of intervals in a day. Choose one of the following values:

    60, 120, 180, 240, 360, 480, 720, or 1440
- For intervals of one day (1440) or greater, INTERVAL should be a multiple of 1440.
- Select your interval and boundary so that the first interval starts at the FROM time.

If interval processing is not required, for performance reasons do not change the default which is INTERVAL (0).

Always use the largest interval that meets your reporting requirements. For example, if daily reports provide sufficient granularity, use INTERVAL (1440).

Examples of Interval Processing

The examples in this section assume the following:
1. The DB2 instrumentation facility is started for accounting to SMF at DB2 startup by the following DB2 command:

    ```
    -START TRACE (ACCTG) DEST(SMF) CLASS(1)
    ```
2. The system programmer wants to analyze performance for Thursday, 14 March 1999, so the SMF file for that day is obtained.

    The data shown in Figure 121 represents the sample data present on the SMF file. Actual trace data can have a different distribution of DB2 records and timestamps. For the purpose of this example, assume that the statistics trace was previously active.

```
        DB2                  Sequence
     Timestamp          Destination #    FCID      Record Descriptions
  3/14/99  8:30:00          0001         0001      System statistics
  3/14/99  8:30:01          0002         0002      Database statistics
  3/14/99  8:31:05          0003         0003      Accounting
  3/14/99  8:45:13          0004         0003      Accounting
  3/14/99  8:57:27          0005         0003      Accounting
  3/14/99  8:59:59          0006         0001      System statistics
  3/14/99  9:00:00          0007         0002      Database statistics
  3/14/99  9:12:11          0008         0003      Accounting
  3/14/99  9:15:00          0009         0003      Accounting
  3/14/99  9:29:59          0010         0001      System statistics
  3/14/99  9:30:00          0011         0002      Database statistics
  3/14/99  9:30:01          0012         0003      Accounting
  3/14/99  9:32:00          0013         0003      Accounting
  3/14/99  9:43:00          0014         0003      Accounting
  3/14/99  9:55:59          0015         0003      Accounting
  3/14/99 10:00:00          0016         0001      System statistics
  3/14/99 10:00:00          0017         0002      Database statistics
  3/14/99 10:30:00          0018         0001      System statistics
  3/14/99 10:30:01          0019         0002      Database statistics
  3/14/99 11:00:00          0020         0001      System statistics
  3/14/99 11:00:01          0021         0002      Database statistics
  3/14/99 11:29:59          0022         0001      System statistics
  3/14/99 11:30:00          0023         0002      Database statistics
  3/14/99 12:00:01          0024         0001      System statistics
  3/14/99 12:00:01          0025         0002      Database statistics
```

Figure 121. Example SMF File Data (Part 1 of 2)

```
3/14/99 12:15:00        0026        0003        Accounting
3/14/99 12:17:54        0027        0003        Accounting
3/14/99 12:30:00        0028        0001        System statistics
3/14/99 12:30:00        0029        0002        Database statistics
3/14/99 13:00:00        0030        0001        System statistics
3/14/99 13:00:01        0031        0002        Database statistics
3/14/99 13:10:31        0032        0003        Accounting
3/14/99 13:15:00        0033        0003        Accounting
3/14/99 13:17:54        0034        0003        Accounting
3/14/99 13:23:34        0035        0003        Accounting
3/14/99 13:27:00        0036        0003        Accounting
3/14/99 13:30:00        0037        0001        System statistics
3/14/99 13:30:00        0038        0002        Database statistics
3/14/99 13:37:30        0039        0003        Accounting
3/14/99 15:20:00        0040        0001        System statistics
3/14/99 15:20:00        0041        0002        Database statistics
3/14/99 15:37:30        0042        0003        Accounting
3/14/99 15:50:00        0043        0001        System statistics
3/14/99 15:50:01        0044        0002        Database statistics
3/14/99 16:15:00        0045        0001        System statistics
3/14/99 16:15:00        0046        0002        Database statistics
3/14/99 16:28:02        0047        0003        Accounting
3/14/99 16:30:31        0048        0003        Accounting
3/14/99 16:44:00        0049        0003        Accounting
3/14/99 16:44:59        0050        0003        Accounting
3/14/99 16:45:00        0051        0001        System statistics
3/14/99 16:45:01        0052        0002        Database statistics
3/14/99 16:51:06        0053        0003        Accounting
3/14/99 16:54:17        0054        0003        Accounting
3/14/99 16:55:37        0055        0003        Accounting
3/14/99 16:57:59        0056        0003        Accounting
```

Figure 121. Example SMF File Data (Part 2 of 2)

3. DB2 PM is run to get accounting reports.

Examples Using REDUCE

Example 1:

```
⋮
ACCOUNTING
    REDUCE
        FROM     (,09:00)
        TO       (,11:00)
        INTERVAL (30)
        BOUNDARY (60)
⋮
```

The data available for reducing is limited by the GLOBAL command. If FROM/TO dates and times are specified in GLOBAL, DB2 PM discards all records outside those dates and times before reducing.

In this example, there is no GLOBAL command, so the FROM/TO dates and times specified in REDUCE are used. No dates are specified, so *all dates* are included.

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the FROM time (09:00). Subsequent intervals start every 30 minutes. The following intervals are calculated:

- Beginning at 9:00:00 - containing two accounting records

- Beginning at 9:30:00 - containing four accounting records

No intervals are calculated at 10:00:00 or 10:30:00 because there are no accounting records.

The interval *begin* and *end* times are reported in the job summary report. The job summary report indicates that an interval is calculated, and indicates the number of records processed during the interval. It does not indicate the number of consolidated records after reducing.

Example 2:

```
 :
 :
ACCOUNTING
     REDUCE
         INTERVAL (1440)
         BOUNDARY (60)
 :
 :
```

In this example, there is no GLOBAL command, and no dates or times have been specified in REDUCE. The following defaults are applied:
- FROM defaults to all dates, and a time of 00:00:00.00.
- TO defaults to all dates, and a time of 23:59:59.99.

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the FROM time (00:00). Subsequent intervals cover 1440 minutes or one day; an interval starts at 00:00 each day. In this example, there is one interval containing all of the accounting records in the input data set.

The interval *begin* and *end* times are reported in the job summary report.

Examples Using REDUCE and REPORT

Example 1:

```
 :
 :
ACCOUNTING
     REDUCE
         INTERVAL (60)
     REPORT
         FROM     (, 9:00:00)
         TO       (,12:00:00)
 :
```

In this example, there is no GLOBAL command and no FROM/TO times are specified in the REDUCE subcommand, so all records in the input are reduced.

The REDUCE subcommand specifies that data is reduced at 60-minute intervals. By default, the boundary is set to 60. Data is gathered and consolidated every hour on the hour.

The accounting data starts at 8:31:05. The INTERVAL begins on the hour. DB2 PM determines that the record at 8:31:05 falls into an interval beginning at 8:00:00, and sets the beginning interval time to 8:00:00.

Each additional accounting record is read. The accounting records at timestamps 8:31:05, 8:45:13, and 8:57:27 all fall into the interval beginning at 8:00:00. These three records are accumulated (added, subtracted, or whatever is appropriate for the given accounting fields), consolidated, and stored by unique DB2 PM identifier sets (PRIMAUTH, PLAN, REQLOC, and so on) for the interval beginning at 8:00:00. Messages are written to the job summary report.

DB2 PM calculates the next interval at 9:00:00. Accounting records at 9:12:11, 9:15:00, 9:30:01, 9:32:00, 9:43:00, and 9:55:59 are accumulated, consolidated and stored for the interval beginning at 9:00:00. Messages are written to the job summary report.

No accounting records are written during the time period from 10:00:00 to 12:00:00, so no intervals are calculated, and no messages are written to the job summary report.

Data is stored for the following intervals:
- Beginning at 8:00:00 - containing three accounting records
- Beginning at 9:00:00 - containing six accounting records
- Beginning at 12:00:00 - containing two accounting records
- Beginning at 13:00:00 - containing six accounting records
- Beginning at 15:00:00 - containing one accounting record
- Beginning at 16:00:00 - containing eight accounting records

The systems programmer requested a report with FROM/TO times of 9:00:00 and 12:00:00.

The data available for reporting is restricted by the FROM/TO times specified in both GLOBAL and REDUCE. If FROM/TO dates and times are specified in GLOBAL, DB2 PM discards all records outside those dates and times before reducing. If FROM/TO dates and times are specified in REDUCE, all records outside those dates and times are not available to subsequent REPORT subcommands. In this example, there is no GLOBAL command, and no FROM/TO dates or times are specified in the REDUCE subcommand.

Accounting records stored in intervals beginning at (or later than) 09:00:00, but less than 12:00:00 are accumulated, consolidated, and reported in an accounting report. In this instance, the report contains accounting records from 09:12:11 to 09:55:59.

The report header contains the following times:

```
INTERVAL FROM  03/14/99  09:00:00
         TO    03/14/99  10:00:00

REQUESTED ALL DATES      09:00:00
          TO             12:00:00
```

INTERVAL FROM/TO times indicate the actual content of the report. In this instance, the INTERVAL FROM time is 9:00:00 - the first interval beginning at or later than the REQUESTED FROM time. The INTERVAL TO time is 10:00:00 - the end time of the last interval beginning at a time less than the REQUESTED TO time.

The REQUESTED FROM/TO times from the REPORT subcommand are printed on the report, even if they are broader than the available data. In this case, ALL DATES is reported in place of an actual date because no date was specified in the REPORT subcommand.

If the requested reporting interval is broader than the available data, the INTERVAL FROM/TO dates and times actually reflect the content of the report. If no FROM/TO dates and times are specified in the REPORT subcommand, the FROM/TO dates and times from GLOBAL are used. If no FROM/TO dates and times are specified in GLOBAL, NOT SPECIFIED is printed.

In Example 1, the INTERVAL FROM/TO times are not the same as the REQUESTED FROM/TO times. However, the data encompassed by the INTERVAL FROM/TO times is the same as the data encompassed by the REQUESTED FROM/TO times. This is not always the case, as in Example 2.

Example 2:

```
:
:
ACCOUNTING
     REDUCE
         INTERVAL (60)
         BOUNDARY (30)
     REPORT
         FROM    (,9:00:00)
         TO      (,12:00:00)
:
:
```

This command is identical to the command in the Example 1, except that a BOUNDARY of 30 is included. The results are different.

The accounting data starts at 8:31:05. The INTERVAL begins on the half hour. DB2 PM determines that the record at 8:31:05 falls into an interval beginning at 8:30:00, and sets the beginning interval time to 8:30:00. The following intervals are calculated:

- Beginning at 8:30:00 - containing five accounting records
- Beginning at 9:30:00 - containing four accounting records
- Beginning at 11:30:00 - containing two accounting records
- Beginning at 12:30:00 - containing five accounting records
- Beginning at 13:30:00 - containing one accounting record
- Beginning at 15:30:00 - containing two accounting records
- Beginning at 16:30:00 - containing seven accounting records

An accounting report is produced. The REQUESTED FROM/TO times are 9:00:00 and 12:00:00. Accounting records stored in intervals beginning at, or later than, 9:00:00, but less than 12:00:00, are included in the report. The intervals beginning at 9:30:00 and 11:30:00 are included in the report. No interval is calculated at 10:30:00 because there are no accounting records.

In this instance, the report contains accounting records from 9:30:01 to 12:17:54. Even though the REQUESTED FROM/TO times are the same as in Example 1, the content of the report is different.

The report header contains the following times:

```
        INTERVAL FROM  03/14/99  09:30:00
                 TO    03/14/99  12:30:00

        REQUESTED ALL DATES      09:00:00
                 TO              12:00:00
```

In this example, as in Example 1, the INTERVAL FROM/TO dates and times are different from the REQUESTED FROM/TO times. However, this report contains data outside the REQUESTED FROM/TO times.

The INTERVAL FROM time is the *start time* of the first interval beginning at or after the REQUESTED FROM time (9:00:00 in this case), so the first interval reported starts at 9:30:00. Consequently, those records written between 9:00:00 and 9:30:00 are not included in the report.

The INTERVAL TO time is the *end time* of the last interval beginning before the REQUESTED TO time (12:00:00 in this case), so the last interval reported starts at 11:30:00. Consequently, those records written between 12:00:00 and 12:30:00 are included in the report. If the interval starts after the REQUESTED FROM time, and before the REQUESTED TO time, all data from the interval is included, even if the interval extends beyond the REQUESTED TO time.

Example 3:

```
.
.
ACCOUNTING
    REDUCE
        FROM      (,09:30)
        TO        (,13:00)
        INTERVAL (60)
        BOUNDARY (60)
    REPORT
        FROM      (,09:30)
        TO        (,13:00)
    SAVE
.
.
```

In this example, there is no GLOBAL command, so the FROM/TO dates and times specified in REDUCE are used.

REDUCE specifies that data is reduced at 60-minute intervals. BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the hour of the FROM time (09:00).

Note that the first interval starts before the FROM time, but it only contains data between the FROM time (09:30) and the start time of the next interval (10:00).

The following intervals are calculated:
- Beginning at 09:00:00 - containing four accounting records
- Beginning at 12:00:00 - containing two accounting records

Note: No intervals are calculated at 10:00:00 or 11:00:00 because there are no accounting records.

The interval *begin* and *end* times are reported in the job summary report.

The systems programmer requested a report with FROM/TO times of 9:30:00 and 13:00:00. Accounting records stored in intervals beginning at (or later than) 9:30:00,

but less than 13:00:00 are accumulated, consolidated, and reported in an accounting report. In this example, the report contains accounting records from the interval starting at 12:00:00 only.

All reduced records are written to the save data set (including the records from the interval starting at 9:00:00 that were excluded from the report).

The report header contains the following times:

```
INTERVAL FROM  03/14/99  12:00:00
         TO    03/14/99  13:00:00

REQUESTED ALL DATES       09:30:00
         TO               13:00:00
```

The INTERVAL FROM/TO times reflect the actual content of the report. The INTERVAL FROM time is the *start time* of the first interval beginning on or after the REQUESTED FROM time (9:30:00 in this case), so the first interval reported starts at 12:00:00. The INTERVAL TO time is the *end time* of the last interval beginning before the REQUESTED TO time (13:00:00 in this case).

The REQUESTED FROM/TO times from the REPORT subcommand are printed on the report, even if they are broader than the available data. In this case, ALL DATES is reported in place of an actual date because no date was specified in the REPORT subcommand.

In this example, the INTERVAL FROM/TO times are not the same as the REQUESTED FROM/TO times, although the data encompassed by both sets of times is the same. However, the content of the SAVE data set is different from the content of the report.

The Effect of REDUCE on TRACE

Example 1:
The data available for tracing, as with reporting, is influenced first by the GLOBAL
⋮
```
ACCOUNTING
    REDUCE
        BOUNDARY (30)
        INTERVAL (60)
    REPORT
        FROM     (, 9:00:00)
        TO       (,12:00:00)
    TRACE
        FROM     (,12:00:00)
        TO       (,17:00:00)
⋮
```

command. If FROM/TO dates and times are specified in GLOBAL, all records outside those dates and times are discarded by DB2 PM before reducing or tracing.

The data available for tracing is also influenced by the REDUCE subcommand. If FROM/TO dates and times are specified in REDUCE, all records outside those dates and times are unavailable to subsequent TRACE subcommands. In Example 6, there is no GLOBAL command and no dates and times are specified for

REDUCE, so all records in the input data are available to TRACE. The data available for tracing is not restricted by INTERVAL or BOUNDARY.

The accounting TRACE subcommand specifies data from 12:00:00 to 17:00:00. The accounting trace header contains the following times:

```
ACTUAL FROM      03/14/99 12:15:00

REQUESTED ALL DATES      12:00:00
           TO            17:00:00
```

No dates are specified, so *all dates* are included. The REQUESTED FROM/TO dates and times from the TRACE subcommand are printed on the trace.

Example 2:

```
:
:
ACCOUNTING
    REDUCE
       FROM (,10:00)
       TO   (15:00)
    REPORT
       FROM (,10:00)
       TO   (15:00)
    TRACE
       FROM (,09:00)
       TO   (17:00)
:
:
```

In this example, the TRACE FROM time is before the REDUCE FROM time, and the TRACE TO time is after the REDUCE TO time. The trace contains records written at or after 10:00:00 and before 15:00:00. The accounting trace header contains the following times:

```
ACTUAL FROM      03/14/99 12:15:00

REQUESTED ALL DATES      09:00:00
           TO            17:00:00
```

No dates are specified, so *all dates* are included. The REQUESTED FROM/TO times from the TRACE subcommand are printed on the trace; however, the available data is limited by the REDUCE FROM/TO times (10:00:00 to 15:00:00). The requested times do not reflect the actual content of the trace.

The ACTUAL FROM time is the timestamp of the first record on the trace. In this example, the first accounting record after 10:00:00 is at 12:15:00. The trace includes the eight accounting records between the REDUCE FROM/TO times.

The Effect of REDUCE on FILE

Example 1:

```
:
:
ACCOUNTING
    REDUCE
        BOUNDARY (30)
        INTERVAL (60)
    REPORT
        FROM     (, 9:00:00)
        TO       (,12:00:00)
    FILE
        FROM     (,12:00:00)
        TO       (,17:00:00)
:
```

The data available for filing, as with reducing, is influenced first by the GLOBAL command. If FROM/TO dates and times are specified in GLOBAL, all records outside those dates and times are discarded by DB2 PM before reducing or filing.

The data available for filing is also influenced by the REDUCE subcommand. If FROM/TO dates and times are specified in REDUCE, all records outside those dates and times are unavailable to subsequent FILE subcommands. In this example, there is no GLOBAL command and no times are specified for REDUCE, so all records in the input data are available to FILE. The data available for filing is not restricted by INTERVAL or BOUNDARY.

The accounting FILE subcommand specifies data from 12:00:00 to 15:00:00.

No dates are specified, so *all dates* are included.

Example 2:

```
:
:
ACCOUNTING
    REDUCE
        FROM (,10:00)
        TO   (15:00)
    REPORT
        FROM (,10:00)
        TO   (15:00)
    FILE
        FROM (,09:00)
        TO   (17:00)
:
```

In this example, the FILE FROM time is before the REDUCE FROM time, and the FILE TO time is after the REDUCE TO time. The file contains records written at or after 10:00:00 and before 15:00:00.

No dates are specified, so *all dates* are included. The data available for filing is limited by the REDUCE FROM/TO times (10:00:00 to 15:00:00). The requested times do not reflect the actual content of the file.

In Example 9, the first accounting record after 10:00:00 is at 12:15:00. The file includes the eight accounting records between the REDUCE FROM/TO times.

Example Using REDUCE

```
    ⋮
REDUCE
   FROM    (02/04/99,10:00:00.00)
   TO      (02/05/99,12:00)
   INTERVAL (60)
    ⋮
```

This example specifies that data is to be reduced between 10:00 a.m. on 4 February 1996 and noon on 5 February 1996. The records are to be reduced into 60-minute intervals.

Member-Scope and Group-Scope Reporting

The information in this section only applies to DB2 data sharing environments.

DB2 enables a query to be processed by several members of a data sharing group. Each member can split the work into parallel tasks. Accounting aggregates the parallel activity done in each member and includes it in the originating query activity.

Member-Scope Reports

Member-scope reports present the activity of a data sharing group member by member. The activity shown for each member consists of the originating query activity and any parallel activity, including any parallel activity performed on other members.

The data in member-scope reports is presented by a combination of location, group, subsystem, and member. Whenever one of these values changes, a new page is started and the page number is initialized. The following command produces a member-scope accounting report shown in Figure 122 on page 237. It uses the SHORT layout and the default order of the DB2 PM identifiers, namely plan name within primary authorization ID.

```
    ACCOUNTING
        REPORT
```

```
       LOCATION: DSN420Y                      DB2 PERFORMANCE MONITOR (V6)                         PAGE: 1-1
          GROUP: DSN420Y                       ACCOUNTING REPORT - SHORT                REQUESTED FROM: NOT SPECIFIED
         MEMBER: Y42A                                                                              TO: NOT SPECIFIED
      SUBSYSTEM: Y42A                            ORDER: PRIMAUTH-PLANNAME            INTERVAL FROM: 12/03/99 08:05:17.91
    DB2 VERSION: V6                               SCOPE: MEMBER                                     TO: 12/03/99 10:29:26.02

    PRIMAUTH              #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
    PLANNAME              #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
    ------------------------ ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

    USRT001                    1       0    0.00    0.00    0.00    0.00    1:09.259093    1:09.083514   211.0K   114.00    47.00
     DSNTEP41                  0       1    3.00    1.00    1.00    2.00    1:37.745921    1:37.703681     4.00  6508.00        0

    USRT001                   10       5    0.00    0.00    0.00    0.00  20:01.439219   14:10.483534   188.7K 63646.00  1621.10
     DSNTEP42                  0       5  907.2K    0.90    0.40    2.40  20:33.424823   14:30.612146   823.10  6581.00        0

    *** TOTAL  ***
    USRT001                   11       5    0.00    0.00    0.00    0.00  18:18.513753   12:59.447169   190.7K 57870.36  1478.00
                               0       6  824.7K    0.91    0.45    2.36  18:50.181286   13:20.347740   748.64  6574.36        0

    USRT002                    1       1    0.00    0.00    0.00    0.00    36.295613      36.185947   51541.00    87.00    66.00
     DSNTEP41                  0       0    0.00    1.00    0.00    2.00    56.797521      56.780273   11114.00  1790.00        0

    USRT002                    3       1    0.00    0.00    0.00    0.00   2:27.021948    1:40.436879   24810.67  6653.33    78.00
     DSNTEP42                  0       2  200.2K    0.67    0.33    2.00   2:13.387595    1:24.189014   5253.67   627.00        0

    *** TOTAL  ***
    USRT002                    4       2    0.00    0.00    0.00    0.00   1:59.340364    1:24.374146   31493.25  5011.75    75.00
                               0       2  150.1K    0.75    0.25    2.00   1:54.240077    1:17.336829   6718.75   917.75        0

    *** GRAND TOTAL ***
                              15       7    0.00    0.00    0.00    0.00  13:57.400849    9:54.094363   148.3K 43774.73  1103.87
                               0       8  644.8K    0.87    0.40    2.27  14:19.263630   10:07.544830   2340.67  5065.93        0
```

Figure 122. Member-Scope Accounting Report (Part 1 of 5)

```
       LOCATION: DSN420Y                      DB2 PERFORMANCE MONITOR (V6)                         PAGE: 2-1
          GROUP: DSN420Y                       ACCOUNTING REPORT - SHORT                REQUESTED FROM: NOT SPECIFIED
         MEMBER: Y42C                                                                              TO: NOT SPECIFIED
      SUBSYSTEM: Y42C                            ORDER: PRIMAUTH-PLANNAME            INTERVAL FROM: 12/03/99 08:07:02.90
    DB2 VERSION: V6                               SCOPE: MEMBER                                     TO: 12/03/99 08:08:47.43

    PRIMAUTH              #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
    PLANNAME              #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
    ------------------------ ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

    USRT001                    2       0    0.00    0.00    0.00    0.00    50.545437      50.372842   181.2K    10.00    13.00
     DSNTEP42                  0       2    2.00    1.00    1.00    2.00   3:25.952714    3:25.915981     0.00  5676.00        0
```

Figure 122. Member-Scope Accounting Report (Part 2 of 5)

```
       LOCATION: DSN420Y                      DB2 PERFORMANCE MONITOR (V6)                         PAGE: 3-1
          GROUP: DSN420Y                       ACCOUNTING REPORT - SHORT                REQUESTED FROM: NOT SPECIFIED
         MEMBER: Y42D                                                                              TO: NOT SPECIFIED
      SUBSYSTEM: Y42D                            ORDER: PRIMAUTH-PLANNAME            INTERVAL FROM: 12/03/99 08:10:34.27
    DB2 VERSION: V6                               SCOPE: MEMBER                                     TO: 12/03/99 08:12:20.87

    PRIMAUTH              #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
    PLANNAME              #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
    ------------------------ ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

    USRT001                    2       0    0.00    0.00    0.00    0.00    53.137971      52.965162   181.2K    10.00    14.50
     DSNTEP42                  0       2    2.00    1.00    1.00    2.00   3:03.516934    3:03.480655     0.00  5676.00        0
```

Figure 122. Member-Scope Accounting Report (Part 3 of 5)

```
LOCATION: DSN420Y                       DB2 PERFORMANCE MONITOR (V6)                           PAGE: 4-1
   GROUP: DSN420Y                        ACCOUNTING REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
  MEMBER: Y42E                                                                             TO: NOT SPECIFIED
SUBSYSTEM: Y42E                            ORDER: PRIMAUTH-PLANNAME            INTERVAL FROM: 12/03/99 08:14:07.67
DB2 VERSION: V6                                SCOPE: MEMBER                                 TO: 12/03/99 08:14:07.67

PRIMAUTH               #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
  PLANNAME             #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------ ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

USRT001                      1       0    0.00    0.00    0.00    0.00      53.216137      53.051699   181.2K    10.00    13.00
  DSNTEP42                   0       1    2.00    1.00    1.00    2.00    4:20.204918    4:20.170015     0.00  5676.00        0
```

Figure 122. Member-Scope Accounting Report (Part 4 of 5)

```
LOCATION: DSN420Y                       DB2 PERFORMANCE MONITOR (V6)                           PAGE: 5-1
   GROUP: DSN420Y                        ACCOUNTING REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
  MEMBER: Y42F                                                                             TO: NOT SPECIFIED
SUBSYSTEM: Y42F                            ORDER: PRIMAUTH-PLANNAME            INTERVAL FROM: 12/03/99 08:15:52.82
DB2 VERSION: V6                                SCOPE: MEMBER                                 TO: 12/03/99 08:17:36.85

PRIMAUTH               #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
  PLANNAME             #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------ ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

USRT001                      2       0    0.00    0.00    0.00    0.00      50.873688      50.702225   181.2K    10.00    13.00
  DSNTEP42                   0       2    2.00    1.00    1.00    2.00    3:49.127243    3:49.091691     0.00  5676.00        0

ACCOUNTING REPORT COMPLETE
```

Figure 122. Member-Scope Accounting Report (Part 5 of 5)

The data is ordered according to the authorization IDs and plans. All primary
authorization IDs and plans contained in the input data are shown.

The TOTAL is printed for primary authorization IDs containing more than one plan.

The GRAND TOTAL is printed at the end of each member if there is more than one
first-level identifier reported.

Group-Scope Reports

Group-scope reports show the instrumentation data aggregated by the DB2 PM
identifiers you specified and the individual members. The data is presented by a
combination of location and group. Whenever either of these values changes, a
new page is started and the page number is initialized. The following command
produces a group-scope accounting report shown in Figure 123 on page 239. It
uses the SHORT layout and the default order of the DB2 PM identifiers, namely
plan names within primary authorization IDs.

```
ACCOUNTING
    REPORT
        SCOPE(GROUP)
```

```
    LOCATION: DSN420Y                    DB2 PERFORMANCE MONITOR (V6)                              PAGE: 1-1
       GROUP: DSN420Y                      ACCOUNTING REPORT - SHORT                    REQUESTED FROM: NOT SPECIFIED
                                                                                                   TO: NOT SPECIFIED
                                            ORDER: PRIMAUTH-PLANNAME                    INTERVAL FROM: 12/03/99 08:05:17.91
DB2 VERSION: V6                                  SCOPE: GROUP                                       TO: 12/03/99 10:29:26.02
```

```
PRIMAUTH
 PLANNAME              #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
   MEMBER              #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

USRT001
 DSNTEP41                    1       0    0.00    0.00    0.00    0.00    1:09.259093    1:09.083514   211.0K   114.00    47.00
   Y42A                      0       1    3.00    1.00    1.00    2.00    1:37.745921    1:37.703681     4.00  6508.00        0

USRT001
 DSNTEP42                   10       5    0.00    0.00    0.00    0.00   20:01.439219   14:10.483534   188.7K 63646.00  1621.10
   Y42A                      0       5  907.2K    0.90    0.40    2.40   20:33.424823   14:30.612146   823.10  6581.00        0

USRT001
 DSNTEP42                    2       0    0.00    0.00    0.00    0.00     50.545437      50.372842   181.2K    10.00    13.00
   Y42C                      0       2    2.00    1.00    1.00    2.00    3:25.952714    3:25.915981     0.00  5676.00        0

USRT001
 DSNTEP42                    2       0    0.00    0.00    0.00    0.00     53.137971      52.965162   181.2K    10.00    14.50
   Y42D                      0       2    2.00    1.00    1.00    2.00    3:03.516934    3:03.480655     0.00  5676.00        0

USRT001
 DSNTEP42                    1       0    0.00    0.00    0.00    0.00     53.216137      53.051699   181.2K    10.00    13.00
   Y42E                      0       1    2.00    1.00    1.00    2.00    4:20.204918    4:20.170015     0.00  5676.00        0

USRT001
 DSNTEP42                    2       0    0.00    0.00    0.00    0.00     50.873688      50.702225   181.2K    10.00    13.00
   Y42F                      0       2    2.00    1.00    1.00    2.00    3:49.127243    3:49.091691     0.00  5676.00        0

*** GROUP TOTAL ***
USRT001
 DSNTEP42                   17       5    0.00    0.00    0.00    0.00   12:08.042501    8:41.527500   185.6K 37442.94   959.12
                            0      12  533.6K    0.94    0.65    2.24   13:33.626290   10:00.192243   484.18  6208.35        0

*** TOTAL ***
USRT001
                           18       5    0.00    0.00    0.00    0.00   11:31.443423    8:16.391723   187.0K 35369.11   908.44
                            0      13  504.0K    0.94    0.67    2.22   12:53.855158    9:32.276212   457.50  6225.00        0

USRT002
 DSNTEP41                    1       1    0.00    0.00    0.00    0.00     36.295613      36.185947 51541.00    87.00    66.00
   Y42A                      0       0    0.00    1.00    0.00    2.00     56.797521      56.780273 11114.00  1790.00        0

USRT002
 DSNTEP42                    3       1    0.00    0.00    0.00    0.00    2:27.021948    1:40.436879 24810.67  6653.33    78.00
   Y42A                      0       2  200.2K    0.67    0.33    2.00    2:13.387595    1:24.189014  5253.67   627.00        0

*** TOTAL ***
USRT002
                            4       2    0.00    0.00    0.00    0.00    1:59.340364    1:24.374146 31493.25  5011.75    75.00
                            0       2  150.1K    0.75    0.25    2.00    1:54.240077    1:17.336829  6718.75   917.75        0
```

Figure 123. Group-Scope Accounting Report (Part 1 of 2)

```
    LOCATION: DSN420Y                    DB2 PERFORMANCE MONITOR (V6)                              PAGE: 1-2
       GROUP: DSN420Y                      ACCOUNTING REPORT - SHORT                    REQUESTED FROM: NOT SPECIFIED
                                                                                                   TO: NOT SPECIFIED
                                            ORDER: PRIMAUTH-PLANNAME                    INTERVAL FROM: 12/03/99 08:05:17.91
DB2 VERSION: V6                                  SCOPE: GROUP                                       TO: 12/03/99 10:29:26.02
```

```
PRIMAUTH
 PLANNAME              #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
   MEMBER              #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------
*** GRAND TOTAL ***
                           22       7    0.00    0.00    0.00    0.00    9:47.424685    7:01.479436   158.7K 29849.59   756.91
                            0      15  439.6K    0.91    0.59    2.18   10:53.925143    8:02.287233  1595.91  5260.05        0

ACCOUNTING REPORT COMPLETE
```

Figure 123. Group-Scope Accounting Report (Part 2 of 2)

The data is ordered according to the authorization IDs and plans. All primary authorization IDs and plans contained in the input data are shown. MEMBER is automatically added as the last ORDER identifier.

The GROUP TOTAL is printed for primary authorization IDs and plans containing more than one member.

The TOTAL is printed for primary authorization IDs containing more than one plan.

The GRAND TOTAL is printed at the end of each group if there is more than one first-level identifier reported.

Chapter 22. Accounting Short Report

The following example shows a short version of the accounting report produced by the following command:

```
...
ACCOUNTING
  REPORT
  LAYOUT (SHORT)
  ORDER  (ENDUSER-WSNAME-TRANSACT)
  SCOPE  (MEMBER)
...
```

```
 LOCATION: STM4D61Y                       DB2 PERFORMANCE MONITOR (V6)                           PAGE: 1-1
    GROUP: N/P                            ACCOUNTING REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
   MEMBER: N/P                                                                              TO: NOT SPECIFIED
SUBSYSTEM: Y61Y                        ORDER: ENDUSER-WSNAME-TRANSACT           INTERVAL FROM: 01/29/99 23:48:01.86
DB2 VERSION: V6                               SCOPE: MEMBER                                TO: 01/29/99 23:53:34.20
ENDUSER
  WSNAME                   #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
    TRANSACT               #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------
HUGO
  WORKSTATNAME                   5       0    0.00    0.00    0.00    0.00      59.831795      59.233317 10299.60    46.80     0.40
    WORKSTATTX                   0      10    2.00    1.00    1.00    1.00      55.499719      55.458742  2485.60   234.60        0

HUGO
  WORKSTATNAME                   1       0    0.00    0.00    0.00    0.00    1:10.506675    1:09.849935 11822.00   272.00    39.00
    WORKSTATTX123456789012345    0       2    2.00    1.00    1.00    1.00    1:03.779540    1:03.737837  3084.00   270.00        0

*** SUB-TOTAL ***
HUGO
  WORKSTATNAME                   6       0    0.00    0.00    0.00    0.00    1:01.610942    2:02.005506 10553.33    84.33     6.83
                                 0      12    2.00    1.00    1.00    1.00      56.879690      56.838591  2585.33   240.50        0
```

Figure 124. Accounting Report - Short (Part 1 of 2)

```
 LOCATION: STM4NDA0                       DB2 PERFORMANCE MONITOR (V6)                           PAGE: 2-1
    GROUP: N/P                            ACCOUNTING REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
   MEMBER: N/P                                                                              TO: NOT SPECIFIED
SUBSYSTEM: NDA1                        ORDER: ENDUSER-WSNAME-TRANSACT           INTERVAL FROM: 01/29/99 23:33:53.99
DB2 VERSION: V5                               SCOPE: MEMBER                                TO: 01/29/99 23:33:55.40

ENDUSER
  WSNAME                   #OCCURS #ROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL.TIME CLASS2 EL.TIME GETPAGES SYN.READ LOCK SUS
    TRANSACT               #DISTRS #COMMIT FETCHES   OPENS  CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF.UPDT TOT.PREF #LOCKOUT
------------------------- ------- ------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

HUGO
  WORKSTATNAME                  31      14    0.00    0.00    0.00    0.00  18:25.697230            N/P    68.10     0.26     0.00
    WORKSTATTX                   0      44  108.65    1.52    1.52    1.97       0.110982            N/P     0.00     0.03        0

ACCOUNTING REPORT COMPLETE
```

Figure 124. Accounting Report - Short (Part 2 of 2)

Accounting

Chapter 23. Accounting Long Report

The following example shows a long version of the accounting report produced by the following command:

```
...
ACCOUNTING
   REPORT
   LAYOUT  (LONG)
   ORDER   (PRIMAUTH-PLANNAME)
   SCOPE   (MEMBER)
...
```

```
  LOCATION: STM4D61Y                  DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-1
     GROUP: N/P                       ACCOUNTING REPORT - LONG            REQUESTED FROM: NOT SPECIFIED
    MEMBER: N/P                                                                      TO: NOT SPECIFIED
 SUBSYSTEM: Y61Y                         ORDER: PRIMAUTH-PLANNAME         INTERVAL FROM: 01/29/99 23:48:01.86
DB2 VERSION: V6                          SCOPE: MEMBER                               TO: 01/29/99 23:53:34.20

PRIMAUTH: SOF  PLANNAME: POCDRIV6

ELAPSED TIME DISTRIBUTION                                   CLASS 2 TIME DISTRIBUTION
---------------------------------------------------------  ---------------------------------------------------------
APPL     |> 1%                                             CPU    |===========> 22%
DB2      |===========================================> 97% NOTACC |====================================> 76%
SUSP     |=> 2%                                            SUSP   |=> 2%

AVERAGE       APPL (CLASS 1)  DB2 (CLASS 2)   IFI (CLASS 5)  CLASS 3 SUSP.  AVERAGE TIME  AV.EVENT   HIGHLIGHTS
-----------   --------------  --------------  -------------  -------------  ------------  --------   --------------------
ELAPSED TIME   1:01.610942     1:01.002753        N/C        LOCK/LATCH       4.143163     31.83     #OCCURRENCES   :       6
 NONNESTED     1:01.610942     1:01.002753        N/A        SYNCHRON. I/O    0.871526    164.33     #ALLIEDS       :       6
 STORED PROC    0.000000        0.000000          N/A         DATABASE I/O    0.871526    164.33     #ALLIEDS DISTRIB:      0
 UDF            0.000000        0.000000          N/A         LOG WRITE I/O   0.000000      0.00     #DBATS         :       0
 TRIGGER        0.000000        0.000000          N/A        OTHER RE AD I/O  1.654408     96.83      #DBATS DISTRIB. :     0
                                                             OTHER WRTE I/O   0.024326      0.67     #NO PROGRAM DATA:      6
CPU TIME        56.879690       56.838591         N/C        SER.TASK SWTCH   1.666484     20.67     #NORMAL TERMINAT:      6
 AGENT          13.210025       13.168926         N/A         UPDATE COMMIT   0.000000      0.00     #ABNORMAL TERMIN:      0
  NONNESTED     13.210025       13.168926         N/C         OPEN/CLOSE      1.564079     10.33     #CP/X PARALLEL. :      6
  STORED PRC     0.000000        0.000000         N/A         SYSLGRNG REC    0.005893      1.00     #IO PARALLELISM :      0
  UDF            0.000000        0.000000         N/A         EXT/DEL/DEF     0.088636      3.33     #INCREMENT. BIND:      0
  TRIGGER        0.000000        0.000000         N/A         OTHER SERVICE   0.007875      6.00     #COMMITS       :      12
 PAR.TASKS      43.669665       43.669665         N/A        ARC.LOG(QUIES)   0.000000      0.00     #ROLLBACKS     :       0
                                                             ARC.LOG READ    0.000000      0.00     MAX SQL CASC LVL:      0
SUSPEND TIME       N/A           8.359907         N/A        STOR.PRC SCHED   0.000000      0.00     UPDATE/COMMIT   :    N/C
 AGENT             N/A           1.310411         N/A        UDF SCHEDULE     0.000000      0.00     SYNCH I/O AVG.  : 0.005303
 PAR.TASKS         N/A           7.049495         N/A        DRAIN LOCK       0.000000      0.00
                                                             CLAIM RELEASE    0.000000      0.00
NOT ACCOUNT.       N/A          46.523416         N/A        PAGE LATCH       0.000000      0.00
DB2 ENT/EXIT       N/A          19.00             N/A        NOTIFY MSGS      0.000000      0.00
EN/EX-STPROC       N/A           0.00             N/A        GLOBAL CONT.     0.000000      0.00
EN/EX-UDF          N/A           0.00             N/A        TOTAL CLASS 3    8.359907      0.00
DCAPT.DESCR.       N/A           N/A              N/C
LOG EXTRACT.       N/A           N/A              N/C
```

Figure 125. Accounting Long Report (Part 1 of 3)

Accounting Long Report

```
          LOCATION: STM4D61Y              DB2 PERFORMANCE MONITOR (V6)                    PAGE: 1-2
             GROUP: N/P                    ACCOUNTING REPORT - LONG         REQUESTED FROM: NOT SPECIFIED
            MEMBER: N/P                                                                 TO: NOT SPECIFIED
         SUBSYSTEM: Y61Y                     ORDER: PRIMAUTH-PLANNAME        INTERVAL FROM: 01/29/99 23:48:01.86
       DB2 VERSION: V6                       SCOPE: MEMBER                              TO: 01/29/99 23:53:34.20
```

```
PRIMAUTH: SOF  PLANNAME: POCDRIV6
```

SQL DML	AVERAGE	TOTAL	SQL DCL	TOTAL	SQL DDL	CREATE	DROP	ALTER	LOCKING	AVERAGE	TOTAL
SELECT	0.00	0	LOCK TABLE	0	TABLE	0	0	0	TIMEOUTS	0.00	0
INSERT	0.00	0	GRANT	0	TEMP TABLE	0	N/A	N/A	DEADLOCKS	0.00	0
UPDATE	0.00	0	REVOKE	0	INDEX	0	0	0	ESCAL.(SHARED)	0.00	0
DELETE	0.00	0	SET CURR.SQLID	0	TABLESPACE	0	0	0	ESCAL.(EXCLUS)	0.00	0
			SET HOST VAR.	0	DATABASE	0	0	0	MAX LOCKS HELD	102.17	0
DESCRIBE	0.00	0	SET CUR.DEGREE	6	STOGROUP	0	0	0	LOCK REQUEST	290.83	1745
DESC.TBL	0.00	0	SET RULES	0	SYNONYM	0	0	N/A	UNLOCK REQUEST	38.50	231
PREPARE	1.00	6	SET CURR.PATH	0	VIEW	0	0	N/A	QUERY REQUEST	0.00	0
OPEN	1.00	6	CONNECT TYPE 1	0	ALIAS	0	0	N/A	CHANGE REQUEST	1.00	6
FETCH	2.00	12	CONNECT TYPE 2	6	PACKAGE	N/A	0	N/A	OTHER REQUEST	0.00	0
CLOSE	1.00	6	SET CONNECTION	0					LOCK SUSPENS.	6.33	38
			RELEASE	0	TOTAL	1886	30	0	LATCH SUSPENS.	0.50	3
			CALL	0	RENAME TBL	0			OTHER SUSPENS.	0.00	0
DML-ALL	0.00	0	ASSOC LOCATORS	0	COMMENT ON	0			TOTAL SUSPENS.	0.00	0
			ALLOC CURSOR	0	LABEL ON	0					
			HOLD LOCATOR	0							
			FREE LOCATOR	0							
			DCL-ALL	0							

NORMAL TERM.	AVERAGE	TOTAL	ABNORMAL TERM.	TOTAL	IN DOUBT	TOTAL	DRAIN/CLAIM	AVERAGE	TOTAL
NEW USER	0.00	0	APPL.PROGR. ABEND	0	APPL.PGM ABEND	0	DRAIN REQUESTS	0.00	0
DEALLOCATION	1.00	6	END OF MEMORY	0	END OF MEMORY	0	DRAIN FAILED	0.00	0
APPL.PROGR. END	0.00	0	RESOL.IN DOUBT	0	END OF TASK	0	CLAIM REQUESTS	53.83	323
RESIGNON	0.00	0	CANCEL FORCE	0	CANCEL FORCE	0	CLAIM FAILED	0.00	0
DBAT INACTIVE	0.00	0							
RRS COMMIT	0.00	0							

DATA CAPTURE	AVERAGE	TOTAL	DATA SHARING	AVERAGE	TOTAL	QUERY PARALLELISM	AVERAGE	TOTAL
IFI CALLS MADE	N/C	0	GLOBAL CONT RATE(%)	N/C	N/A	MAXIMUM MEMBERS USED	N/A	0
RECORDS CAPTURED	N/C	0	FALSE CONT RATE(%)	N/C	N/A	MAXIMUM DEGREE	N/A	0
LOG RECORDS READ	N/C	0	LOCK REQ - PLOCKS	0.00	0	GROUPS EXECUTED	2.00	12
ROWS RETURNED	N/C	0	UNLOCK REQ - PLOCKS	0.00	0	RAN AS PLANNED	2.00	12
RECORDS RETURNED	N/C	0	CHANGE REQ - PLOCKS	0.00	0	RAN REDUCED	0.00	0
DATA DESC. RETURN	N/C	0	LOCK REQ - XES	0.00	0	ONE DB2-COORDINATOR = NO	0.00	0
TABLES RETURNED	N/C	0	UNLOCK REQ - XES	0.00	0	ONE DB2-ISOLATION LEVEL	0.00	0
DESCRIBES	N/C	0	CHANGE REQ - XES	0.00	0	SEQUENTIAL-CURSOR	0.00	0
			SUSPENDS - IRLM	0.00	0	SEQUENTIAL-NO ESA SORT	0.00	0
			SUSPENDS - XES	0.00	0	SEQUENTIAL-NO BUFFER	0.00	0
			SUSPENDS - FALSE	0.00	0	SEQUENTIAL-ENCLAVE SERVICES	0.00	0
			INCOMPATIBLE LOCKS	0.00	0	MEMBER SKIPPED (%)	N/C	N/A
			NOTIFY MSGS SENT	0.00	0	DISABLED BY RLF	0.00	0

STORED PROCEDURES	AVERAGE	TOTAL	UDF	AVERAGE	TOTAL	TRIGGERS	AVERAGE	TOTAL
CALL STATEMENTS	0.00	0	EXECUTED	0.00	0	STATEMENT TRIGGER	0.00	0
ABENDED	0.00	0	ABENDED	0.00	0	ROW TRIGGER	0.00	0
TIMED OUT	0.00	0	TIMED OUT	0.00	0	SQL ERROR OCCUR	0.00	0
REJECTED	0.00	0	REJECTED	0.00	0			

Figure 125. Accounting Long Report (Part 2 of 3)

```
        LOCATION: STM4D61Y              DB2 PERFORMANCE MONITOR (V6)                    PAGE: 1-3
           GROUP: N/P                   ACCOUNTING REPORT - LONG        REQUESTED FROM: NOT SPECIFIED
          MEMBER: N/P                                                               TO: NOT SPECIFIED
       SUBSYSTEM: Y61Y                      ORDER: PRIMAUTH-PLANNAME    INTERVAL FROM: 01/29/99 23:48:01.86
     DB2 VERSION: V6                        SCOPE: MEMBER                          TO: 01/29/99 23:53:34.20

PRIMAUTH: SOF  PLANNAME: POCDRIV6
```

LOGGING	AVERAGE	TOTAL	ROWID	AVERAGE	TOTAL	RID LIST	AVERAGE	TOTAL
LOG RECORDS WRITTEN	0.00	0	DIRECT ACCESS	0.00	0	USED	0.00	0
TOT BYTES WRITTEN	0.00	0	INDEX USED	0.00	0	FAIL-NO STORAGE	0.00	0
			TS SCAN USED	0.00	0	FAIL-LIMIT EXCEEDED	0.00	0

AVERAGE SU	CLASS 1	CLASS 2	OPTIMIZATION	AVERAGE	TOTAL	MISCELLANEOUS	AVERAGE	TOTAL
CPU	0.00	2.00	REOPTIMIZATION	0.00	0	MAX STOR LOB VALUES	0.00	0
TCB	18000.33	17944.33	PREP_STMT_MATCH	0.00	0			
TCB-STPROC	0.00	0.00	PREP_STMT_NO_MATCH	0.00	0			
TCB-TRIGGER	0.00	0.00	IMPLICIT_PREPARES	0.00	0			
PAR.TASKS	59505.33	59505.33	PREP_FROM_CACHE	0.00	0			
			CACHE_LIMIT_EXCEED	0.00	0			
			PREP_STMT_PURGED	0.00	0			

BP0	AVERAGE	TOTAL	BP1	AVERAGE	TOTAL	TOT4K	AVERAGE	TOTAL
BPOOL HIT RATIO (%)	7.80	N/A	BPOOL HIT RATIO (%)	99.84	N/A	BPOOL HIT RATIO (%)	29.94	N/A
GETPAGES	8014.67	48088	GETPAGES	2538.67	15232	GETPAGES	10553.33	63320
BUFFER UPDATES	0.00	0	BUFFER UPDATES	2585.33	15512	BUFFER UPDATES	2585.33	15512
SYNCHRONOUS WRITE	0.00	0	SYNCHRONOUS WRITE	0.00	0	SYNCHRONOUS WRITE	0.00	0
SYNCHRONOUS READ	84.33	506	SYNCHRONOUS READ	0.00	0	SYNCHRONOUS READ	84.33	506
SEQ. PREFETCH REQS	234.50	1407	SEQ. PREFETCH REQS	5.00	30	SEQ. PREFETCH REQS	239.50	1437
LIST PREFETCH REQS	0.00	0	LIST PREFETCH REQS	0.00	0	LIST PREFETCH REQS	0.00	0
DYN. PREFETCH REQS	1.00	6	DYN. PREFETCH REQS	0.00	0	DYN. PREFETCH REQS	1.00	6
PAGES READ ASYNCHR.	7305.33	43832	PAGES READ ASYNCHR.	4.00	24	PAGES READ ASYNCHR.	7309.33	43856
HPOOL WRITES	0.00	0	HPOOL WRITES	0.00	0	HPOOL WRITES	0.00	0
HPOOL WRITES-FAILED	0.00	0	HPOOL WRITES-FAILED	0.00	0	HPOOL WRITES-FAILED	0.00	0
PAGES READ ASYN-HPOOL	0.00	0	PAGES READ ASYN-HPOOL	0.00	0	PAGES READ ASYN-HPOOL	0.00	0
HPOOL READS	0.00	0	HPOOL READS	0.00	0	HPOOL READS	0.00	0
HPOOL READS-FAILED	0.00	0	HPOOL READS-FAILED	0.00	0	HPOOL READS-FAILED	0.00	0

Figure 125. Accounting Long Report (Part 3 of 3)

Accounting

Chapter 24. Accounting Short Trace

The following example shows a short version of the accounting trace produced by the following command:

...

```
ACCOUNTING
  TRACE
  LAYOUT (SHORT)
...
```

```
   LOCATION: STM4D61Y                    DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-1
      GROUP: N/P                         ACCOUNTING TRACE - SHORT            REQUESTED FROM: NOT SPECIFIED
     MEMBER: N/P                                                                        TO: NOT SPECIFIED
  SUBSYSTEM: Y61Y                                                           ACTUAL FROM: 01/29/99 23:48:01.86
DB2 VERSION: V6                                                                    PAGE DATE: 01/29/99
PRIMAUTH CORRNAME CONNECT  ACCT TIMESTAMP COMMITS   OPENS UPDATES INSERTS  EL. TIME(CL1)  EL. TIME(CL2) GETPAGES SYN.READ LOCK SUS
PLANNAME CORRNMBR THR.TYPE TERM. CONDITION SELECTS FETCHES DELETES PREPARE  CPU TIME(CL1)  CPU TIME(CL2) BUF.UPDT TOT.PREF LOCKOUTS
-------- -------- -------- -------------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------
SOF      ZSQLASA1 BATCH    23:48:01.862298       2       1       0       0   1:10.506675    1:09.849935    11822      272       39
POCDRIV6 'BLANK'  ALLIED   NORM DEALLOC          0       2       0       1   1:03.779540    1:03.737837     3084      270        0

SOF      ZSQLASA2 BATCH    23:48:58.334587       2       1       0       0     50.241862      49.632203     3580       64        1
POCDRIV6 'BLANK'  ALLIED   NORM DEALLOC          0       2       0       1     45.746936      45.707208      142       87        0

SOF      ZSQLASA3 BATCH    23:50:11.536355       2       1       0       0   1:06.912226    1:06.377187    16326       25        0
POCDRIV6 'BLANK'  ALLIED   NORM DEALLOC          0       2       0       1   1:01.408343    1:01.368511     4530      366        0

SOF      ZSQLASA4 BATCH    23:51:25.982929       2       1       0       0   1:07.323293    1:06.784586    11713       34        0
POCDRIV6 'BLANK'  ALLIED   NORM DEALLOC          0       2       0       1   1:03.659648    1:03.615844     3084      268        0

SOF      ZSQLASA5 BATCH    23:52:21.608711       2       1       0       0     48.021702      47.329357     3553       42        0
POCDRIV6 'BLANK'  ALLIED   NORM DEALLOC          0       2       0       1     45.634209      45.592327      142       87        0

SOF      ZSQLASA6 BATCH    23:53:34.203368       2       1       0       0   1:06.659894    1:06.043251    16326       69        1
POCDRIV6 'BLANK'  ALLIED   NORM DEALLOC          0       2       0       1   1:01.049461    1:01.009819     4530      365        0
```

Figure 126. Accounting Trace - Short (Part 1 of 2)

Accounting Short Trace

```
          LOCATION: STM4NDA0                  DB2 PERFORMANCE MONITOR (V6)                        PAGE: 2-1
             GROUP: N/P                          ACCOUNTING TRACE - SHORT          REQUESTED FROM: NOT SPECIFIED
            MEMBER: N/P                                                                        TO: NOT SPECIFIED
         SUBSYSTEM: NDA1                                                             ACTUAL FROM: 01/29/99 23:33:53.99
       DB2 VERSION: V5                                                                 PAGE DATE: 01/29/99
PRIMAUTH CORRNAME CONNECT  ACCT TIMESTAMP  COMMITS   OPENS UPDATES INSERTS  EL. TIME(CL1)  EL. TIME(CL2) GETPAGES SYN.READ LOCK SUS
PLANNAME CORRNMBR THR.TYPE TERM. CONDITION SELECTS FETCHES DELETES PREPARE  CPU TIME(CL1)  CPU TIME(CL2) BUF.UPDT TOT.PREF LOCKOUTS
-------- -------- -------- --------------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

USRND05  'BLANK'  RRSAF    23:33:53.997865       1       1       0       0   18:23.028102            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       1      0.100209            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.008238       1       1       0       0   18:22.858650            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       1      0.090690            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.017737       0       0       0       0   18:22.701145            N/P        7        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0       0       0       1      0.025344            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.027828       2       2       0       0   18:28.137492            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      81       0       2      0.088635            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.038517       1       1       0       0   18:22.560285            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0       1       0       1      0.031307            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.056247       1       0       0       0   18:22.653756            N/P        7        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0       0       0       1      0.024358            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.059219       1       2       0       0   18:22.466344            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      81       0       2      0.072159            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.171863       1       1       0       0   18:27.915123            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       1      0.111205            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.177293       2       2       0       0   18:27.740437            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     159       0       2      0.135603            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.180984       2       3       0       0   18:28.111735            N/P      132        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     161       0       3      0.128437            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.619597       2       2       0       0   18:28.002156            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     159       0       2      0.134303            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.624252       2       2       0       0   18:27.820510            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     159       0       2      0.112587            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.628238       1       1       0       0   18:27.679532            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       1      0.087628            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.632832       2       1       0       0   18:26.948025            N/P       51        3        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       2      0.112827            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.636509       2       2       0       0   18:27.172088            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     160       0       2      0.172580            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.639677       1       1       0       0   18:27.527635            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       1      0.097879            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.643310       1       1       0       0   18:27.365320            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       1      0.096816            N/P        0        0        0
```

Figure 126. Accounting Trace - Short (Part 2 of 2)

Accounting Short Trace

```
     LOCATION: STM4NDA0                  DB2 PERFORMANCE MONITOR (V6)                         PAGE: 2-2
        GROUP: N/P                        ACCOUNTING TRACE - SHORT           REQUESTED FROM: NOT SPECIFIED
       MEMBER: N/P                                                                      TO: NOT SPECIFIED
    SUBSYSTEM: NDA1                                                          ACTUAL FROM: 01/29/99 23:33:53.99
  DB2 VERSION: V5                                                              PAGE DATE: 01/29/99

PRIMAUTH CORRNAME CONNECT    ACCT TIMESTAMP COMMITS   OPENS UPDATES INSERTS  EL. TIME(CL1)  EL. TIME(CL2) GETPAGES SYN.READ LOCK SUS
PLANNAME CORRNMBR THR.TYPE TERM. CONDITION SELECTS FETCHES DELETES PREPARE  CPU TIME(CL1)  CPU TIME(CL2) BUF.UPDT TOT.PREF LOCKOUTS
-------- -------- -------- --------------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

WEBSERV  'BLANK'  RRSAF    23:33:54.646699       2       2       0       0  18:26.520403            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     160       0       3      0.161978            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.651187       2       0       0       0  18:26.649312            N/P        4        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0       0       0       2      0.048834            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.656185       2       1       0       0  18:26.811501            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       2      0.109402            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.661354       2       6       0       0  18:25.443683            N/P      264        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     480       0       6      0.313007            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.665123       2       3       0       0  18:26.262524            N/P      115        5        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     167       0       3      0.167447            N/P        0        1        0

WEBSERV  'BLANK'  RRSAF    23:33:54.668724       2       5       0       0  18:25.653206            N/P      234        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     400       0       7      0.295794            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.672266       1       0       0       0  18:24.833751            N/P        7        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0       0       0       1      0.035201            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.675332       1       0       0       0  18:24.743233            N/P        7        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0       0       0       1      0.129798            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.678171       2       3       0       0  18:26.000065            N/P      132        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     240       0       3      0.189701            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.681353       1       0       0       0  18:24.431237            N/P        0        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0       0       0       1      0.021138            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.684624       1       1       0       0  18:24.652058            N/P       51        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       2      0.070007            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:54.689418       1       0       0       0  18:24.351484            N/P        0        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0       0       0       1      0.020968            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:55.404394       1       1       0       0  18:24.646539            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0      80       0       1      0.117515            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF    23:33:55.408674       1       2       0       0  18:24.926788            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED   NORM PROGRM END       0     160       0       2      0.137071            N/P        0        0        0

ACCOUNTING TRACE COMPLETE
```

Accounting

```
         LOCATION: STM4NDA0                    DB2 PERFORMANCE MONITOR (V6)                        PAGE: 2-2
            GROUP: N/P                         ACCOUNTING TRACE - SHORT               REQUESTED FROM: NOT SPECIFIED
           MEMBER: N/P                                                                           TO: NOT SPECIFIED
        SUBSYSTEM: NDA1                                                               ACTUAL FROM: 01/29/99 23:33:53.99
      DB2 VERSION: V5                                                                   PAGE DATE: 01/29/99
PRIMAUTH CORRNAME CONNECT   ACCT TIMESTAMP COMMITS    OPENS UPDATES INSERTS  EL. TIME(CL1)  EL. TIME(CL2) GETPAGES SYN.READ LOCK SUS
PLANNAME CORRNMBR THR.TYPE  TERM. CONDITION SELECTS FETCHES DELETES PREPARE  CPU TIME(CL1)  CPU TIME(CL2) BUF.UPDT TOT.PREF LOCKOUTS
-------- -------- --------  --------------- ------- ------- ------- ------- -------------- -------------- -------- -------- --------

WEBSERV  'BLANK'  RRSAF     23:33:54.646699       2       2       0       0  18:26.520403            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0     160       0       3      0.161978            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.651187       2       0       0       0  18:26.649312            N/P        4        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0       0       0       2      0.048834            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.656185       2       1       0       0  18:26.811501            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0      80       0       2      0.109402            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.661354       2       6       0       0  18:25.443683            N/P      264        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0     480       0       6      0.313007            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.665123       2       3       0       0  18:26.262524            N/P      115        5        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0     167       0       3      0.167447            N/P        0        1        0

WEBSERV  'BLANK'  RRSAF     23:33:54.668724       2       5       0       0  18:25.653206            N/P      234        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0     400       0       7      0.295794            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.672266       1       0       0       0  18:24.833751            N/P        7        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0       0       0       1      0.035201            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.675332       1       0       0       0  18:24.743233            N/P        7        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0       0       0       1      0.129798            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.678171       2       3       0       0  18:26.000065            N/P      132        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0     240       0       3      0.189701            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.681353       1       0       0       0  18:24.431237            N/P        0        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0       0       0       1      0.021138            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.684624       1       1       0       0  18:24.652058            N/P       51        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0      80       0       2      0.070007            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:54.689418       1       0       0       0  18:24.351484            N/P        0        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0       0       0       1      0.020968            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:55.404394       1       1       0       0  18:24.646539            N/P       44        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0      80       0       1      0.117515            N/P        0        0        0

WEBSERV  'BLANK'  RRSAF     23:33:55.408674       1       2       0       0  18:24.926788            N/P       88        0        0
DTWGAV22 'BLANK'  ALLIED    NORM PROGRM END       0     160       0       2      0.137071            N/P        0        0        0

ACCOUNTING TRACE COMPLETE
```

Chapter 25. Accounting Long Trace

The following example shows an extract from a long version of the accounting trace produced by the following command:

...

ACCOUNTING
   TRACE

...

```
   LOCATION: STM4D61Y                      DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-1
      GROUP: N/P                            ACCOUNTING TRACE - LONG             REQUESTED FROM: NOT SPECIFIED
     MEMBER: N/P                                                                           TO: NOT SPECIFIED
  SUBSYSTEM: Y61Y                                                               ACTUAL FROM: 01/29/99 23:48:01.86
DB2 VERSION: V6
---- IDENTIFICATION ------------------------------------------------------------------------------------------
ACCT TSTAMP: 01/29/99 23:48:01.86   PLANNAME: POCDRIV6   WLM SCL: 'BLANK'    CICS NET: N/A
BEGIN TIME : 01/29/99 23:46:51.35   PROD ID : N/P                           CICS LUN: N/A
END TIME   : 01/29/99 23:48:01.86   PROD VER: N/P        LUW NET: Y61Y      CICS INS: N/A
REQUESTER  : STM4D61Y               CORRNAME: ZSQLASA1   LUW LUN: STM4Y61Y
MAINPACK   : POCDRIV6               CORRNMBR: 'BLANK'    LUW INS: B1BAA2A382C5   END USER: HUGO
PRIMAUTH   : SOF                    CONNTYPE: TSO        LUW SEQ:        1   TRANSACT: WORKSTATTX12345678901234567890TX
ORIGAUTH   : SOF                    CONNECT : BATCH                          WS NAME : WORKSTATNAME

MVS ACCOUNTING DATA   : 'BLANK'
RRSAF ACCOUNTING TOKEN: N/A

ELAPSED TIME DISTRIBUTION                                 CLASS 2 TIME DISTRIBUTION
---------------------------------------------------------  ---------------------------------------------------------
APPL    |> 1%                                             CPU    |============> 24%
DB2     |=============================================> 93%  NOTACC |==================================> 69%
SUSP    |===> 7%                                          SUSP   |===> 7%

TIMES/EVENTS  APPL (CLASS 1)  DB2 (CLASS 2)  IFI (CLASS 5)  CLASS 3 SUSP.  ELAPSED TIME    EVENTS   HIGHLIGHTS
------------  --------------  -------------  -------------  -------------  ------------  --------   ------------------------
ELAPSED TIME    1:10.506675    1:09.849935           N/P   LOCK/LATCH       24.827289        51   THREAD TYPE  : ALLIED
 NONNESTED      1:10.506675    1:09.849935           N/A   SYNCHRON. I/O     1.905238       547   TERM.CONDITION: NORMAL
 STORED PROC     0.000000       0.000000             N/A    DATABASE I/O     1.905238       547   INVOKE REASON : DEALLOC
 UDF            0.000000       0.000000              N/A    LOG WRITE I/O    0.000000         0   COMMITS      :          2
 TRIGGER        0.000000       0.000000              N/A   OTHER READ I/O    2.652763       123   ROLLBACK     :          0
                                                           OTHER WRTE I/O    0.045746         1   INCREM.BINDS :          0
CPU TIME        1:03.779540    1:03.737837           N/P   SER.TASK SWTCH    7.417763        80   UPDATE/COMMIT :      0.00
 AGENT          16.741921      16.700218             N/A    UPDATE COMMIT    0.000000         0   SYNCH I/O AVG.:   0.003483
  NONNESTED     16.741921      16.700218             N/P    OPEN/CLOSE       6.838266        44   PROGRAMS     :          0
  STORED PRC    0.000000       0.000000              N/A    SYSLGRNG REC     0.035358         6   MAX CASCADE  :          0
  UDF           0.000000       0.000000              N/A    EXT/DEL/DEF      0.531816        20   PARALLELISM  : CP
  TRIGGER       0.000000       0.000000              N/A    OTHER SERVICE    0.012324        10
 PAR.TASKS      47.037619      47.037619             N/A   ARC.LOG(QUIES)    0.000000         0
                                                           ARC.LOG READ      0.000000         0
SUSPEND TIME           N/A     36.848800             N/A   STOR.PRC SCHED    0.000000         0
 AGENT                 N/A      4.624383             N/A   UDF SCHEDULE      0.000000         0
 PAR.TASKS             N/A     32.224417             N/A   DRAIN LOCK        0.000000         0
                                                           CLAIM RELEASE     0.000000         0
NOT ACCOUNT.           N/A     48.525334             N/P   PAGE LATCH        0.000000         0
DB2 ENT/EXIT           N/A             19             N/A   NOTIFY MSGS       0.000000         0
EN/EX-STPROC           N/A              0             N/A   GLOBAL CONT.      0.000000         0
EN/EX-UDF              N/A              0             N/A   TOTAL CLASS 3    36.848800       802
DCAPT.DESCR.           N/A            N/A             N/P
LOG EXTRACT.           N/A            N/A             N/P
```

Accounting Long Trace

```
      LOCATION: STM4D61Y                    DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-2
         GROUP: N/P                           ACCOUNTING TRACE - LONG             REQUESTED FROM: NOT SPECIFIED
        MEMBER: N/P                                                                          TO: NOT SPECIFIED
     SUBSYSTEM: Y61Y                                                              ACTUAL FROM: 01/29/99 23:48:01.86
   DB2 VERSION: V6
```

```
---- IDENTIFICATION ------------------------------------------------------------------------------------------
ACCT TSTAMP: 01/29/99 23:48:01.86    PLANNAME: POCDRIV6     WLM SCL: 'BLANK'        CICS NET: N/A
BEGIN TIME : 01/29/99 23:46:51.35    PROD ID : N/P                                  CICS LUN: N/A
END TIME   : 01/29/99 23:48:01.86    PROD VER: N/P          LUW NET: Y61Y          CICS INS: N/A
REQUESTER  : STM4D61Y                CORRNAME: ZSQLASA1     LUW LUN: STM4Y61Y
MAINPACK   : POCDRIV6                CORRNMBR: 'BLANK'      LUW INS: B1BAA2A382C5   END USER: HUGO
PRIMAUTH   : SOF                     CONNTYPE: TSO          LUW SEQ:            1   TRANSACT: WORKSTATTX12345678901234567890TX
ORIGAUTH   : SOF                     CONNECT : BATCH                                WS NAME : WORKSTATNAME
```

SQL DML	TOTAL	SQL DCL	TOTAL	SQL DDL	CREATE	DROP	ALTER	LOCKING	TOTAL	DATA SHARING	TOTAL
SELECT	0	LOCK TABLE	0	TABLE	0	0	0	TIMEOUTS	0	GLB CONT (%)	N/P
INSERT	0	GRANT	0	TEMP TABLE	0	N/A	N/A	DEADLOCKS	0	FLS CONT (%)	N/P
UPDATE	0	REVOKE	0	INDEX	0	0	0	ESCAL.(SHAR)	0	LOCK REQUEST	N/P
DELETE	0	SET SQLID	0	TABLESPACE	0	0	0	ESCAL.(EXCL)	0	UNLOCK REQST	N/P
		SET H.VAR.	0	DATABASE	0	0	0	MAX.LCK HELD	170	CHANGE REQST	N/P
DESCRIBE	0	SET DEGREE	1	STOGROUP	0	0	0	LOCK REQUEST	562	LOCK - XES	N/P
DESC.TBL	0	SET RULES	0	SYNONYM	0	0	N/A	UNLOCK REQST	157	UNLOCK-XES	N/P
PREPARE	1	SET PATH	0	VIEW	0	0	N/A	QUERY REQST	0	CHANGE-XES	N/P
OPEN	1	CONNECT 1	0	ALIAS	0	0	N/A	CHANGE REQST	1	SUSP - IRLM	N/P
FETCH	2	CONNECT 2	1	PACKAGE	N/A	0	N/A	OTHER REQST	0	SUSP - XES	N/P
CLOSE	1	SET CONNEC	0					LOCK SUSP.	38	SUSP - FALSE	N/P
		RELEASE	0	TOTAL	0	0	0	LATCH SUSP.	1	INCOMP.LOCK	N/P
		CALL	0	RENAME TBL	0			OTHER SUSP.	0	NOTIFY SENT	N/P
DML-ALL	5	ASSOC LOC.	0	COMMENT ON	0			TOTAL SUSP.	39		
		ALLOC CUR.	0	LABEL ON	0						
		HOLD LOC.	0								
		FREE LOC.	0								
		DCL-ALL	2								

RID LIST	TOTAL	ROWID	TOTAL	STORED PROC.	TOTAL	UDF	TOTAL	TRIGGERS	TOTAL
USED	0	DIR ACCESS	0	CALL STMTS	0	EXECUTED	0	STMT TRIGGER	0
FAIL-NO STORAGE	0	INDEX USED	0	ABENDED	0	ABENDED	0	ROW TRIGGER	0
FAIL-LIMIT EXC.	0	TS SCAN	0	TIMED OUT	0	TIMED OUT	0	SQL ERROR	0
				REJECTED	0	REJECTED	0		

QUERY PARALLEL.	TOTAL	DATA CAPTURE	TOTAL	OPTIMIZATION	TOTAL	SERVICE UNITS	CLASS 1	CLASS 2
MAXIMUM MEMBERS	N/P	IFI CALLS	N/P	REOPTIMIZATION	0	CPU	86907	64094
MAXIMUM DEGREE	10	REC.CAPTURED	N/P	PREP_STMT_MATCH	0	TCB	22813	0
GROUPS EXECUTED	4	LOG REC.READ	N/P	PREP_STMT_NO_MATCH	0	TCB-STPROC	0	0
RAN AS PLANNED	4	ROWS RETURN	N/P	IMPLICIT_PREPARES	0	TCB-TRIGGER	0	0
RAN REDUCED	0	RECORDS RET.	N/P	PREP_FROM_CACHE	0	PAR.TASKS	64094	64094
ONE DB2 COOR=N	0	DATA DES.RET	N/P	CACHE_LIMIT_EXCEED	0			
ONE DB2 ISOLAT	0	TABLES RET.	N/P	PREP_STMT_PURGED	0			
SEQ - CURSOR	0	DESCRIBES	N/P					
SEQ - NO ESA	0							
SEQ - NO BUF	0							
SEQ - ENCL.SER	0							
MEMB SKIPPED(%)	0							
DISABLED BY RLF	NO							

```
           LOCATION: STM4D61Y                DB2 PERFORMANCE MONITOR (V6)                    PAGE: 1-3
              GROUP: N/P                        ACCOUNTING TRACE - LONG            REQUESTED FROM: NOT SPECIFIED
             MEMBER: N/P                                                                      TO: NOT SPECIFIED
          SUBSYSTEM: Y61Y                                                           ACTUAL FROM: 01/29/99 23:48:01.86
        DB2 VERSION: V6

        ---- IDENTIFICATION -------------------------------------------------------------------------------------------
        ACCT TSTAMP: 01/29/99 23:48:01.86   PLANNAME: POCDRIV6     WLM SCL: 'BLANK'     CICS NET: N/A
        BEGIN TIME : 01/29/99 23:46:51.35   PROD ID : N/P                               CICS LUN: N/A
        END TIME   : 01/29/99 23:48:01.86   PROD VER: N/P          LUW NET: Y61Y        CICS INS: N/A
        REQUESTER  : STM4D61Y               CORRNAME: ZSQLASA1     LUW LUN: STM4Y61Y
        MAINPACK   : POCDRIV6               CORRNMBR: 'BLANK'      LUW INS: B1BAA2A382C5  END USER: HUGO
        PRIMAUTH   : SOF                    CONNTYPE: TSO          LUW SEQ:           1   TRANSACT: WORKSTATTX12345678901234567890TX
        ORIGAUTH   : SOF                    CONNECT : BATCH                               WS NAME : WORKSTATNAME

        DRAIN/CLAIM     TOTAL   LOGGING                 TOTAL   MISCELLANEOUS      TOTAL
        -----------   -------   ----------------      -------   --------------   --------
        DRAIN REQST         0   LOG RECS WRITTEN            0   MAX STOR VALUES         0
        DRAIN FAILED        0   TOT BYTES WRITTEN          0
        CLAIM REQST        81
        CLAIM FAILED        0


        ---- RESOURCE LIMIT FACILITY ----------------------------------------------------------------------------------
        TYPE: N/P                           TABLE ID: N/P   SERV.UNITS:    N/P   CPU SECONDS: 0.000000   MAX CPU SEC:    N/P

        BP0                       TOTAL   BP1                       TOTAL   TOT4K                     TOTAL
        --------------------   --------   --------------------   --------   --------------------   --------
        BPOOL HIT RATIO (%)          2   BPOOL HIT RATIO (%)         99   BPOOL HIT RATIO (%)         27
        GETPAGES                  8803   GETPAGES                  3019   GETPAGES                 11822
        BUFFER UPDATES               0   BUFFER UPDATES            3084   BUFFER UPDATES            3084
        SYNCHRONOUS WRITE            0   SYNCHRONOUS WRITE            0   SYNCHRONOUS WRITE            0
        SYNCHRONOUS READ           272   SYNCHRONOUS READ            0   SYNCHRONOUS READ           272
        SEQ. PREFETCH REQS         263   SEQ. PREFETCH REQS           6   SEQ. PREFETCH REQS         269
        LIST PREFETCH REQS           0   LIST PREFETCH REQS           0   LIST PREFETCH REQS           0
        DYN. PREFETCH REQS           1   DYN. PREFETCH REQS           0   DYN. PREFETCH REQS           1
        PAGES READ ASYNCHR.       8300   PAGES READ ASYNCHR.          8   PAGES READ ASYNCHR.       8308
        HPOOL WRITES                 0   HPOOL WRITES                 0   HPOOL WRITES                 0
        HPOOL WRITES-FAILED          0   HPOOL WRITES-FAILED          0   HPOOL WRITES-FAILED          0
        PAGES READ ASYN-HPOOL        0   PAGES READ ASYN-HPOOL        0   PAGES READ ASYN-HPOOL        0
        HPOOL READS                  0   HPOOL READS                  0   HPOOL READS                  0
        HPOOL READS-FAILED           0   HPOOL READS-FAILED           0   HPOOL READS-FAILED           0
```

Accounting

Chapter 26. Accounting Report and Trace Blocks

Accounting reports and traces are arranged in blocks. Each block contains accounting information about a particular activity. The layout of each block is presented followed by the field descriptions.

For each field in the block, the field name (as shown in the long report or trace) is followed by a short description. with a reference to the table where additional information, such as the applicability of the field to exception processing, is also provided.

Field names used the short reports and traces may vary slightly from those used in the long versions. This is to allow the layout of the printed report or trace to align properly.

Fields in reports can show total or average values, or both. If the difference between sums and averages of fields cannot be distinguished, a hash (#) is printed as the first character in the label, indicating the report entry is a sum.

Another distinction is that averages (other than time values) are printed with a decimal point, whereas sums do not have a decimal point.

Identification

```
---- IDENTIFICATION -------------------------------------------------------------------------------------------
ACCT TSTAMP: 01/29/99 23:48:01.86    PLANNAME: POCDRIV6      WLM SCL: 'BLANK'        CICS NET: N/A
BEGIN TIME : 01/29/99 23:46:51.35    PROD ID : N/P                                   CICS LUN: N/A
END TIME   : 01/29/99 23:48:01.86    PROD VER: N/P           LUW NET: Y61Y           CICS INS: N/A
REQUESTER  : STM4D61Y                CORRNAME: ZSQLASA1      LUW LUN: STM4Y61Y
MAINPACK   : POCDRIV6                CORRNMBR: 'BLANK'       LUW INS: B1BAA2A382C5   END USER: HUGO
PRIMAUTH   : SOF                     CONNTYPE: TSO           LUW SEQ:           1    TRANSACT: WORKSTATTX12345678901234567890TX
ORIGAUTH   : SOF                     CONNECT : BATCH                                 WS NAME : WORKSTATNAME
MVS ACCOUNTING DATA   : 'BLANK'
RRSAF ACCOUNTING TOKEN: N/A
```

Figure 127. Accounting Long Trace — Identification

Identification Fields

CONNECT

The connection name. For more information see item 58 on page 307.

CONNTYPE

The connection type. For more information see item 10 on page 300.

CORRNAME

The correlation name. For more information see item 6 on page 299.

CORRNMBR

The correlation number. For more information see item 7 on page 300.

MAINPACK

The MAINPACK value. It is derived from a package name. For more information see item 8 on page 300.

ORIGAUTH

The original authorization ID. For more information see item 9 on page 300.

Accounting Report and Trace Blocks

PROGRAM NAME
> The program name (package ID or DBRM name). For more information see item 59 on page 356.

PLANNAME
> The plan name. For more information see item 59 on page 307.

PRIMAUTH
> The primary authorization ID. For more information see item 5 on page 299.

REQLOC
> The requesting location. For more information see item 14 on page 301.

INTERVAL
> The REDUCE interval.

Elapsed Time Distribution

The elapsed time distribution block shows the distribution of the application time (in DB2 time) and the suspension time of the originating task. For threads exploiting parallelism, only the nonparallel part is taken into account.

```
ELAPSED TIME DISTRIBUTION
----------------------------------------------------------------
APPL   |============================================> 92%
DB2    |
SUSP   |====> 8%
```

Figure 128. Accounting Long Report and Trace - Elapsed Time Distribution

Elapsed Time Distribution Fields

APPL The ratio of the elapsed application time, expressed as a percentage of the total elapsed time. For more information see item 85 on page 323.

DB2 The ratio of the elapsed DB2 time, expressed as a percentage of the total elapsed time. For more information see item 86 on page 324.

SUSP The ratio of the DB2 suspension time, expressed as a percentage of the total elapsed time. For more information see item 87 on page 324.

Class 2 Time Distribution

The class 2 time distribution block shows the distribution of the active-in-DB2 time, the not-accounted time, and the suspension time, of the originating task. For threads exploiting query parallelism, only the nonparallel part is taken is taken into account.

```
CLASS 2 TIME DISTRIBUTION
----------------------------------------------------------------
CPU     |=> 2%
NOTACC  |=> 2%
SUSP    |=============================================> 95%
```

Figure 129. Accounting Long Report and Trace - Class 2 Time Distribution

Class 2 Time Distribution Fields

CPU The ratio of the DB2 CPU time, expressed as a percentage of the DB2 elapsed time. For more information see item 88 on page 324.

NOTACC
The ratio of the DB2 not accounted time, expressed as a percentage of the DB2 elapsed time. For more information see item 89 on page 324.

SUSP The ratio of the DB2 suspension time, expressed as a percentage of the DB2 elapsed time. For more information see item 90 on page 324.

Application (Class 1), DB2 (Class 2), and IFI (Class 5) Times and Events

```
AVERAGE        APPL (CLASS 1)   DB2 (CLASS 2)    IFI (CLASS 5)
------------   --------------   --------------   --------------
ELAPSED TIME          5.773449         3.619543              N/P
 NON-NESTED           2.014711         1.533210              N/A
 STORED PROC          3.758738         2.086333              N/A
 UDF                  0.000000         0.000000              N/A
 TRIGGER              0.000000         0.000000              N/A

CPU TIME              0.141721         0.093469              N/P
 AGENT                0.141721         0.093469              N/P
  NON-NESTED          0.048918         0.004176              N/A
  STORED PRC          0.092802         0.089294              N/A
  UDF                 0.000000         0.000000              N/A
  TRIGGER             0.000000         0.000000              N/A
 PAR.TASKS            0.000000         0.000000              N/A

SUSPEND TIME               N/A         2.832920              N/A
 AGENT                     N/A         2.832920              N/A
 PAR.TASKS                 N/A         0.000000              N/A

NOT ACCOUNT.               N/A         0.693154              N/A
DB2 ENT/EXIT               N/A             8.96              N/A
EN/EX-STPROC               N/A            41.74              N/A
DCAPT.DESCR.               N/A              N/A              N/P
LOG EXTRACT.               N/A              N/A              N/P
```

Figure 130. Accounting Long Report and Trace - Class 1, CLass 2, and Class 5 Times and Events

```
CLASS1 EL.TIME CLASS2 EL.TIME
CLASS1 CPUTIME CLASS2 CPUTIME
-------------- --------------

  12:22.541448       1.184578
        1.185358       0.873714
```

Figure 131. Accounting Short Report - Class 1, CLass 2, and Class 5 Times and Events

Accounting Report and Trace Blocks

```
EL. TIME(CL1)  EL. TIME(CL2)
CPU TIME(CL1)  CPU TIME(CL2)
-------------  --------------

   30.213377          N/P
    0.087973          N/P
```

Figure 132. Accounting Short Trace - Class 1 and Class 2 Times

Application (Class 1), DB2 (Class 2), and IFI (Class 5) Times and Events Fields

Application (Class 1) Fields

ELAPSED TIME
> The class 1 elapsed time of the allied agent. For more information see item 4 on page 312.

CPU TIME
> The class 1 CPU time in an application. For more information see item 63 on page 320.

> **TCB** The class 1 TCB time in an application. This does not include the class 1 time for stored procedures or parallel tasks. For more information see item 65 on page 321.

> **TCB-STPROC**
> > The TCB time accumulated in DB2 for processing SQL CALL statements in the stored-procedures address space. For more information see item 59 on page 320.

> **PAR.TASKS**
> > The CPU time accumulated in an application for processing parallel tasks. For more information see item 66 on page 321.

DB2 (Class 2) Fields

ELAPSED TIME
> The class 2 elapsed time of the allied agent accumulated in DB2. For more information see item 6 on page 313.

ELAPSED TRIG
> The accumulated elapsed time of a trigger. For more information see item 14 on page 340.

CPU TIME
> The class 2 CPU time in DB2. For more information see item 64 on page 321.

> **TCB** The class 2 TCB time (in DB2). This does not include the class 2 time for stored procedures or parallel tasks. For more information see item 8 on page 313.

> **TCB-STPROC**
> > The TCB time accumulated in DB2 for processing SQL statements issued by stored procedures. For more information see item 60 on page 320.

TCB-TRIGGER
Accumulated TCB time of a trigger. For more information see item 44 on page 335.

PAR.TASKS
The CPU time accumulated in DB2 for processing parallel tasks. For more information see item 70 on page 322.

SUSPEND TIME
The waiting time for all class 3 suspensions. For more information see item 47 on page 318.

TCB The class 3 suspension time. For more information see item 73 on page 322.

PAR.TASKS
The accumulated suspension time spent for parallel tasks. For more information see item 74 on page 322.

NOT ACCOUNT.
The time not accounted in DB2. You use this time to determine whether there is a large percentage of time that has not been captured within the DB2 accounting record. For more information see item 49 on page 319.

DB2 ENT/EXIT
The number of DB2 entry and exit events processed to calculate the elapsed time in DB2 and processor times. For more information see item 15 on page 314.

EN/EX-STPROC
The number of SQL entry or exit events performed by stored procedures. For more information see item 61 on page 320.

IFI (Class 5) Fields

ELAPSED TIME
The accumulated elapsed time for processing IFI calls (class 5). For more information see item 1 on page 339.

CPU TIME
The accumulated CPU time for processing IFI calls (class 5), which is the same as the TCB time. For more information see item 2 on page 339.

DCAPT.DESCR.
The accumulated elapsed time for processing data capture describes. For more information see item 3 on page 339.

LOG EXTRACT.
The accumulated elapsed time for performing log extraction. For more information see item 4 on page 339.

Suspension/System Times and Events (Class 3)

```
CLASS 3 SUSP.   AVERAGE TIME  AV.EVENT
--------------  ------------  --------
LOCK/LATCH          1.500181      1.09
SYNCHRON. I/O       0.002096      0.13
 DATABASE I/O       0.000810      0.00
 LOG WRITE I/O      0.001286      0.00
OTHER READ I/O      0.000000      0.00
OTHER WRTE I/O      0.000000      0.00
SER.TASK SWTCH      0.860814      1.04
 COMMIT UPDATE      0.000000      0.00
 OPEN/CLOSE         0.459010      3.20
 SYSLGRNG REC       0.193708      0.91
 EXT/DEL/DEF        0.160772      0.31
 OTHER SERVICE      0.047324      0.26
ARC.LOG(QUIES)      0.000000      0.00
ARC.LOG READ        0.000000      0.00
STORED PROC.        0.129187      0.04
UDF SCHEDULE        0.000000      0.00
DRAIN LOCK          0.000000      0.00
CLAIM RELEASE       0.000000      0.00
PAGE LATCH          0.000000      0.00
NOTIFY MSGS.        0.000000      0.00
GLOBAL CONT.        0.340642      7.37
TOTAL CLASS 3       2.832920      9.67
```

Figure 133. Accounting Long Report & Long Trace - Class 3 Times

Suspension/System Times and Events (Class 3) Fields

LOCK/LATCH

The accumulated lock and latch elapsed time. This value is an average. For more information see item 17 on page 315.

SYNCHRON. I/O

The I/O elapsed time accumulated to synchronous I/O suspensions. This value is an average. For more information see item 20 on page 315.

SYNCHRON I/O AV.EVENT

The total number of synchronous I/O suspensions. This value is an average. For more information see item 19 on page 315.

DATABASE I/O

Accummulated I/O elapsed time spent waiting for database I/O for this thread. This value is an average. For more information see item 101 on page 326.

DATABASE I/O AV.EVENT

The number of waits for database I/O under this thread. This value is an average. For more information see item 102 on page 326.

OTHER READ I/O

The accumulated waiting time due to a read I/O performed under another thread. This value is an average. For more information see item 23 on page 315.

OTHER WRTE I/O

The accumulated waiting time due to a write I/O performed under another thread. This value is an average. For more information see item 26 on page 316.

SER.TASK SWTCH
>The accumulated waiting time due to a synchronous execution unit switching to DB2 services from the thread being reported. This value is an average. For more information see item 29 on page 317.

SER.TASK SWTCH AV.EVENT
>The total number of suspensions due to a synchronous execution unit switching to DB2 services from the thread being reported. This value is an average. For more information see item 28 on page 316.

COMMIT UPDATE TIME
>The accumulated due to synchronous execution unit swith for DB2 commit, abort, or deallocation processing. This value is an average. For more information see item 105 on page 326.

COMMIT UPDATE AV.EVENT
>Number of wait trace events processed for waits for synchronous execution unit switching for commit or abort. This value is an average. For more information see item 106 on page 326.

OPEN/CLOSE TIME
>Accumulated waiting time for a synchronous execution unit switch to the DB2 OPEN/CLOSE dataset service for the HSM recall service. This value is an average. For more information see item 107 on page 326.

OPEN/CLOSE AV.EVENT
>Number of wait trace events processed of waits for sysnchronous execution unit switching to the Open/Close service. This value is an average. For more information see item 108 on page 326.

SYSLGRNG REC
>Accumulated wait time for a sysnchronous execution unit switch to the DB2 SYSLGRNG recording service. This value is an average. For more information see item 109 on page 326.

SYSLGRNG REC AV.EVENT
>Number of wait trace events for a sysnchronous execution unit switch to the DB2 SYSLGRNG recording service. This value is an average. For more information see item 110 on page 326.

EXT/DEL/DEF
>Accumulated wait time for a synchronous execution unit switch to the DB2 data space manager services. This value is an average. For more information see item 111 on page 326.

EXT/DEL/DEF
>Number of wait trace events for waits for sysnchronous execution unit switching to the DB2 data space manager services. This value is an average. For more information see item 112 on page 327.

OTHER SERVICE
>Accumulated wait time for a synchronous execution unit switch to other DB2 service tasks. This value is an average. For more information see item 113 on page 327.

OTHER SERVICE
>Number of wait trace events for a synchronous execution unit switch to other DB2 service tasks. This value is an average. For more information see item 114 on page 327.

Accounting Report and Trace Blocks

ARC.LOG(QUIES)

The accumulated waiting time due to the processing of ARCHIVE LOG MODE(QUIESCE) commands. This value is an average. For more information see item 32 on page 318.

ARC.LOG READ

The accumulated waiting time for archive reads from a tape. This value is an average. For more information see item 35 on page 318.

DRAIN LOCK

The accumulated waiting time due to a drain lock suspension. This value is an average. For more information see item 38 on page 318.

CLAIM RELEASE

The accumulated waiting time for a drain waiting for claims to be released. This value is an average. For more information see item 41 on page 318.

PAGE LATCH

The time spent waiting for page latch contentions. This value is an average. For more information see item 44 on page 318.

STORED PROC.

The total elapsed waiting time for an available TCB before the stored procedure could be scheduled. For more information see item 62 on page 320.

NOTIFY MSGS

The accumulated elapsed waiting time due to suspensions caused by sending notify messages to other members in the data sharing group. For more information see item 56 on page 319.

GLOBAL CONT.

The accumulated elapsed waiting time caused by the suspension of an IRLM lock request due to a global lock contention. For more information see item 58 on page 320.

TOTAL CLASS 3

The waiting time for all class 3 suspensions. This value is an average. For more information see item 47 on page 318.

Highlights - Long Report

```
HIGHLIGHTS
-------------------------
#OCCURRENCES   :        6
#ALLIEDS       :        6
#ALLIEDS DISTRIB:       0
#DBATS         :        0
#DBATS DISTRIB. :       0
#NO PROGRAM DATA:       6
#NORMAL TERMINAT:       6
#ABNORMAL TERMIN:       0
#CP/X PARALLEL. :       6
#IO PARALLELISM :       0
#INCREMENT. BIND:       0
#COMMITS       :       12
#ROLLBACKS     :        0
MAX SQL CASC LVL:       0
UPDATE/COMMIT   :     0.00
SYNCH I/O AVG.  : 0.005303
```

Figure 134. Accounting Long Report - Highlights

```
THREAD TYPE  : ALLIED
TERM.CONDITION: NORMAL
INVOKE REASON : DEALLOC
COMMITS      :           1
ROLLBACK     :           0
INCREM.BINDS :           0
UPDATE/COMMIT :       0.00
SYNCH I/O AVG.:   0.099187
PROGRAMS     :           0
MAX CASCADE  :         N/A
PARALLELISM  : CP
```

Figure 135. Accounting Long Trace - Highlights

Highlights Fields

#OCCURRENCES
> The number of accounting records. For more information see item 52 on page 305.

#ALLIEDS
> The number of allied threads. For more information see item 48 on page 305.

#ALLIEDS DISTRIB
> The number of allied-distributed threads. For more information see item 49 on page 305.

#DBATS
> The number of DBATs. For more information see item 50 on page 305.

#DBATS DISTRIB.
> The number of DBAT distributed threads. For more information see item 51 on page 305.

#NO PROGRAM DATA
> The number of accounting records without package data. For more information see item 54 on page 306.

#NORMAL TERMINAT
> The number of normal terminations due to various reasons. For more information see item 37 on page 304.

#ABNORMAL TERMIN
> The number of abnormal terminations due to various reasons. For more information see item 42 on page 304.

#CP/X PARALLEL.
> The number of originating accounting records where query CP and Sysplex query parallelism was used for at least one SQL statement. I/O parallelism might have been used by other SQL statements. For more information see item 12 on page 333.

#IO PARALLELISM
> The number of accounting records that indicated that I/O parallelism was used by at least one SQL statement and query CP or Syplex query parallelism was not used by any SQL statement. For more information see item 11 on page 333.

#INCREMENT. BIND
> The number of incremental binds. For more information see item 57 on page 306.

Accounting Report and Trace Blocks

#COMMITS

The number of commit requests. For more information see item 55 on page 306.

#ROLLBACKS

The number of rollback requests. For more information see item 56 on page 306.

MAX SQL CASCAD LEVEL

The maximum level of indirect SQL cascading. For more information see item 41 on page 334.

UPDATE/COMMIT

The sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements executed. For more information see item 11 on page 328.

SYNCH I/O AVG.

The synchronous I/O suspension time per event. For more information see item 21 on page 315.

SQL DML Activity

```
SQL DML    AVERAGE     TOTAL
--------   --------   --------
SELECT       2.00          2
INSERT       0.00          0
UPDATE       0.00          0
DELETE       0.00          0

DESCRIBE     0.00          0
DESC.TBL     0.00          0
PREPARE      1.00          1
OPEN         0.00          0
FETCH        0.00          0
CLOSE        0.00          0


DML-ALL      3.00          3
```

Figure 136. Accounting Long Report - SQL DML

```
SQL DML        TOTAL
--------     --------
SELECT              2
INSERT              0
UPDATE              0
DELETE              0

DESCRIBE            0
DESC.TBL            0
PREPARE             1
OPEN                0
FETCH               0
CLOSE               0


DML-ALL             3
```

Figure 137. Accounting Long Trace - SQL DML

SQL DML Activity Fields

SELECT
> The number of SQL SELECT statements executed. For more information see item 1 on page 327.

INSERT
> The number of SQL INSERT statements executed. For more information see item 2 on page 327.

UPDATE
> The number of SQL UPDATE statements executed. For more information see item 3 on page 327.

DELETE
> The number of SQL DELETE statements executed. For more information see item 4 on page 327.

DESCRIBE
> The total number of SQL DESCRIBE statements executed. For more information see item 5 on page 327.

DESC.TBL
> The number of SQL DESCRIBE TABLE statements executed. For more information see item 42 on page 329.

PREPARE
> The number of SQL PREPARE statements executed. For more information see item 6 on page 327.

OPEN The number of SQL OPEN statements executed. For more information see item 7 on page 327.

FETCH
> The number of SQL FETCH statements executed. For more information see item 8 on page 327.

CLOSE
> The number of SQL CLOSE statements executed. For more information see item 9 on page 328.

Accounting Report and Trace Blocks

DML-ALL

The total number of SQL DML statements executed. For more information see item 10 on page 328.

SQL DCL Activity

```
SQL DCL          TOTAL
--------------   --------
LOCK TABLE          0
GRANT               0
REVOKE              0
SET CURR.SQLID      1
SET HOST VAR.       0
SET CUR.DEGREE      0
SET RULES           0
SET CURR.PATH       2
CONNECT TYPE 1      1
CONNECT TYPE 2      0
SET CONNECTION      0
RELEASE             0
CALL                0
ASSOC LOCATORS      0
HOLD LOCATOR        0
FREE LOCATOR        0
ALLOC CURSOR        0
DCL-ALL             2
```

Figure 138. Accounting Long Report and Trace - SQL DCL

SQL DCL Activity Fields

LOCK TABLE

The number of SQL LOCK TABLE statements executed. For more information see item 13 on page 328.

GRANT

The number of SQL GRANT statements executed. For more information see item 14 on page 328.

REVOKE

The number of SQL REVOKE statements executed. For more information see item 15 on page 328.

SET CURR.SQLID

The number of SQL SET CURRENT SQLID statements executed. For more information see item 41 on page 329.

SET HOST VAR.

The total number of SQL SET HOST VARIABLE statements executed. For more information see item 43 on page 329.

SET CUR.DEGREE

The number of SET CURRENT DEGREE statements executed. For more information see item 44 on page 329.

SET RULES

The number of SET CURRENT RULES statements executed. For more information see item 36 on page 329.

SET CURRENT PATH

The number of SET CURRENT PATH statements executed. For more information see item 83 on page 330.

CONNECT TYPE 1

The number of SQL CONNECT type 1 statements executed. For more information see item 45 on page 329.

CONNECT TYPE 2

The number of SQL CONNECT type 2 statements executed. For more information see item 46 on page 329.

SET CONNECTION

The number of SET CONNECTION statements executed. For more information see item 48 on page 329.

RELEASE

The number of SQL RELEASE statements executed. For more information see item 47 on page 329.

CALL The number of SQL CALL statements executed. For more information see item 37 on page 334.

ASSOC LOCATORS

The number of SQL ASSOCIATE LOCATORS statements executed. For more information see item 59 on page 330.

HOLD LOCATOR

The number of HOLD LOCATOR statements executed. For more information see item 81 on page 330.

FREE LOCATOR

The number of FREE LOCATOR statements executed. For more information see item 82 on page 330.

ALLOC CURSOR

The number of SQL ALLOCATE CURSOR statements executed. For more information see item 60 on page 330.

DCL-ALL

The total number of DCL statements executed. For more information see item 16 on page 328.

SQL DDL Activity

```
SQL DDL      CREATE    DROP    ALTER
----------   ------   ------   ------
TABLE            0        0        0
TEMP TABLE       0       N/A      N/A
AUX TABLE        0       N/A      N/A
INDEX            0        0        0
TABLESPACE       0        0        0
DATABASE         0        0        0
STOGROUP         0        0        0
SYNONYM          0        0       N/A
VIEW             0        0       N/A
ALIAS            0        0       N/A
PACKAGE         N/A       0       N/A
PROCEDURE        0        0       N/A
FUNCTION         0        0       N/A
TRIGGER          0        0       N/A
DIST TYPE        0        0       N/A

TOTAL            0        0        0
RENAME TBL       0
COMMENT ON       0
LABEL ON         0
```

Figure 139. Accounting Long Report and Trace - SQL DDL

SQL DDL Activity Fields

TABLE

The number of SQL CREATE TABLE statements executed. For more information see item 51 on page 329.

The number of SQL DROP TABLE statements executed. For more information see item 52 on page 329.

The number of SQL ALTER TABLE statements executed. For more information see item 53 on page 329.

TEMP TABLE

The number of SQL CREATE GLOBAL TEMPORARY TABLE statements executed. For more information see item 58 on page 330.

CREATE AUXILIARY TABLE

The number of CREATE AUXILIARY TABLE statements executed. For more information see item 78 on page 330.

INDEX

The number of SQL CREATE INDEX statements executed. For more information see item 57 on page 330.

The number of SQL DROP INDEX statements executed. For more information see item 17 on page 328.

The number of SQL ALTER INDEX statements executed. For more information see item 18 on page 328.

TABLESPACE

The number of SQL CREATE TABLESPACE statements executed. For more information see item 54 on page 330.

The number of SQL DROP TABLESPACE statements executed. For more information see item 55 on page 330.

The number of SQL ALTER TABLESPACE statements executed. For more information see item 56 on page 330.

DATABASE

The number of SQL CREATE DATABASE statements executed. For more information see item 22 on page 328.

The number of SQL DROP DATABASE statements executed. For more information see item 23 on page 328.

The number of SQL ALTER DATABASE statements executed. For more information see item 24 on page 328.

STOGROUP

The number of SQL CREATE STOGROUP statements executed. For more information see item 19 on page 328.

The number of SQL DROP STOGROUP statements executed. For more information see item 20 on page 328.

The number of SQL ALTER STOGROUP statements executed. For more information see item 21 on page 328.

SYNONYM

The number of SQL CREATE SYNONYM statements executed. For more information see item 25 on page 328.

The number of SQL DROP SYNONYM statements executed. For more information see item 26 on page 328.

VIEW   The number of SQL CREATE VIEW statements executed. For more information see item 27 on page 328.

The number of SQL DROP VIEW statements executed. For more information see item 28 on page 328.

ALIAS   The number of SQL CREATE ALIAS statements executed. For more information see item 29 on page 328.

The number of SQL DROP ALIAS statements executed. For more information see item 30 on page 328.

PACKAGE

The number of SQL DROP PACKAGE statements executed. For more information see item 31 on page 329.

CREATE FUNCTION

The number of CREATE FUNCTION statements executed. For more information see item 79 on page 330.

The number of DROP FUNCTION statements executed. For more information see item 80 on page 330.

CREATE TRIGGER

The number of CREATE TRIGGER statements executed. For more information see item 77 on page 330.

The number of DROP TRIGGER statements executed. For more information see item 76 on page 330.

CREATE DISTINCT TYPE

The number of CREATE DISTINCT TYPE statements executed. For more information see item 84 on page 330.

The number of DROP DISTINCT TYPE statements executed. For more information see item 85 on page 330.

TOTAL
The number of SQL CREATE statements executed. For more information see item 32 on page 329.

The number of SQL DROP statements executed. For more information see item 33 on page 329.

The number of SQL ALTER statements executed. For more information see item 34 on page 329.

RENAME TBL
The number of SQL RENAME TABLE statements executed. For more information see item 61 on page 330.

COMMENT ON
The number of SQL COMMENT ON statements executed. For more information see item 49 on page 329.

LABEL ON
The number of SQL LABEL ON statements executed. For more information see item 50 on page 329.

Locking Activity

```
LOCKING         AVERAGE     TOTAL
--------------  --------  --------
TIMEOUTS           0.00         0
DEADLOCKS          0.00         0
ESCAL.(SHARED)     0.00         0
ESCAL.(EXCLUS)     0.00         0
MAX LOCKS HELD     1.00         1
LOCK REQUEST      42.00        42
UNLOCK REQUEST    35.00        35
QUERY REQUEST      0.00         0
CHANGE REQUEST     4.00         4
OTHER REQUEST      0.00         0
LOCK SUSPENS.      0.00         0
LATCH SUSPENS.     0.00         0
OTHER SUSPENS.     0.00         0
TOTAL SUSPENS.     0.00         0
```

Figure 140. Accounting Long Report - Locking Activity

```
LOCKING         TOTAL
------------  --------
TIMEOUTS            0
DEADLOCKS           0
ESCAL.(SHAR)        0
ESCAL.(EXCL)        0
MAX.LCK HELD        1
LOCK REQUEST       42
UNLOCK REQST       35
QUERY REQST         0
CHANGE REQST        4
OTHER REQST         0
LOCK SUSP.          0
LATCH SUSP.         0
OTHER SUSP.         0
TOTAL SUSP.         0
```

Figure 141. Accounting Long Trace - Locking Activity

Locking Activity Fields

TIMEOUTS
> The number of timeouts. For more information see item 1 on page 335.

DEADLOCKS
> The number of deadlocks. For more information see item 2 on page 335.

ESCAL.(SHARED)
> The number of lock escalations to shared mode. For more information see item 10 on page 336.

ESCAL.(EXCLUS)
> The number of lock escalations to exclusive mode. For more information see item 11 on page 336.

MAX LOCKS HELD
> The maximum page or row locks held (high-water mark). For more information see item 13 on page 336.

LOCK REQUEST
> The number of lock requests. For more information see item 7 on page 335.

UNLOCK REQUEST
> The number of unlock requests. For more information see item 8 on page 335.

QUERY REQUEST
> The number of query requests. For more information see item 19 on page 336.

CHANGE REQUEST
> The number of change requests. For more information see item 9 on page 335.

OTHER REQUEST
> The number of other IRLM requests. For more information see item 20 on page 336.

Accounting Report and Trace Blocks

LOCK SUSPENS.
The number of lock suspensions. For more information see item 5 on page 335.

LATCH SUSPENS.
The number of latch suspensions. For more information see item 6 on page 335.

OTHER SUSPENS.
The number of other suspensions. For more information see item 18 on page 336.

TOTAL SUSPENS.
The number of suspensions. For more information see item 4 on page 335.

Application Termination

```
NORMAL TERM.      AVERAGE    TOTAL    ABNORMAL TERM.      TOTAL    IN DOUBT          TOTAL
---------------   -------   -------   -----------------  -------   --------------   -------
NEW USER           0.00        0      APPL.PROGR. ABEND     0      APPL.PGM ABEND      0
DEALLOCATION       1.00        1      END OF MEMORY         0      END OF MEMORY       0
APPL.PROGR. END    0.00        0      RESOL.IN DOUBT        0      END OF TASK         0
RESIGNON           0.00        0      CANCEL FORCE          0      CANCEL FORCE        0
DBAT INACTIVE      0.00        0
RRS COMMIT         0.00        0
```

Figure 142. Accounting Long Report - Application Termination

Application Termination Fields

- Normal application termination
- Abnormal application termination
- Indoubt application termination

Normal Application Termination

NEW USER
The number of normal terminations due to a new user. For more information see item 32 on page 303.

DEALLOCATION
The number of normal terminations due to deallocation. For more information see item 33 on page 303.

APPL.PROGR. END
The number of normal terminations due to an application program end. For more information see item 34 on page 303.

RESIGNON
The number of normal terminations due to a resignon. For more information see item 35 on page 303.

DBAT INACTIVE
The number of normal terminations due to a DBAT becoming inactive. For more information see item 36 on page 303.

RRS COMMIT
The number of times a DB2 application, using the RRS attach facility with accounting interval specified as COMMIT, completed successfully. For more information see item 78 on page 309.

Abnormal Application Termination Fields

APPL.PROGR. ABEND

> The number of abnormal terminations due to an application program abend. For more information see item 38 on page 304.

END OF MEMORY

> The number of abnormal terminations due to an end of memory. For more information see item 39 on page 304.

RESOL.IN DOUBT

> The number of abnormal terminations due to a resolve indoubt. For more information see item 40 on page 304.

CANCEL FORCE

> The number of abnormal terminations due to a stop force. For more information see item 41 on page 304.

Indoubt Application Termination Fields

APPL.PGM ABEND

> The number of work units indoubt due to an application program abend. For more information see item 43 on page 305.

END OF MEMORY

> The number of work units indoubt due to an end of memory. For more information see item 44 on page 305.

END OF TASK

> The number of work units indoubt due to an end of task. For more information see item 45 on page 305.

CANCEL FORCE

> The number of work units indoubt due to a stop force. For more information see item 46 on page 305.

Drain and Claim Activity

```
DRAIN/CLAIM     AVERAGE     TOTAL
--------------  --------  --------
DRAIN REQUESTS     0.00         0
DRAIN FAILED       0.00         0
CLAIM REQUESTS    15.00        15
CLAIM FAILED       0.00         0
```

Figure 143. Accounting Long Report - Drain/Claim Activity

```
DRAIN/CLAIM     TOTAL
------------  --------
DRAIN REQST          0
DRAIN FAILED         0
CLAIM REQST         15
CLAIM FAILED         0
```

Figure 144. Accounting Long Trace - Drain/Claim Activity

Drain and Claim Activity Fields

DRAIN REQUESTS

    The number of drain requests. For more information see item 16 on page 336.

DRAIN FAILED

    The number of unsuccessful drain requests. For more information see item 17 on page 336.

CLAIM REQUESTS

    The number of claim requests. For more information see item 14 on page 336.

CLAIM FAILED

    The number of unsuccessful claim requests. For more information see item 15 on page 336.

Data Capture

```
DATA CAPTURE        AVERAGE      TOTAL
-----------------   --------   --------
IFI CALLS MADE        N/P         N/P
RECORDS CAPTURED      N/P         N/P
LOG RECORDS READ      N/P         N/P
ROWS RETURNED         N/P         N/P
RECORDS RETURNED      N/P         N/P
DATA DESC. RETURN     N/P         N/P
TABLES RETURNED       N/P         N/P
DESCRIBES             N/P         N/P
```

Figure 145. Accounting Long Report - Data Capture

```
DATA CAPTURE     TOTAL
------------   --------
IFI CALLS        N/P
REC.CAPTURED     N/P
LOG REC.READ     N/P
ROWS RETURN      N/P
RECORDS RET.     N/P
DATA DES.RET     N/P
TABLES RET.      N/P
DESCRIBES        N/P
```

Figure 146. Accounting Long Trace - Data Capture

Data Capture Fields

IFI CALLS MADE

    The total number of IFI calls. For more information see item 5 on page 339.

RECORDS CAPTURED

    The number of log records captured for which data capture processing was invoked. For more information see item 9 on page 339.

LOG RECORDS READ

    The number of data capture log reads performed. For more information see item 8 on page 339.

ROWS RETURNED

The total number of data rows returned in IFCID 185. Two rows are returned for each row altered by an SQL UPDATE statement. For more information see item 6 on page 339.

RECORDS RETURNED

The number of log records returned. For more information see item 10 on page 339.

DATA DESC. RETURN

The number of data descriptions returned in IFCID 185. For more information see item 11 on page 339.

TABLES RETURNED

The number of tables returned in IFCID 185. For more information see item 13 on page 340.

DESCRIBES

The number of data capture describes. For more information see item 12 on page 340.

Data Sharing Locking

```
DATA SHARING           AVERAGE     TOTAL
-------------------   --------   --------
GLOBAL CONT RATE(%)      0.00       N/A
FALSE CONT RATE(%)       0.00       N/A
LOCK REQ   - PLOCKS      6.00         6
UNLOCK REQ - PLOCKS      0.00         0
CHANGE REQ - PLOCKS      0.00         0
LOCK REQ   - XES        22.00        22
UNLOCK REQ - XES        12.00        12
CHANGE REQ - XES         0.00         0
SUSPENDS   - IRLM        0.00         0
SUSPENDS   - XES         0.00         0
SUSPENDS   - FALSE       0.00         0
INCOMPATIBLE LOCKS       0.00         0
NOTIFY MSGS SENT         0.00         0
```

Figure 147. Accounting Long Report - Data Sharing Locking

```
DATA SHARING     TOTAL
------------   --------
GLB CONT (%)        0
FLS CONT (%)        0
LOCK REQUEST        6
UNLOCK REQST        0
CHANGE REQST        0
LOCK - XES         22
UNLOCK-XES         12
CHANGE-XES          0
SUSP - IRLM         0
SUSP - XES          0
SUSP - FALSE        0
INCOMP.LOCK         0
NOTIFY SENT         0
```

Figure 148. Accounting Long Trace - Data Sharing Locking

Data Sharing Locking Fields

GLOBAL CONT RATE(%)
> The global contention rate. For more information see item 16 on page 338.

FALSE CONT RATE(%)
> The false contention rate. For more information see item 17 on page 338.

LOCK REQ - PLOCKS
> The number of lock requests for P-locks. For more information see item 1 on page 337.

UNLOCK REQ - PLOCKS
> The number of unlock requests for P-locks. For more information see item 2 on page 337.

CHANGE REQ - PLOCKS
> The number of change requests for P-locks. For more information see item 3 on page 337.

LOCK REQ - XES
> The number of lock requests propagated to MVS XES. For more information see item 4 on page 337.

UNLOCK REQ - XES
> The number of unlock requests propagated to MVS XES. For more information see item 5 on page 337.

CHANGE REQ - XES
> The number of change requests propagated to MVS XES. For more information see item 6 on page 337.

SUSPENDS - IRLM
> The number of suspensions due to IRLM global resource contention. For more information see item 7 on page 337.

SUSPENDS - XES
> The number of suspensions due to MVS XES global resource contention. For more information see item 8 on page 337.

SUSPENDS - FALSE
> The number of suspensions due to false contention. For more information see item 9 on page 337.

INCOMPATIBLE LOCKS
> The number of global lock or change requests denied or suspended due to an incompatible retained lock. For more information see item 10 on page 337.

NOTIFY MSGS SENT
> The number of notify messages sent. For more information see item 11 on page 337.

Query Parallelism

```
QUERY PARALLELISM            AVERAGE    TOTAL
--------------------------   --------  --------
MAXIMUM MEMBERS USED            N/A        0
MAXIMUM DEGREE                  N/A        0
GROUPS EXECUTED                0.00        0
 RAN AS PLANNED                0.00        0
 RAN REDUCED                   0.00        0
 ONE DB2-COORDINATOR = NO      0.00        0
 ONE DB2-ISOLATION LEVEL       0.00        0
 SEQUENTIAL-CURSOR             0.00        0
 SEQUENTIAL-NO ESA SORT        0.00        0
 SEQUENTIAL-NO BUFFER          0.00        0
 SEQUENTIAL-ENCLAVE SERVICES   0.00        0
MEMBER SKIPPED (%)              N/C       N/A
DISABLED BY RLF                0.00        0
REFORM PARAL-CONFIG            0.00        0
REFORM PARAL-NO BUF            0.00        0
```

Figure 149. Accounting Long Report - Query Parallelism

```
QUERY PARALLEL.      TOTAL
---------------    --------
MAXIMUM MEMBERS        2
MAXIMUM DEGREE         0
GROUPS EXECUTED        0
 RAN AS PLANNED        0
 RAN REDUCED           0
 ONE DB2 COOR=N        0
 ONE DB2 ISOLAT        0
 SEQ - CURSOR          0
 SEQ - NO ESA          0
 SEQ - NO BUF          0
 SEQ - ENCL.SER        0
MEMB SKIPPED(%)        0
DISABLED BY RLF   NO
REFORM PAR-CONF        0
REFORM PAR-BUF         0
```

Figure 150. Accounting Long Trace - Query Parallelism

Query Parallelism Fields

MAXIMUM MEMBERS USED

The maximum number of DB2 members that participated in the processing of a query. For more information see item 19 on page 334.

MAXIMUM DEGREE

The maximum degree of parallel processing executed among all the parallel groups to indicate the extent to which queries were processed in parallel. For more information see item 1 on page 332.

GROUPS EXECUTED

The total number of parallel groups executed. For more information see item 2 on page 332.

RAN AS PLANNED

The total number of parallel groups that executed to the desired degree of parallel processing. For more information see item 8 on page 332.

RAN REDUCED

The total number of parallel groups that executed in reduced parallel degree due to a shortage of space or contention on the buffer pool. For more information see item 7 on page 332.

ONE DB2-COORDINATOR = NO

The total number of parallel groups executed on a single DB2 due to the COORDINATOR subsystem value being set to NO. For more information see item 16 on page 333.

ONE DB2-ISOLATION LEVEL

The total number of parallel groups executed on a single DB2 due to repeatable-read or read-stability isolation. For more information see item 17 on page 334.

SEQUENTIAL-CURSOR

The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE. For more information see item 3 on page 332.

SEQUENTIAL-NO ESA SORT

The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort support. For more information see item 4 on page 332.

SEQUENTIAL-NO BUFFER

The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool. For more information see item 5 on page 332.

SEQUENTIAL-ENCLAVE SERVICES

The total number of parallel groups that executed in sequential mode due to MVS/ESA enclave services being unavailable. For more information see item 9 on page 332.

MEMBER SKIPPED (%)

The percentage of parallel groups not distributed over the data sharing group, as originally planned at bind time. Valid for Sysplex query parallelism only. For more information see item 18 on page 334.

DISABLED BY RLF

The number of threads where at least one dynamic SQL statement was disabled by the Resource Limit Facility (RLF). For more information see item 14 on page 333.

REFORM PARAL-CONFIG CHANGED

The total numer of parallel groups in which DB2 reformulated the parallel portion of the access path. For more information see item 20 on page 334.

REFORM PARAL-NO BUFFER

The number of parallel groups whose parallel portion of the access path was reformulated due to insufficient buffer pool resources. For more information see item 21 on page 334.

Stored Procedures

```
STORED PROCEDURES   AVERAGE    TOTAL
-----------------   --------   --------
CALL STATEMENTS        0.00          0
ABENDED                0.00          0
TIMED OUT              0.00          0
REJECTED               0.00          0
```

Figure 151. Accounting Long Report - Stored Procedures

```
STORED PROC.    TOTAL
------------   --------
CALL STMTS            0
PROC. ABENDS          0
CALL TIMEOUT          0
CALL REJECT           0
```

Figure 152. Accounting Long Trace - Stored Procedures

Stored Procedures Fields

CALL STATEMENTS
> The number of SQL CALL statements executed. For more information see item 37 on page 334.

ABENDED
> The number of times a stored procedure terminated abnormally. For more information see item 38 on page 329.

TIMED OUT
> The number of times an SQL CALL statement timed out waiting to be scheduled. For more information see item 39 on page 329.

REJECTED
> The number of times an SQL CALL statement was rejected. For more information see item 40 on page 329.

UDF

```
UDF               AVERAGE    TOTAL
-----------------   --------   --------
EXECUTED             0.00          0
ABENDED              0.00          0
TIMED OUT            0.00          0
REJECTED             0.00          0
```

Figure 153. Accounting Long Report - UDF

UDF Fields

EXECUTED
> The number of user-defined functions executed.

ABENDED

The number of times a user-defined function terminated abnormally.

TIMED OUT

The number of times a user-defined function timed out waiting to be scheduled.

REJECTED

The number of times a user-defined function was rejected.

RID List Activity

```
RID LIST             AVERAGE    TOTAL
------------------   --------   --------
USED                    0.00          0
FAIL-NO STORAGE         0.00          0
FAIL-LIMIT EXCEEDED     0.00          0
```

Figure 154. Accounting Long Report - Rid List Activity

```
RID LIST           TOTAL
---------------   --------
USED                     0
FAIL-NO STORAGE          0
FAIL-LIMIT EXC.          0
```

Figure 155. Accounting Long Trace - Rid List Activity

RID List Activity Fields

USED The number of times RID list processing was used. For more information see item 1 on page 331.

FAIL-NO STORAGE

The number of times RID list processing was terminated due to insufficient storage. For more information see item 2 on page 331.

FAILED-LIMIT EXCEEDED

The number of times RID list processing was not used due to one or more internal limits being exceeded. For more information see item 3 on page 331.

Average Service Units

```
AVERAGE SU          CLASS 1         CLASS 2
------------      --------------   --------------
CPU                   112.00          102.00
 TCB                  112.00          102.00
 TCB-STPROC             0.00            0.00
 TCB-TRIGGER            0.00            0.00
 PAR.TASKS              0.00            0.00
                                        0.00
```

Figure 156. Accounting Long Report - Average Service Units

```
SERVICE UNITS       CLASS 1         CLASS 2
------------      --------------   --------------
CPU                     112             102
 TCB                    112             102
 TCB-STPROC               0               0
 TCB-TRIGGER             0               0
 PAR.TASKS               0               0
```

Figure 157. Accounting Long Trace - Average Service Units

Average Service Units Fields

CPU The class 1 CPU service units (in an application). For more information see item 77 on page 322.

> **TCB** The class 1 TCB service units (in an application). For more information see item 79 on page 323.
>
> **TCB-STPROC**
> The TCB service units accumulated in an application for stored procedures. For more information see item 81 on page 323.
>
> **PAR.TASKS**
> The CPU service units accumulated in an application for processing parallel tasks. For more information see item 83 on page 323.

CPU The class 2 CPU service units (in DB2). For more information see item 78 on page 323.

> **TCB** The class 2 TCB service units (in DB2). For more information see item 80 on page 323.
>
> **TCB-STPROC**
> The TCB service units accumulated in DB2 for stored procedures. For more information see item 82 on page 323.
>
> **TCB-TRIGGER**
> The number of TCB service units accumulated in DB2 used while executing under control of a trigger. For more information see item 15 on page 340.
>
> **PAR.TASKS**
> The CPU service units accumulated in DB2 for processing parallel tasks. For more information see item 84 on page 323.

Triggers

```
TRIGGERS           AVERAGE    TOTAL
-----------------  --------  --------
STATEMENT TRIGGER    15.00        60
ROW TRIGGER           8.00        24
SQL ERROR OCCURR      0.00         0
```

Figure 158. Accounting Long Report - Triggers

```
TRIGGERS        TOTAL
------------  --------
STMT TRIGGER         0
ROW TRIGGER          0
SQL ERROR            0
```

Figure 159. Accounting Long Trace - Triggers

STATEMENT TRIGGER ACTIVATED
> The number of times a statement trigger was activated.

ROW TRIGGERS ACTIVATED
> The number of times a row trigger was activated.

SQL ERROR OCCURRED
> The number of times an SQL error occured during the execution of a triggered action.

Logging Activity

```
LOGGING            AVERAGE    TOTAL
-----------------  --------  --------
LOG RECORDS WRITTEN   0.00         0
TOT BYTES WRITTEN     0.00         0
```

Figure 160. Accounting Long Report - Logging Activity

```
LOGGING           TOTAL
----------------  --------
LOG RECS WRITTEN         0
TOT BYTES WRITTEN        0
```

Figure 161. Accounting Long Trace - Logging Activity

Miscellaneous Fields

MAX STOR LOB VALUES
> Maximum storage used for LOB values. For more information see item 47 on page 335.

LOG RECORDS WRITTEN
> The number of log records written. For more information see item 45 on page 335.

TOT BYTES WRITTEN

The total number of log record bytes written. For more information see item 46 on page 335.

ROWID

```
ROWID          AVERAGE    TOTA
-------------  --------   --------
DIRECT ACCESS    0.00          0
INDEX USED       0.00          0
TS SCAN USED     0.00          0
```

Figure 162. Accounting Long Report - ROWID

```
ROWID        TOTAL
----------   --------
DIR ACCESS        0
INDEX USED        0
TS SCAN           0
```

Figure 163. Accounting Long Trace - ROWID

DIRECT ACCESS

The number of times that direct row access was successful.

INDEX USED

The number of times an index was used to find a record.

TABLE SPACE SCAN USED

The number of times a table or table space scan was used to find a record.

Optimization

```
OPTIMIZATION        AVERAGE    TOTAL
------------------  --------   --------
REOPTIMIZATION        0.00          0
PREP_STMT_MATCH       0.00          0
PREP_STMT_NO_MATCH    0.00          0
IMPLICIT_PREPARES     0.00          0
PREP_FROM_CACHE       0.00          0
CACHE_LIMIT_EXCEED    0.00          0
PREP_STMT_PURGED      0.00          0
```

Figure 164. Accounting Long Report - Optimization

Accounting Report and Trace Blocks

```
OPTIMIZATION             TOTAL
------------------     --------
REOPTIMIZATION              0
PREP_STMT_MATCH            0
PREP_STMT_NO_MATCH        0
IMPLICIT_PREPARES         0
PREP_FROM_CACHE           0
CACHE_LIMIT_EXCEED        0
PREP_STMT_PURGED          0
```

Figure 165. Accounting Long Trace - Optimization

REOPTIMIZATION
>   The number of times reoptimization has occurred.

PREP_STMT_MATCH
>   The number of times DB2 made a copy of a prepared statement from the cache.

PREP_STMT_NO_MATCH
>   The number of times a prepared statement was not found in the cache.

IMPLICIT_PREPARES
>   The number of times an implicit statement prepare was performed.

PREP_FROM_CACHE
>   The number of times a statement prepare was avoided.

CACHE_LIMIT_EXCEED
>   The number of times a dynamic cached statement was discarded because the number of prepared statements in the cache exceeded the MAXKEEPD value.

PREP_STMT_PURGED
>   The number of times a dynamic cached statement was purged from the cache because a program executed a drop, alter, or revoke statement.

Miscellaneous

MAX STOR LOB VALUES
>   Maximum storage used for LOB values.

LOG RECORDS WRITTEN
>   The number of log records written.

TOT BYTES WRITTEN
>   The total number of log record bytes written.

Buffer Pool Activity

```
BP16K0                   AVERAGE     TOTAL
--------------------     --------  --------
BPOOL HIT RATIO (%)        64.15       N/A
GETPAGES                   53.00        53
BUFFER UPDATES              0.00         0
SYNCHRONOUS WRITE          0.00         0
SYNCHRONOUS READ          19.00        19
SEQ. PREFETCH REQS         0.00         0
LIST PREFETCH REQS         0.00         0
DYN. PREFETCH REQS         0.00         0
PAGES READ ASYNCHR.        0.00         0
HPOOL WRITES               0.00         0
HPOOL WRITES-FAILED        0.00         0
PAGES READ ASYN-HPOOL      0.00         0
HPOOL READS                0.00         0
HPOOL READS-FAILED         0.00         0
```

Figure 166. Accounting Long Report - Buffer Pool Activity

```
BP16K0                    TOTAL
--------------------   --------
BPOOL HIT RATIO (%)          64
GETPAGES                     53
BUFFER UPDATES                0
SYNCHRONOUS WRITE            0
SYNCHRONOUS READ            19
SEQ. PREFETCH REQS           0
LIST PREFETCH REQS           0
DYN. PREFETCH REQS           0
PAGES READ ASYNCHR.          0
HPOOL WRITES                 0
HPOOL WRITES-FAILED          0
PAGES READ ASYN-HPOOL        0
HPOOL READS                  0
HPOOL READS-FAILED           0
```

Figure 167. Accounting Long Trace - Bufferpool Activity

BPOOL HIT RATIO (%)
The buffer pool hit ratio.

GETPAGES
The number of GETPAGE requests.

BUFFER UPDATES
The number of buffer updates.

SYNCHRONOUS WRITE
The number of synchronous write I/O operations.

SYNCHRONOUS READ
The number of synchronous read I/O operations.

SEQ. PREFETCH REQS
The number of SEQUENTIAL PREFETCH requests.

LIST PREFETCH REQS
The number of LIST PREFETCH requests.

DYN. PREFETCH REQS

The number of dynamic PREFETCH requests.

PAGES READ ASYNCHR.

The number of asynchronous pages read by prefetch that the agent triggered.

HPOOL WRITES

The number of successful hiperpool writes.

HPOOL WRITES-FAILED

The number of unsuccessful hiperpool writes.

PAGES READ ASYN-HPOOL

The number of pages read asynchronously from hiperpool.

HPOOL READS

The number of successful hiperpool reads.

HPOOL READS-FAILED

The number of unsuccessful hiperpool reads.

Group Buffer Pool Activity

```
GROUP BP8K0            AVERAGE     TOTAL
-------------------   --------   --------
READ(XI)-DATA RETUR      0.00          0
READ(XI)-NO DATA RT      0.00          0
READ(NF)-DATA RETUR      0.00          0
READ(NF)-NO DATA RT      0.09          1
PREFETCH PAGES READ      0.00          0
CLEAN PAGES WRITTEN      0.00          0
CHANGED PAGES WRTN      11.09        122
UNREGISTER PAGE          0.00          0
EXPLICIT X-INVALID       0.00          0
WRITE TO SEC-GBP         0.00          0
```

Figure 168. Accounting Long Report - Group Buffer Pool Activity

```
GROUP BP8K0              TOTAL
-------------------   --------
READ(XI)-DATA RETUR          0
READ(XI)-NO DATA RT          0
READ(NF)-DATA RETUR          0
READ(NF)-NO DATA RT          0
PREFETCH PAGES READ          0
CLEAN PAGES WRITTEN          0
CHANGED PAGES WRTN           6
UNREGISTER PAGE              0
EXPLICIT X-INVALID           0
WRITE TO SEC-GBP             0
```

Figure 169. Accounting Long Trace - Group Buffer Pool Activity

Group Buffer Pool Activity Fields

READ(XI)-DATA RETUR

The number of coupling facility read requests required because the buffer was marked *invalid*. Data is returned from group buffer pool. For more information see item 1 on page 343.

READ(XI)-NO DATA RT

The number of synchronous coupling facility read requests for a buffer marked invalid. Data is not returned from the group buffer pool. For more information see item 9 on page 344.

READ(NF)-DATA RETUR

The number of coupling facility read requests necessary because the requested page was not found in the buffer pool. Data returned from GBP. For more information see item 2 on page 344.

READ(NF)-NO DATA RT

The number of synchronous coupling facility read requests. For more information see item 8 on page 344.

PREFETCH PAGES READ

The number of pages read from the group buffer pool. For more information see item 3 on page 344.

CLEAN PAGES WRITTEN

The number of clean pages written to the group buffer pool. For more information see item 4 on page 344.

CHANGED PAGES WRTN

The number of changed pages written to the group buffer pool. For more information see item 5 on page 344.

UNREGISTER PAGE

The number of coupling facility requests to unregister a page. For more information see item 7 on page 344.

EXPLICIT CROSS-INVALIDATIONS

The number of explicit cross invalidations. For more information see item 10 on page 344.

WRITE TO SEC-GBP

The number of requests to write changed pages to the secondary GBP for duplexing. For more information see item 12 on page 344.

Distributed Activity

```
---- DISTRIBUTED ACTIVITY ---------------------------------------------------------------------------------------------
SERVER          : J93DB22      CONVERSATIONS INITIATED:    0   TRANSACT.SENT:       0   MESSAGES SENT   :       13
PRODUCT ID      : DB2 6.1.0    #CONVERSATIONS QUEUED  :    0   #COMMT(1)SENT:       0   MESSAGES RECEIVED:      12
METHOD          : DB2 PRIVATE  SUCCESSFULLY ALLOC.CONV:    0   #ROLLB(1)SENT:       0   BYTES SENT      :     5825
REQUESTER ELAP.TIME:    34.365053  CONVERSATION TERMINATED:   0   SQL SENT     :      11   BYTES RECEIVED  :     6347
SERVER ELAPSED TIME:    25.641635  MAX OPEN CONVERSATIONS :    0   ROWS RECEIVED:       2   BLOCKS RECEIVED :        0
SERVER CPU TIME    :     0.265718  #CONT->LIM.BL.FTCH SWCH:    0   MSG.IN BUFFER:       0   STMT BOUND AT SER:       5
#DDF ACCESSES      :        1
#COMMIT(2) SENT    :        1   #COMMIT(2) RESP.RECV. :    1   #PREPARE SENT:       1   #FORGET RECEIVED :       0
#BACKOUT(2) SENT   :        0   #BACKOUT(2) RESP.RECV. :    0   #LASTAGN.SENT:       0
2
```

Figure 170. Accounting Long Report - Distributed Activity

Accounting Report and Trace Blocks

```
---- DISTRIBUTED ACTIVITY --------------------------------------------------------------------------
SERVER              : STL715B      SUCCESSFULLY ALLOC.CONV:    N/A   MSG.IN BUFFER    :       0
PRODUCT ID          : DB2          CONVERSATION TERMINATED:    N/A
PRODUCT VERSION     : V6 R1 M1     MAX OPEN CONVERSATIONS :    N/A   PREPARE SENT     :       1
METHOD              : DRDA         CONT->LIM.BL.FTCH SWTCH:    N/A   LAST AGN.SENT    :       0
REQUESTER ELAP.TIME :    25.510630                                  MESSAGES SENT    :      13
SERVER ELAPSED TIME :          N/A COMMIT(2) RESP.RECEIVED:      1   MESSAGES RECEIVED:      23
SERVER CPU TIME     :          N/A BACKOUT(2) RESP.RECV.  :      0   BYTES SENT       :    1495
DBAT WAITING TIME   :          N/A TRANSACT.SENT          :      1   BYTES RECEIVED   :    1796
COMMIT(2) SENT      :            1 COMMT(1)SENT           :      0   BLOCKS RECEIVED  :       0
BACKOUT(2) SENT     :            0 ROLLB(1)SENT           :      0   STMT BOUND AT SER:     N/A
CONVERSATIONS INITIATED:         1 SQL SENT               :     11
CONVERSATIONS QUEUED   :         0 ROWS RECEIVED          :      3   FORGET RECEIVED  :       0
```

Figure 171. Accounting Long Trace - Distributed Activity

SERVER
> The name of the remote location.

PRODUCT ID
> The product ID and version of the remote location.

METHOD
> The method of access.

REQUESTER ELAP.TIME
> The elapsed time at the requester. This value is an average.

SERVER ELAPSED TIME
> The elapsed time at the server. This value is an average.

SERVER CPU TIME
> The CPU time at the server. This value is an average.

DBAT WAITING TIME

#DDF ACCESSES
> The number of occurrences of the remote location and method pair.

#COMMIT(2) SENT
> The number of commit requests sent to the participant (two-phase commit operations only).

#BACKOUT(2) SENT
> The number of backout requests sent to the participant (two-phase commit operations only).

CONVERSATIONS INITIATED
> The number of conversations initiated by the requester. This value is an average.

#CONVERSATIONS QUEUED
> The number of conversations queued.

SUCCESSFULLY ALLOC.CONV
> The number of successful conversation allocations (system-directed access only). This value is an average.

CONVERSATION TERMINATED
> The number of conversations terminated (system-directed access only). This value is an average.

MAX OPEN CONVERSATIONS
> The maximum number of open conversations.

#CONT->LIM.BL.FTCH SWCH
> The number of times continuous block mode switched to limited block mode (system-directed access only).

#COMMIT(2) RESP.RECV.
> The number of request commit responses received from the participant (two-phase commit operations only).

#BACKOUT(2) RESP.RECV.
> The number of backout responses received from the participant (two-phase commit operations only).

TRANSACT.SENT
> The number of transactions sent by the requester. This value is an average.

#COMMT(1)SENT
> The number of commits sent—single-phase commits.

#ROLLB(1)SENT
> The number of rollbacks sent—single-phase commit.

SQL SENT
> The number of SQL statements sent. This value is an average.

ROWS RECEIVED
> The number of rows received. This value is an average.

MSG.IN BUFFER
> The number of rows transmitted in the DB2 message buffers using block fetch. This value is an average.

#PREPARE SENT
> The number of PREPARE requests sent to the participant (two-phase commit operations only).

#LASTAGN.SENT
> The number of last agent requests sent to the coordinator (two-phase commit operations only).

MESSAGES SENT
> The number of messages sent. This value is an average.

MESSAGES RECEIVED
> The number of messages received. This value is an average.

BYTES SENT
> The number of bytes sent. This value is an average.

BYTES RECEIVED
> The number of bytes received. This value is an average.

BLOCKS RECEIVED
> The number of blocks received by the requester using block fetch. This value is an average.

STMT BOUND AT SER
> The number of SQL statements sent to a system-directed access server for bind. This value is an average.

#FORGET RECEIVED
> The number of forget responses received from the participant (two-phase commit operations only).

REQUESTER
> The name of the remote location.

PRODUCT ID
> The product ID and version of the remote location.

METHOD

The method of access.

CONVERSAT.INITIATED

The number of conversations initiated by the requester. This value is an average.

#COMMIT(2) RECEIVED

The number of commit requests received from the coordinator (two-phase commit operations only).

#BCKOUT(2) RECEIVED

The number of backout requests received from the coordinator (two-phase commit operations only).

#COMMIT(2) PERFORM.

Number of commit operations performed with remote location coordinator (two-phase commit operations only).

TRANSACTIONS RECV.

The number of transactions received by the server. This value is an average.

#COMMIT(1) RECEIVED

The number of commits received—single-phase commits.

#ROLLBK(1) RECEIVED

The number of rollbacks received—single-phase commit.

SQL RECEIVED

The number of SQL statements received. This value is an average.

#COMMIT(2) RES.SENT

The number of request commit responses sent to the coordinator (two-phase commit operations only).

#BACKOUT(2)RES.SENT

The number of backout responses sent to the coordinator (two-phase commit operations only).

#BACKOUT(2)PERFORM.

The number of rollback operations performed with a remote location coordinator (two-phase commit operations only).

MESSAGES SENT

The number of messages sent. This value is an average.

MESSAGES RECEIVED

The number of messages received. This value is an average.

BYTES SENT

The number of bytes sent. This value is an average.

BYTES RECEIVED

The number of bytes received. This value is an average.

#PREPARE RECEIVED

The number of PREPARE requests received from the coordinator (two-phase commit operations only).

#LAST AGENT RECV.

The number of last agent requests received from the initiator (two-phase commit operations only).

#THREADS INDOUBT

Number of threads that went indoubt with remote location as coordinator (two-phase commit operations only).

MSG.IN BUFFER

The number of rows transmitted in the DB2 message buffers using block fetch. This value is an average.

ROWS SENT

The number of rows sent. This value is an average.

BLOCKS SENT

The number of blocks sent to the requester using block fetch. This value is an average.

#DDF ACCESSES

The number of occurrences of the remote location and method pair.

#FORGET SENT

The number of forget responses sent to the coordinator (two-phase commit operations only).

Resource Limit Facility (RLF)

```
RESOURCE LIMIT TYPE          #OCCUR   AVERAGE CPU SECONDS   HIGHEST CPU SECONDS
----------------------------  ------   -------------------   -------------------
INFINITE LIMIT                    1             5.000000              5.000000
```

Figure 172. Accounting Long Report - Resource Limit Facility

```
---- RESOURCE LIMIT FACILITY -----------------------------------------------------------------------------------
TYPE: N/P                         TABLE ID N/P   SERV.UNITS    N/P   CPU SECONDS: 0.000000   MAX CPU SECS:   N/P
```

Figure 173. Accounting Long Trace - Resource Limit Facility

Resource Limit Facility (RLF) Fields

RESOURCE LIMIT TYPE

The resource limit type. For more information see item 6 on page 339.

#OCCUR

The number of RLF occurrences. For more information see item 2 on page 338.

AVERAGE CPU SECONDS

The number of CPU seconds used. For more information see item 4 on page 338.

HIGHEST CPU SECONDS

The highest CPU seconds used. For more information see item 5 on page 338.

Package Identification

```
DGO@YX00            VALUE
------------------  ------------------
TYPE                PACKAGE

LOCATION            SYS1DSN2
COLLECTION ID       PMDEVX
PROGRAM NAME        DGO@YX00

OCCURRENCES                        1
SQL STMT - AVERAGE              3.00
SQL STMT - TOTAL                  3
USED BY STOR.PROC                 0
SUCC AUTH CHECK                   0
```

Figure 174. Accounting Long Report - Package Identification

```
DGO@YX00            VALUE
------------------  ------------------
TYPE                PACKAGE
USED BY STOR.PROC   NO
SUCC AUTH CHECK     NO
LOCATION            SYS1DSN2
COLLECTION ID       PMDEVX
PROGRAM NAME        DGO@YX00
CONSISTENCY TOKEN   15BB2A951DF1F8E8

SQL STATEMENTS                     3
```

Figure 175. Accounting Long Trace - Package Identification

Package Identification Fields

TYPE Package or DBRM. For more information see item 1 on page 351.

LOCATION
> The location name. For more information see item 2 on page 352.

COLLECTION ID
> The package collection ID. For more information see item 3 on page 352.

PROGRAM NAME
> The program name (package ID or DBRM name). For more information see item 59 on page 356.

OCCURRENCES
> The number of accounting records with accounting data for this package or DBRM. For more information see item 39 on page 354.

SQL STMT - AVERAGE
> The number of SQL statements issued in this package or DBRM. This value is an average. For more information see item 5 on page 352.

SQL STMT - TOTAL
> The number of SQL statements issued in this package or DBRM. For more information see item 5 on page 352.

USED BY STOR.PROC
> The number of times this package was invoked by a stored procedure. For more information see item 65 on page 356.

SUCC AUTH CHECK
> Number of times authorization information was found for this package without accessing the DB2 catalog. This field is valid for reports only. For more information see item 71 on page 357.

Class 7 Distribution

```
PROGRAM NAME                         CLASS 7 CONSUMERS
FIMDPH0            |
FIMDPH1            |=========> 19%
FIMDIRQ           |
FIMDCHR           |
FIMDREP           |
FIMDEXR           |
FIMDMRPB          |=====================> 46%
FIMDMT01          |> 1%
FIMDMT02          |
FIJDCAIB          |=> 3%
FIMDMT03          |=> 3%
FIMDMT04          |=============> 26%
```
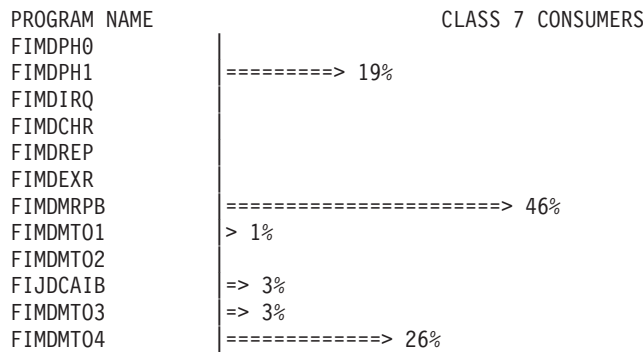
Figure 176. Accounting Long Report and Trace - Class 7 Distribution

Class 7 Distribution Fields

PROGRAM NAME
> The program name (package ID or DBRM name). For more information see item 59 on page 356.

CLASS 7 CONSUMERS
> The ratio of the class 7 elapsed time, expressed as a percentage of the total class 7 elapsed time of all packages. For more information see item 70 on page 357.

Package Times

```
DGO@YX00                  TIMES
------------------    ------------
ELAP-CL7 TIME-AVG       7.429787
CPU TIME                0.108954
  TCB                   0.108954
  PAR.TASKS             0.000000
SUSPENSION-CL8          2.864060
  TCB                   2.864060
  PAR.TASKS             0.000000
NOT ACCOUNTED           4.456774
AVG.DB2 ENTRY/EXIT         10.00
DB2 ENTRY/EXIT               10

CPU SERVICE UNITS          59.00
  TCB                      59.00
```

Figure 177. Accounting Long Report - Package Times

```
DGO@YX00                  TIMES
------------------    ------------
ELAPSED TIME - CL7      7.429787
CPU TIME                0.108954
  TCB                   0.108954
  PAR.TASKS             0.000000
SUSPENSION-CL8          2.864060
  TCB                   2.864060
  PAR.TASKS             0.000000
NOT ACCOUNTED           4.456774

CPU SERVICE UNITS             59
  TCB                         59
  PAR.TASKS                    0

DB2 ENTRY/EXIT               10
```

Figure 178. Accounting Long Trace - Package Times

Package Times Fields

ELAP-CL7 TIME-AVG
> The total elapsed time for executing the package or DBRM. This value is an average. For more information see item 7 on page 352.

CPU TIME
> The CPU time spent by the package or DBRM (class 7). For more information see item 48 on page 355.

> **TCB** The class 7 TCB time in DB2 for executing the package or DBRM. This does not include class 7 time for parallel tasks. For more information see item 9 on page 352.

> **PAR.TASKS**
> > The accumulated time for the package or DBRM to process parallel tasks. For more information see item 58 on page 355.

SUSPENSION-CL8
> The waiting time for the package or DBRM due to class 8 suspensions. This value is an average. For more information see item 34 on page 353.

TCB   The class 8 suspension time for executing the package or DBRM. This does not include the class 8 time for parallel tasks. For more information see item 63 on page 356.

PAR.TASKS

The accumulated suspension time for all parallel tasks. Valid for query CP and Sysplex query parallelism. For more information see item 64 on page 356.

NOT ACCOUNTED

The total unaccounted time in DB2 due to the execution of the package or DBRM. This value is an average. For more information see item 36 on page 353.

AVG.DB2 ENTRY/EXIT

The number of DB2 entries or exits processed during the execution of the package or DBRM. This value is an average. For more information see item 57 on page 355.

DB2 ENTRY/EXIT

The number of DB2 entries or exits processed during the execution of the package or DBRM. For more information see item 57 on page 355.

CPU SERVICE UNITS

The CPU service units for a package or DBRM. For more information see item 66 on page 356.

TCB   The TCB service units for a package or DBRM. For more information see item 67 on page 356.

PAR.TASKS

The CPU service units accumulated for a package or DBRM for processing parallel tasks. For more information see item 68 on page 356.

Package Suspensions

```
DGO@YX00            AVERAGE TIME  AVG.EV    TIME/EVENT
------------------  ------------  ------   ------------
LOCK/LATCH              0.000000    0.00            N/C
SYNCHRONOUS I/O        0.201782    6.00       0.033630
OTHER READ I/O         0.000000    0.00            N/C
OTHER WRITE I/O        0.000000    0.00            N/C
SERV.TASK SWITCH       2.662278    3.00       0.887426
ARCH.LOG(QUIESCE)      0.000000    0.00            N/C
ARCHIVE LOG READ       0.000000    0.00            N/C
DRAIN LOCK             0.000000    0.00            N/C
CLAIM RELEASE          0.000000    0.00            N/C
PAGE LATCH             0.000000    0.00            N/C
STORED PROCEDURES      0.000000    0.00            N/C
NOTIFY MESSAGES        0.000000    0.00            N/C
GLOBAL CONTENTION      0.000000    0.00            N/C
```

Figure 179. Accounting Long Report - Package Suspensions

Accounting Report and Trace Blocks

```
DGO@YX00              TIME  EVENTS   TIME/EVENT
------------------  -----------  ------  ------------
LOCK/LATCH            0.000000       0           N/C
SYNCHRONOUS I/O       0.201782       6      0.033630
OTHER READ I/O        0.000000       0           N/C
OTHER WRITE I/O       0.000000       0           N/C
SERV.TASK SWITCH      2.662278       3      0.887426
ARCH.LOG(QUIESCE)     0.000000       0           N/C
ARCHIVE LOG READ      0.000000       0           N/C
DRAIN LOCK            0.000000       0           N/C
CLAIM RELEASE         0.000000       0           N/C
PAGE LATCH            0.000000       0           N/C
STORED PROCEDURES     0.000000       0           N/C
NOTIFY MESSAGES       0.000000       0           N/C
GLOBAL CONTENTION     0.000000       0           N/C
TOTAL CL8 SUSPENS.    2.864060       9      0.31822D
```

Figure 180. Accounting Long Trace - Package Suspensions

Package Suspensions Fields

LOCK/LATCH
The accumulated elapsed waiting time for lock or latch suspensions during the execution of the package or DBRM. For more information see item 12 on page 352.

SYNCHRONOUS I/O
The accumulated elapsed wait time for I/O suspensions under this thread during the execution of the package or DBRM. For more information see item 15 on page 352.

OTHER READ I/O
The accumulated waiting time due to a read I/O performed under a thread other than the one being reported. For more information see item 18 on page 353.

OTHER WRITE I/O
The accumulated waiting time due to a write I/O performed under a thread other than the one being reported. For more information see item 21 on page 353.

SERV.TASK SWITCH
The accumulated waiting time due to a synchronization execution unit switch to DB2 services. For more information see item 24 on page 353.

ARCH.LOG(QUIESCE)
The accumulated waiting time due to the processing of ARCHIVE LOG(QUIESCE) commands. For more information see item 50 on page 355.

ARCHIVE LOG READ
The accumulated waiting time for archive reads (TAPE). For more information see item 56 on page 355.

DRAIN LOCK
The accumulated waiting time due to a drain lock. For more information see item 28 on page 353.

CLAIM RELEASE

The accumulated waiting time for a drain waiting for claims to be released. For more information see item 52 on page 355.

PAGE LATCH

The accumulated waiting time caused by a page latch contention. For more information see item 54 on page 355.

STORED PROCEDURES

The accumulated waiting time for an available TCB before the stored procedure could be scheduled. For more information see item 41 on page 354.

NOTIFY MESSAGES

The accumulated elapsed waiting time due to suspensions caused by sending messages to other members in the data sharing group. For more information see item 42 on page 354.

GLOBAL CONTENTION

The accumulated elapsed waiting time caused by a suspension due to global lock contentions. For more information see item 45 on page 354.

TOTAL CL8 SUSPENS.

The waiting time for the package or DBRM due to class 8 suspensions. For more information see item 34 on page 353.

Accounting Report and Trace Blocks

Chapter 27. Accounting Fields

Table 27. Identification and Miscellaneous Data

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QWHSNID	The network ID.				●	●	●
2	QWHSLUNM	The name of the logical unit.				●	●	●
3	QWHSLUUV	The instance number. When concatenated with the fully qualified network name, it uniquely identifies a distributed thread.				●	●	●
4	QWHSLUCC	The LUW sequence number, which identifies the last commit scope that the logical unit participated in. This number is incremented whenever a thread is committed or rolled back.				●	●	●
5	QWHCAID	The primary authorization ID from a connection or signon. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it differs from the original primary authorization ID (ORIGAUTH). Distributed authorization ID translation can also change the primary authorization ID.		●	●	●	●	●
6	ADCORNME	This field shows the correlation name. It is obtained by translating the correlation ID into correlation name and number. The default translation depends on the connection type of the thread: **Batch** job name **TSO or CAF** original authorization ID **CICS** transaction ID **IMS** application PST **RRSAF** characters 1 - 8 of the parameter correlation ID specified for SIGNON. You can define your own correlation ID translation which overrides the default translation.		●	●	●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
7	ADCORNMB	This field shows the correlation number. It is obtained by translating the correlation ID into correlation name and number. The default translation depends on the connection type of the thread: **Batch** blank **TSO or CAF** blank **CICS** pool thread **IMS** application PSBNAME **RRSAF** characters 9 - 12 of the parameter correlation ID specified for SIGNON. You can define your own correlation ID translation which overrides the default translation.		●	●	●	●	●
8	ADMAINPK	The MAINPACK value, which is derived from a package name. If this is not possible (for example, if there are no QPAC sections), the MAINPACK value is initialized to the plan name.		●	●	●	●	●

9	QWHCOPID	The original authorization ID. Possible values are:
		
		• For TSO: the logon ID
		• For batch: the user ID on the job statement
		• For IMS (message-driven regions): the signon ID, LTERM, ASXBUSR, or PSB name
		• For IMS (control regions): the user ID on the job statement, or the RACF started procedure entry if RACF is used.
		• For CICS: the user ID, TERM ID, TRAN ID, or as specified in the resource control table
		• For MVS operator commands and DB2 system internal agents: SYSOPR
		• For a distributed application server (AS):
		  – If the application requester (AR) is a DB2 system, then this is the same value that was assigned at the AR.
		  – If the application requester is not a DB2 system, then this is the user ID used to make the initial connection with the application server.
				●	●	●	●	●

10	QWHCATYP	The connecting system type code (in hexadecimal). This field can have a null value. Utilities, for example, do not have a connecting system type.		●	●	●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
11	ADCICSNI	The network ID of the accounting correlation token used to correlate DB2 IFC records to CICS records for the CICS transaction.				●	●	●
12	ADCICSLU	The LU name of the accounting correlation token used to correlate DB2 IFC records to CICS records for the CICS transaction.				●	●	●
13	ADCICSIN	The instance number of the accounting correlation token used to correlate DB2 IFC records to CICS records for the CICS transaction.				●	●	●
14	QWHDRQNM	The location name of the requester. If the thread is an allied thread (no distributed requests) or the thread is an allied-distributed thread (this location is the requester), DB2 PM sets this field equal to the local location. If the thread is a database access thread (this location is a server), this field is the name of the location that made the request.		●	●	●	●	●
15	QWHDPVER	The requester product version. This is derived from the product name within the product identification field. It is shown in the form V*nn*R*nn*M*n*.				●	●	●
16	QMDAACCT	The MVS accounting string associated with the MVS address space of the SQL application. Only filled if PROD_TYP=D otherwise X'00:'. This information comes from the ACCT= parameter on the job statement. If the ACCT= parameter is blank, the information on the EXEC statement is used. TSO logon accounting information is used only if there is a value in the account field on the TSO Logon panel. Do not confuse this field with the accounting correlation token.				●	●	●
17	QMDAPLAT	The client platform. Examples are AIX, OS/2, DOS, and DOS Windows. This field is only filled if PROD_TYP=S otherwise X'00'.				●	●	●
18	QMDAAPPL	The client application name. This field is only filled if PROD_TYP=S otherwise X'00'.				●	●	●
19	QMDAATID	The client authorization ID of an application.				●	●	●
20	QMDALOCN	The location name of the initiator. In distributed processing, this is the DB2 location requesting the work. Only filled if PROD_TYP=D otherwise X'00:'.				●	●	●
21	QMDANETN	The network ID of the DB2 initiator. Only filled if PROD_TYP=D otherwise X'00:'.				●	●	●
22	QMDALUNM	The logical unit name of the DB2 initiator. Only filled if PROD_TYP=D otherwise X'00:'.				●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
23	QMDAAUTH	The DB2 authorization ID that the SQL application used prior to name translation and to driving the connection exit at the DB2 site where the SQL application is running. Only filled if PROD_TYP=D otherwise X'00:'.				●	●	●
24	QMDACTYP	The connection type of the DB2 initiator. Only filled if PROD_TYP=D otherwise X'00:'. Possible values are: **MASS** for IMS **SASS** for CICS **BATCH** for TSO or the Call Attachment Facility **DIST** for distributed				●	●	●
25	ADRQCRNM	The correlation name of the DB2 initiator. Only filled if PROD_TYP=D otherwise X'00:'.				●	●	●
26	ADRQCRNB	The correlation number of the DB2 initiator. Only filled if PROD_TYP=D otherwise X'00:'.				●	●	●
27	QMDAASTR	The correlation token of the initiator. This field is only displayed for non-DB2 requesters or non-DB2 client/server requests. If no data is present, *N/P* is shown in this field. If some non-printable characters are in the string, the data is printed in hexadecimal.				●	●	●
28	QMDASUFX	The user-specified portion (suffix) of the accounting string. For FILE, this field is only filled if PROD_TYP=S, otherwise X'00'. If no suffix exists, *N/P* is displayed in this field.				●	●	●
29	QWACRINV	The reason for termination, that is, for producing a DB2 accounting record.				●	●	●
30	ADTERMCO	Termination condition. Signon in a CICS environment is controlled by an additional RCT option, TXIDSO. If YES, resignon occurs if the only identifier changed is the transaction ID. If NO, resignon does not occur.				●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
31	ADINVRSN	The status of the thread. The values are: **APPL** Thread processing is taking place within the application. **DB2** Thread processing is taking place within DB2. **EOT** Thread is in end-of-task processing. **I/O** Thread is performing I/O activity within DB2. **LOCK** Thread is engaged in locking activity within DB2. **I/S** Thread is in identify or signon state. **QUE** Thread is queued until an available slot is found. **SP** Thread is running a stored procedure and is currently processing within DB2. **SPA** Thread is running a stored procedure and is currently processing outside DB2 (in stored procedure application code). **SPW** Thread is waiting for a stored procedure to be scheduled within DB2. **RRS COMMIT** Termination due a commit of an application attached to the Recoverable Resource Manager Services Attach Facility (RRSAF).				●	●	●
32	ASNTNEWU	The number of normal terminations due to a new user: either the authorization ID changed or there was a signon with the same authorization ID (normal).			●	●	●	●
33	ASNTDEAL	The number of normal terminations due to deallocation, which is a normal program termination.			●	●	●	●
34	ASNTAPEN	The number of normal terminations due to an application program end: the application program terminated without using DB2 protocols to end its connection to DB2. The agent did not abend so it is considered a normal termination.			●	●	●	●
35	ASNTRESI	The number of normal terminations due to a resignon.			●	●	●	●
36	ASNTDBAT	The number of normal terminations due to a DBAT becoming inactive.			●	●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6

37	ASNORMTM	The number of normal terminations, which can be due to the following reasons (with field names):
		
		Reason Field Name
		New user
		      ASNTNEWU
		Deallocation
		      ASNTDEAL
		Application program end
		      ASNTAPEN
		Resignon
		      ASNTRESI
		DBAT inactive
		      ASNTDBAT
		RRS commit
		      ASRRSCOM
			●		●	●	●	●

38	ASATAPAB	The number of abnormal terminations due to an application program abend.			●	●	●	●
39	ASATENDM	The number of abnormal terminations due to an end of memory. For example, accounting was invoked for an agent that was executing in an address space that experienced an abnormal end of memory.			●	●	●	●
40	ASATRIND	The number of abnormal terminations due to a resolve indoubt. For example, the recovery manager issued recover indoubt for a dependent thread that had not yet gone through end-of-task processing.			●	●	●	●
41	ASATCANF	The number of abnormal terminations due to a stop force. For example, accounting was invoked for an agent that was executing when a -STOP DB2 MODE(FORCE) command was issued.			●	●	●	●

42	ASABNOTM	The number of abnormal terminations due to the following reasons (with field names):
		
		Reason Field Name
		Application program abend
		      ASATAPAB
		End of memory
		      ASATENDM
		Resolve indoubt
		      ASATRIND
		Cancel force
		      ASATCANF
			●		●	●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
43	ASIDAPAB	The number of work units indoubt due to an application program abend. The agent was indoubt when it abended.			●	●	●	●
44	ASIDENDM	The number of work units indoubt due to an end of memory. For example, accounting was invoked for an agent that was indoubt when the address space in which it was executing experienced an abnormal end of memory.			●	●	●	●
45	ASIDENDT	The number of work units indoubt due to an end of task.			●	●	●	●
46	ASIDCANF	The number of work units indoubt due to a stop force. For example, accounting was invoked for an agent that was indoubt when a -STOP DB2 MODE(FORCE) command was issued.			●	●	●	●
47	ADTHRTYP	The type of thread. This field can contain one of the following values: **ALLIED** The thread is not involved in any distributed activity. **ALLDDIST** The thread is initiated by a DB2 attach and requests data from one or more server locations. **DBAT** The thread is initiated, created, and performing work on behalf of a remote (requester) location. The value DBAT also includes DBAT DISTRIBUTED threads that are initiated by a requester location and executed by the server location that in turn requests data from another server location.				●	●	●
48	ASALLIED	The number of allied threads.			●	●	●	●
49	ASALLDST	The number of allied-distributed threads.			●	●	●	●
50	ASDBATS	The number of database access threads.			●	●	●	●
51	ASDBATD	The number of DBAT-distributed threads.			●	●	●	●
52	ASOCCURS	The number of logical accounting records. A logical accounting record can contain more than one physical record. This is the case, for example, in query CP and Sysplex query parallelism, where several accounting records (IFCIDs 3 and, optionally, 239) are generated, namely one for the entire thread and one for each parallel task within the thread. This number is used for calculating averages (as a divisor) for class 1, 2, 3, and 5 times and events.			●	●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
53	ASDISTRS	The number of accounting records with distributed activity. That is, the number of accounting records related to allied-distributed, DBAT, or DBAT- distributed threads.			●	●	●	●
54	ADNOPACK	The number of accounting records without package data.				●	●	●
55	QWACCOMM	The number of successful two-phase (units of recovery) or single-phase (syncs) commit requests. It indicates the number of units of recovery that are completed successfully, and for which the associated commit duration locks were released. It represents the total number of commit requests processed by the DB2 subsystem, whether the request was an explicit or implicit external request from an IMS or a CICS connection, or an implicit internal request within DB2 when DB2 was the commit coordinator or conducted read-only commit processing as a commit participant on phase-1 calls from an IMS or CICS connection.	●	●	●	●	●	●
56	QWACABRT	The number of rollback requests. This is the number of units that were backed out, including rollbacks from attaches. *Special Considerations:* This field contains the number of: • Application program abends • Application rollback requests • Application deadlocks on database records • Applications canceled by operator • Thread abends due to resource shortage	●	●	●	●	●	●
57	QXINCRB	The number of incremental binds (excluding prepare). It is incremented by • SQL statements with BIND VALIDATE(RUN) that fail at bind time and are bound again at execution time, • static DDL statements (CREATE TABLE and DROP TABLE, or LOCK TABLE statements, for example) that use DB2 private protocol.	●	●	●	●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
58	QWHCCN	The connection name. Possible values are: • For batch: BATCH • For TSO: TSO • For QMF: DB2CALL • For utilities: UTILITY • For DB2 internal: the DB2 subsystem ID • For IMS: the IMS ID • For CICS: the CICS ID • For APPL_DIR connections from non-DB2 requesters: SERVER		●	●	●	●	●
59	QWHCPLAN	The plan name. It is blank for a DB2 command thread; otherwise: • For SPUFI with repeatable read: DSNESPRR • For SPUFI with cursor stability: DSNESPCS • For utilities: DSNUTIL • For DSNTEP2: DSNTEP2 • For binding: DSNBIND • For IMS: the application plan name • For CICS: the application plan name • For IMS and CICS commands: a blank plan name • For QMF: DSQPLAN • For APPL_DIR connections to the common servers: the first 8 bytes of the application name.		●	●	●	●	●
60	QWACPKGN	The number of packages or DBRMs for which accounting data was collected.				●	●	●
61	QMDAPLT	The client platform. Examples are AIX, OS/2, DOS, and DOS/WINDOWS.				●	●	●
62	QMDAAPP	The application name of the client.				●	●	●
63	QMDAATH	The authorization ID of the client.				●	●	●
64	QMDASUF	The user-supplied portion (suffix) of the accounting string.				●	●	●
65	QWHSLOCN	The name of the local location.		●	●	●	●	●
66	ASNTIFCM	The number of normal terminations due to an Instrumentation Facility Interface (IFI) READS request.			●	●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
67	AWHDPTYP	The requester product ID. This is derived from the product name within the product identification field. Possible values are: • DB2 • SQL/DS • CL/SERV for the common servers DB2/2 or DB2/6000 • DB2/400 • N/P if the record was written at the application requester location				●	●	●
68	AWHDPVER	The requester product version. This is derived from the product name within the product identification field. It is shown in the form V*nn*R*nn*M*n*.				●	●	●
69	QWHDPRID	The requester product ID and version. Possible values for the product ID are: • DB2 • SQL/DS • CL/SERV for the common servers DB2/2 or DB2/6000 • DB2/400 • N/P if the record was written at the application requester location The product version is shown in the form V*nn*R*nn*M*n*.				●	●	●
70	QMDAPRID	The requester product ID and version. Possible values are for the product ID are: • DB2 • SQL/DS • CL/SERV for the common servers DB2/2 or DB2/6000 • DB2/400 • N/P if the record was written at the application requester location The product version is shown in the form V*nn*R*nn*M*n*.				●	●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
71	AMDAPTYP	The requester product ID. This is derived from the product name within the product identification field. Possible values are: • DB2 • SQL/DS • COM SRV for the common servers DB2/2 or DB2/6000 • DB2/400 • N/P if the record was written at the application requester location				●	●	●
72	AMDAPVER	The requester product version, which is derived from the product name within the product identification field. It is shown in the form V*nn*R*nn*M*n*.				●	●	●
76	QWHCTOKN	The Recoverable Resource Manager Services Attach Facility (RRSAF) accounting token as defined during the signon. This field only applies to threads using RRSAF. It shows N/A for data produced by releases prior to DB2 Version 6.					●	●
77	ADRRSAFT	The Recoverable Resource Manager Services Attach Facility (RRSAF) accounting token as defined during the signon. This field only applies to threads using RRSAF. It shows N/A for data produced by releases prior to DB2 Version 6.					●	●
78	ASRRSCOM	The number of times a DB2 application using the RRS attach facility with accounting interval specified as COMMIT successfully committed a logical unit of work. This field shows N/A for data produced by releases prior to DB2 Version 6.					●	●
79	QXSTREOP	The number of times the access path for static and dynamic SQL queries and subqueries was reoptimized at runtime. You can request reoptimization using the option REOPT(VARS) for BIND, REBIND PLAN, and PACKAGE. Reoptimization is intended for statements with host variables, parameter markers, or special registers with an access path that is so inappropriate that the performance of the reoptimized path outweighs the overhead of the reoptimization.					●	●
80	QXSTFND	The number of times that DB2 satisfied a prepare request by making a copy of a statement in the prepared statement cache.					●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
81	QXSTIPRP	The number of times that DB2 did an implicit prepare for a statement bound with KEEPDYNAMIC(YES) because the prepared statement cache did not contain a valid copy of the prepared statement.					●	●
82	QXSTNPRP	The number of times that DB2 did not prepare a statement bound with KEEPDYNAMIC(YES) because the prepared statement cache contained a valid copy of the prepared statement.					●	●
83	QXSTDEXP	The number of times that DB2 discarded a prepared statement from the prepared statement cache because the number of prepared statements in the cache exceeded the value of subsystem parameter MAXKEEPD.					●	●
84	QXSTDINV	The number of times that DB2 discarded a prepared statement from the prepared statement cache because a program executed a drop, alter, or revoke statement against a dependent object.					●	●
85	QXSTNFND	The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement.					●	●
86	CSXFLAG	Common server flag. Possible values are: • Y • N	●				●	●
87	OTHXFLAG	Non DB2 requester flag. Possible values are: • Y • N	●				●	●
88	PRODXTYP	Requester product type. Possible values are: **D**　　DSN **S**　　SQL **O**　　Others	●				●	●

Table 27. Identification and Miscellaneous Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
89	QMDAPTYP	The requester product ID. This is derived from the product name within the product identification field. Possible values are: • DB2 • SQL/DS • COM SRV for the common servers DB2/2 or DB2/6000 • DB2/400 • N/P if the record was written at the application requester location				●	●	●
90	QMDAPVER	The requester product version, which is derived from the product name within the product identification field. It is shown in the form V*nn*R*nn*M*n*.				●	●	●
91	QWHDPTYP	The requester product ID. This is derived from the product name within the product identification field. Possible values are: • DB2 • SQL/DS • CL/SERV for the common servers DB2/2 or DB2/6000 • DB2/400 • N/P if the record was written at the application requester location				●	●	●

Note: Averages for all the fields are derived by dividing by the number of logical accounting records with DSNDQWAC being present.

Table 28. Timing Data

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QWHSSTCK	The store clock value of the time when the accounting record was generated.				●	●	●
2	QWACBSC	The beginning store clock value for the period covered by the accounting record. You can determine the elapsed time of the application by subtracting this field from the ending store clock value (QWACESC). Threads that do not terminate (such as CICS primed threads and IMS wait-for-input message regions) can have an ending clock value that includes the time during which the thread was inactive and waiting for work.				●	●	●
3	QWACESC	The ending store clock value. You can use this field with the beginning store clock value (QWACBSC) to determine the elapsed time of an application.				●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
4	ADRECETT	The class 1 elapsed time. *Special Considerations:* 1. If the begin time equals zero, or if the end time minus begin time equals zero or is negative, *N/C* is shown. 2. Threads that can be reused, such as CICS protected threads or IMS/VS wait-for-input message regions, can include time during which the thread was inactive and waiting for work. 3. Elapsed time to process distributed requests is included for allied-distributed threads. 4. This time includes the time for processing SQL statements issued by stored procedures, user-defined functions, or triggers. 5. In query CP, Sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.	●	●	●	●	●	●
5	ADSRBT	The class 1 SRB time. When calculating averages, CICS threads and DBATs are excluded from the divisor. *Special Considerations*: 1. If the begin time equals zero, or if the end time minus begin time equals zero or is negative, *N/C* is shown. 2. For DBATs and threads connecting to DB2 via CICS attach, this value is not valid and *N/A* is shown. SRB time reflects the SRB time for the entire address space. Because DBATs are products of the DDF address space, the SRB time for DBATs reflects the SRB time for the entire DDF address space. Likewise, because a single CICS address space can support several threads, the SRB time for the agents attaching to DB2 from CICS reflects the SRB time for the entire CICS address space rather than a specific agent's SRB time.				●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
6	ADDB2ETT	The class 2 elapsed time of the allied agent accumulated in DB2 for the accounting record. *Special Considerations:* 1. The time for most thread allocation and certain abend conditions is not reflected in this time. 2. Elapsed time of distributed processing is included in the elapsed time of allied-distributed threads. 3. This time includes the time for processing SQL statements issued by stored procedures, user-defined functions, and triggers. 4. In query CP, Sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.	●	●	●	●	●	●
7	ADTTOTOD	The elapsed time outside DB2.				●	●	●
8	ADDBTCBT	The class 2 TCB time accumulated in DB2. DB2 calculates this value by taking the TCB time on exit from DB2 and subtracting the TCB time on entry to DB2. It indicates the allied agent TCB time a thread spent in DB2. *Special Considerations:* 1. For allied-distributed threads, this does not include the time used to process distributed SQL. For DBAT-distributed threads, this includes only processing at this location. 2. Most thread allocation and certain abend conditions are not included. 3. This time does not include the time for processing SQL statements issued by stored procedures. 4. This time does not include the time for processing parallel tasks generated by utilities or in query CP or Sysplex query parallelism.		●	●	●	●	●
9	ADTTCBOD	The CPU time outside DB2.				●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
10	ADDBSRBT	The class 2 SRB time accumulated in DB2. This field is calculated by taking the SRB time on exit from DB2 and subtracting the SRB time on entry to DB2. When calculating averages, CICS threads and DBATs are excluded from the divisor. *Special Considerations*: 1. When a call is received from an allied space, the agent's SRB time value is saved. On exit from DB2, the ending SRB time is used to calculate the total agent SRB time in DB2 and the result is added to the previously saved SRB time. 2. For DBATs and threads connecting to DB2 via CICS attach, this value is not valid and *N/A* is shown. SRB time reflects the SRB time for the entire address space. Because DBATs are products of the DDF address space, the SRB time for DBATs reflects the SRB time for the entire DDF address space. Likewise, because a single CICS address space can support several threads, the SRB time for the agents attaching to DB2 from CICS reflects the SRB time for the entire CICS address space rather than a specific agent's SRB time.				●	●	●
11	ADTSRBOD	The SRB time outside DB2. When calculating averages, CICS threads and DBATs are excluded from the divisor.				●	●	●
12	ADTWTAP	The class 1 waiting time in an application. This is the difference between the elapsed and the TCB time.	●	●		●	●	●
13	ADTWTDB	The class 2 waiting time in DB2. This is the difference between the elapsed and the TCB time. In query or utility parallelism, it is the waiting time of the originating task only.	●	●		●	●	●
14	ADTWTODB	The waiting time outside DB2. Not reliable in query CP and Sysplex query parallelism.				●	●	●
15	QWACARNA	The total number of DB2 entry and exit events processed by the allied address space to calculate the elapsed time in DB2 and the processor time. This counter does not include the SQL entry and exit events processed by stored procedures.				●	●	●
16	ADLLSUSC*	The total number of lock and latch suspensions. If class 9 is not active, this number does not include the internal latch suspensions.	●	●	●	●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
17	QWACAWTL*	The accumulated lock and latch elapsed time. It indicates the elapsed time the allied agent waited for locks and latches in DB2. This value does not include suspensions due to group-level lock contentions in a data sharing environment. When the event completes, the ending time is used to calculate the total elapsed wait time. The result is added to the previously saved lock and latch wait time in DB2. If class 9 is not active, the time shown does not include the time for internal latching.	●	●	●	●	●	●
18	AALLTMCN*	The lock and latch suspension time per event.				●	●	●
19	ADIOSUSC*	The total number of synchronous I/O suspensions.	●					●
20	ADIOSUST*	The I/O elapsed time accumulated due to synchronous I/O suspensions. DB2 calculates this value by subtracting the store clock time when an agent begins waiting for a synchronous I/O from the time the agent is resumed.	●					●
21	AAIOTMCN*	The synchronous I/O suspension time per event.				●	●	●
22	ADARSUSC*	The total number of suspensions due to a read I/O performed under a thread other than the one being reported.	●	●	●	●	●	●
23	QWACAWTR*	The accumulated waiting time due to a read I/O that performed under a thread other than the one being reported. The time does not represent the total duration of the subject read I/O. It includes: • Sequential prefetch • List prefetch • Sequential detection • Synchronous read I/O performed by a thread other than the one being reported.	●			●	●	●
24	AAARTMCN*	Other read time per event.				●	●	●
25	ADAWSUSC*	The total number of suspensions due to a write I/O performed under a thread other than the one being reported. It includes: • An asynchronous write I/O • A synchronous write I/O performed by a thread other than the one being reported.	●	●	●	●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
26	QWACAWTW*	The accumulated waiting time due to a write I/O that performed under a thread other than the one being reported. This time does not represent the total duration of the subject write I/O. It includes: • An asynchronous write I/O • A synchronous write I/O performed by a thread other than the one being reported.	●	●	●	●	●	●
27	AAAWTMCN*	Other write time per event.				●	●	●
28	ADSTSUSC*	The total number of suspensions due to a synchronous execution unit switching to DB2 services from the thread being reported.	●	●	●	●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
29	ADSTSUST*	The accumulated waiting time due to a synchronous execution unit switching to DB2 services from the thread being reported. It includes: • Open/close data set • SYSLGRNG or SYSLGRNX update • Commit phase 2 for read-only threads originating from TSO or batch • HSM recall data set • Dataspace manager services • Define data set • Extend data set • Delete data set • Log I/Os for commit and abort processing *Special Considerations*: 1. A probable cause for high values in this field is data set preformatting. 2. There are no service waits associated with commit phase 2 under read-only threads originating from CICS or IMS. There is a service wait for any thread doing commit phase 2 after an update. 3. There is no overlap between the elapsed time reported in this field and the other class 3 elapsed times. 4. For DB2 Version 3, when service task suspensions occur at the same time as other types of suspensions, the service task suspension time is not counted in the class 3 accounting time because the class 3 accounting time does not exceed the total time that was actually spent waiting. For DB2 Version 4 and later releases, the **other** suspension time is not counted in this circumstance.	●					●
30	AASTTMCN*	The synchronous execution service time per event.				●	●	●
31	ADALSUSC*	The total number of suspensions due to the processing of ARCHIVE LOG MODE(QUIESCE) commands. This counter belongs to class 1 (not to class 3 like the rest of the fields in this section) but it is shown here to be adjacent to the archive log quiesce suspension time, which is in class 3.				●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
32	QWACALOG*	The accumulated waiting time due to the processing of ARCHIVE LOG MODE(QUIESCE) commands. This time does not represent the time required to perform the entire command.				●	●	●
33	AAALTMCN*	The archive log time per event.				●	●	●
34	ADLRSUSC*	The total number of suspensions due to archive reads.				●	●	●
35	QWACAWAR*	The accumulated waiting time for archive reads from a tape.				●	●	●
36	ADLRTMCN*	The archive read suspension time per event.				●	●	●
37	ADDRSUSC*	The total number of suspensions due to drain lock processing.		●	●	●	●	●
38	QWACAWDR*	The accumulated waiting time for a drain lock. This is the time the requester is suspended while waiting to acquire the drain lock.	●	●	●	●	●	●
39	AADRTMCN*	The drain lock time per event.				●	●	●
40	ADCMSUSC*	The total number of suspensions until the claims are released.				●	●	●
41	QWACAWCL*	The accumulated waiting time for a drain waiting for claims to be released. After the drain lock is acquired, the drainer must wait for claim holders to release the object.				●	●	●
42	AACMTMCN*	The claims release time per event.				●	●	●
43	ADPGSUSC*	The total number of suspensions due to page latch contentions.				●	●	●
44	QWACAWTP*	The accumulated waiting time due to page latch contentions. For example, when runstats and copy utilities are run with the SHRLEVEL(CHANGE) option, they use a page latch instead of locking in order to serialize the collection of statistics or the copying of a page.				●	●	●
45	AAPGTMCN*	The page latch time per event.				●	●	●
46	ADTSUSC *	The total number of class 3 suspensions.	●	●	●	●	●	●
47	ADTSUST *	The waiting time for all types of class 3 suspensions by the originating task and parallel tasks, if parallelism is employed.	●	●	●	●	●	●
48	AATOTSTO*	The total class 3 time per event.				●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
49	ADNOTACC	The time not accounted in DB2. You use this time to determine whether there is a large percentage of time that has not been captured within the DB2 accounting record and whether system monitoring tools (such as RMF) should be examined to determine the cause of a performance problem. This time is the class 2 waiting time minus the sum of class 3 times. In the case of a DDF requester, this value is often large because it includes the time the requesting thread waited for responses from the server. Because there can be asynchronous activity at the requester, the DDF time is only an approximation. Refer to the DDF server blocks' requester elapsed time to determine the amount of time the thread waited for server responses. In query or utility parallelism, it is the unaccounted time of the originating task only.				●	●	●
50	ADTOTC1N	The total number of accounting records with class 1 times and events. In query CP and Syplex query parallelism, these are aggregate records because parallel records are aggregated to the originating record. Together, they count as one record.				●	●	●
51	ADTOTC2N	The total number of accounting records with class 2 times and events. In query CP and Sysplex query parallelism, these are aggregate records because parallel records are aggregated to the originating record. Together, they count as one record.				●	●	●
52	ADTOTC3N	The total number of accounting records with class 3 times and events.				●	●	●
53	ADINVSRB	The total number of accounting records with invalid SRB times (DBATs and CICS threads). This field is not printed but is used to calculate averages for SRB time. The records are excluded from the calculation.				●	●	●
54	ADTOTC12	The total number of accounting records with class 1 and class 2 times and events.				●	●	●
55	ADTOTC23	The total number of accounting records with class 2 and class 3 times and events.				●	●	●
56	QWACAWTG*	The accumulated elapsed waiting time due to suspensions caused by sending notify messages to other members in the data sharing group. Messages are sent, for example, when the database descriptors are changed due to DDL.				●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
57	ADNOSUSC*	The number of suspensions caused by sending messages to other members in the data sharing group. This value is only calculated if accounting class 3 is active and DB2 is a member of a data sharing group.				●	●	●
58	QWACAWTJ*	The accumulated elapsed waiting time caused by the suspension of an IRLM lock request due to a global lock contention in a data sharing environment, which requires intersystem communication to resolve.				●	●	●
59	QWACSPCP	The TCB time accumulated in DB2 for processing SQL CALL statements in the stored-procedures address space. This time is only calculated if accounting class 1 is active.				●	●	●
60	QWACSPTT	The TCB time accumulated in DB2 for processing SQL statements issued by stored procedures. This time is only calculated if accounting class 2 is active.				●	●	●
61	QWACSPNE	The number of SQL entry or exits events performed by stored procedures. This number is only calculated if accounting class 2 is active.				●	●	●
62	QWACCAST	The total elapsed waiting time for an available TCB before the stored procedure could be scheduled.				●	●	●
63	ADCPUT	The class 1 CPU time in an application. It indicates: • The class 1 CPU time of the allied agent which may include the accumulated class 1 TCB time for processing stored procedures, user-defined functions and triggers. • The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, Sysplex query parallelism, and parallel tasks generated by utilities. • In Sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks that is related to the originating task. In Sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the SYSPLEX group as the originating task, are included.	●	●	●	●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
64	ADDBCPUT	The class 2 CPU time (in DB2). It indicates: • The class 2 CPU time of the allied agent which may include the accumulated class 2 TCB time for processing stored procedures, user-defined functions and triggers if present. • The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, Sysplex query parallelism, and parallel tasks generated by utilities. • In Sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks that is related to the originating task. In Sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the SYSPLEX group as the originating task, are included.	●	●	●	●	●	●
65	ADTCBT	The class 1 TCB time in an application. *Special Considerations:* 1. If the begin time equals zero, or if the end time minus begin time equals zero or is negative, N/C is shown. 2. For allied-distributed threads, this does not include time used to process distributed SQL. For DBAT-distributed threads, this includes only processing at this location. 3. This time does not include the time for processing SQL statements issued by stored procedures. 4. This time does not include the time for processing parallel tasks generated by utilities or in query CP or Sysplex query parallelism. 5. For a DB2 thread that is switched among tasks, 0 is shown.				●	●	●
66	ADCPUPLL	The sum of the CPU times of the parallel tasks running in an application. These tasks can be query CP, Sysplex query parallel tasks, or parallel tasks produced by utilities. In Sysplex query parallelism, the individual CPU times are normalized to the processing speed of the processor that executes the originating task.				●	●	●
67	ADNOTMCN	Notify messages sending suspension time per number of events.				●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
68	ADGCTMCN	Group-level contention time per number of events.				●	●	●
69	ADSPTMCN	Stored procedure scheduling suspension time per number of events.				●	●	●
70	ADDBCPC2	The sum of the CPU times of the parallel tasks running in DB2. These tasks can be query CP, Sysplex query parallel tasks, or parallel tasks produced by utilities. In Sysplex query parallelism, the individual CPU times are normalized to the processing speed of the processor that executes the originating task.				●	●	●
71	ADGCSUSC*	The number of suspensions caused by global lock contention. This value is calculated only if accounting class 3 is active and DB2 is a member of a data sharing group.				●	●	●
72	ADSPSUSC	The number of times an SQL CALL statement had to wait for an available TCB before the stored procedure could be scheduled. This value is calculated only if accounting class 3 is active.				●	●	●
73	ADTCBCL3	The waiting time for all types of class 3 suspensions. In query or utility parallelism, this does not include class 3 time of parallel tasks.				●	●	●
74	ADCPCL3T	The sum of the suspension times spent for parallel tasks. These tasks can be query CP or Sysplex query parallel tasks, or parallel tasks produced by utilities.				●	●	●
75	ADVSRB1	The number of records with valid class 1 SRB times.				●	●	●
76	ADVSRB2	The number of records with valid class 2 SRB times.				●	●	●
77	ADSUCPU1	The class 1 CPU service unit time (in an application). It indicates: • The TCB service unit time. • The accumulated TCB service unit time for processing stored procedures if stored procedures are present. • The accumulated CPU service unit time for processing parallel tasks. This is valid for query CP parallelism, Sysplex query parallelism, and parallel tasks generated by utilities. In Sysplex query parallelism, the individual CPU times are normalized to the processing speed of the processor that executes the originating task.					●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
78	ADSUCPU2	The class 2 service unit time (in DB2). It indicates: • The TCB time • The accumulated TCB service unit time for processing stored procedures if stored procedures are present • The accumulated CPU service unit time for processing parallel tasks. This is valid for query CP parallelism, Sysplex query parallelism, and parallel tasks produced by utilities. In Sysplex query parallelism, the individual CPU times are normalized to the processing speed of the processor that executes the originating task.					●	●
79	ADSUTCB1	The class 1 TCB service units (in an application). This field is derived from the TCB time and the conversion factor of the originating task.					●	●
80	ADSUTCB2	The class 2 TCB service units (in DB2). This field is derived from the TCB time and the conversion factor of the originating task.					●	●
81	ADSUTCS1	The TCB service units accumulated in an application for stored procedures. This field is derived from the TCB time and the conversion factor of the originating task.					●	●
82	ADSUTCS2	The TCB service units accumulated in DB2 for stored procedures. This field is derived from the TCB time and the conversion factor of the originating task.					●	●
83	ADSUCPP1	The sum of the CPU service units of the parallel tasks running in an application. These tasks can be query CP or Sysplex query parallel tasks, or parallel tasks produced by utilities. In Sysplex query parallelism, the individual CPU times are normalized to the processing speed of the processor that executes the originating task.					●	●
84	ADSUCPP2	The sum of the CPU service units of the parallel tasks running in DB2. These tasks can be query CP or Sysplex query parallel tasks, or parallel tasks produced by utilities. In Sysplex query parallelism, the individual CPU times are normalized to the processing speed of the processor that executes the originating task.					●	●
85	ARATAPL	The ratio of the elapsed application time, expressed as a percentage of the total elapsed time.				●	●	●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
86	ARATDB2	The ratio of the elapsed DB2 time, expressed as a percentage of the total elapsed time.				●	●	●
87	ARATSUS	The ratio of the DB2 suspension time, expressed as a percentage of the total elapsed time.				●	●	●
88	ARATCPU	The ratio of the DB2 CPU time, expressed as a percentage of the DB2 elapsed time.				●	●	●
89	ARATNAC	The ratio of the DB2 not accounted time, expressed as a percentage of the DB2 elapsed time.				●	●	●
90	ARATSUP	The ratio of the DB2 suspension time, expressed as a percentage of the DB2 elapsed time.				●	●	●
93	ADNNNET1	The class 1 time for nonnested activity of the allied agent. This time does not include the time spent in stored procedures, user-defined functions, or triggers. *Special considerations* 1. Threads that can be reused, such as CICS protected threads, or IMS/VS wait-for-input message regions, can include time during which the tread was inactive and waiting for work. 2. Elapsed time to process distributed requests is included for allied-distributed threads. 3. In query CP, Sysplex query, or utility parallelism, this time is shown in the originating record which overlaps the elapsed time shown in parallel records. **Note:** This field is not normally shown in the short layouts but can be included with UTR.						●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
94	QWACASC	The class 2 elapsed time for nonnested activity accumulated in DB2 for the allied agent. This time does not include the time spent in DB2 processing SQL statements issued by stored procedures, user-defined functions, or triggers. **Special Considerations** 1. The time for most thread allocation and certain abend conditions is not reflected in this time. 2. The elapsed time for distributed processing is included in the elapsed time of allied-distributed threads. 3. In query CP, Sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records. **Note:** This field is not normally shown in the short layouts but can be included with UTR.						●
95	QWACSPEA	The total elapsed time spent by the allied agent in stored procedures. A stored procedure may initiate a trigger or invoke a user-defined function The time spend there is not included in this counter. **Note:** This field is not normally shown in the short layouts but can be included with UTR.						●
96	QWACSPEB	The total elapsed time that the allied agent spent executing SQL in stored procedures. A stored procedure may initiate a trigger or invoke a user-define function. Any time spend there is not included in this counter. **Note:** This field is not normally shown in the short layouts but can be included with UTR.						●
97	QWACUDEA	The total elapsed time spent by the allied agent in user-defined functions. A user-defined function may initiate a trigger or invoke a stored procedure. The time spend there is not included in this counter. **Note:** This field is not normally shown in the short layouts but can be included with UTR.						●
98	QWACUDEB	The total elapsed time that the allied agent spent executing SQL in user-defined functions. A user-defined function may initiate a trigger or invoke a stored procedure. Any time spend there is not included in this counter. **Note:** This field is not normally shown in the short layouts but can be included with UTR.						●

Table 28. Timing Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
99	ADTRET	The total elapsed time spent by the allied agent in triggers. A trigger may invoke a stored procedure or a user-defined function. The time spend there is not included in this counter. For triggers there is no distinction between class 1 and class 2 CPU time: all processing controlled by a trigger is within DB2. **Note:** This field is not normally shown in the short layouts but can be included with UTR.						●
100	ADAGENT1	The total elapsed time spent by the allied agent in triggers.						●
101	QWACAWTI	The total elapsed I/O time waiting for database I/O. **For DB2 Version 5 and previous** The total elapsed I/O time.						●
102	QWACARNE	The number of wait trace events processed for waits for database I/O under this thread.						●
103	QWACAWLG	The accumulated wait time for log write I/O.						●
104	QWACARLG	The number of trace events processed for log write I/O.						●
105	QWACAWTE	The accumulated due to synchronous execution unit swith for DB2 commit, abort, or deallocation processing.						●
106	QWACARNS	Number of wait trace events processed for waits for synchronous execution unit switching for commit or abort.						●
107	QWAXOCSE	Accumulated waiting time for a synchronous execution unit switch to the DB2 OPEN/CLOSE dataset service for the HSM recall service.						●
108	QWAXOCNS	Number of wait trace events processed of waits for sysnchronous execution unit switching to the Open/Close service.						●
109	QWAXSLSE	Accumulated wait time for a sysnchronous execution unit switch to the DB2 SYSLGRNG recording service. This service is sometimes used for Level ID checking for downlevel detection.						●
110	QWAXSLNS	Number of wait trace events for a sysnchronous execution unit switch to the DB2 SYSLGRNG recording service.						●
111	QWAXDSSE	Accumulated wait time for a synchronous execution unit switch to the DB2 data space manager services. This includes DEFINE DATA SET, EXTEND DATA SET, DELETE DATA SET, and RESET DATA SET.						●

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
112	QWAXDSNS	Number of wait trace events for a synchronous execution unit switch to the DB2 data space manager services.						●
113	QWAXOTSE	Accumulated wait time for a synchronous execution unit switch to other DB2 service tasks.						●
114	QWAXOTNS	Number of wait trace events for a synchronous execution unit switch to other DB2 service tasks.						●

Notes:

1. All of the time fields are provided in the "seconds" format, too.
2. Class 1 times are considered present if DSNDQWAC is present in the accounting record.
3. Class 2 times/events are considered present if DSNDQWAC is present and QWACCLS2 is not zero.
4. Class 3 times/events are considered present if DSNDQWAC is present and QWACCLS3 is not zero.
5. In query CP and Sysplex query parallelism, class 3 times and events include all parallel tasks and the originating task. Because many of the times are parallel, the real waiting time caused by a particular suspension is not generally shown in the report and trace entries. This applies to all fields marked with an asterisk (*).

Table 29. SQL Activity

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QXSELECT	The number of embedded SQL SELECT statements executed.		●	●	●	●	●
2	QXINSRT	The number of SQL INSERT statements executed.		●	●	●	●	●
3	QXUPDTE	The number of SQL UPDATE statements executed.		●	●	●	●	●
4	QXDELET	The number of SQL DELETE statements executed.		●	●	●	●	●
5	QXDESC	The total number of SQL DESCRIBE, SQL DESCRIBE PROCEDURE, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location does not necessarily match that at the user application because of the way DDF processes internally.		●	●	●	●	●
6	QXPREP	The number of PREPARE statements executed. This number at the server location does not necessarily match that at the user application because of the way DDF processes internally.		●	●	●	●	●
7	QXOPEN	The number of SQL OPEN statements executed.		●	●	●	●	●
8	QXFETCH	The number of SQL FETCH statements executed. This number at the server location does not necessarily match that at the user application because of the way DDF processes internally.		●	●	●	●	●

Table 29. SQL Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
9	QXCLOSE	The number of SQL CLOSE statements executed. This number at the server location does not necessarily match that at the user application because of the way DDF processes internally.		●	●	●	●	●
10	ASCDML	The total number of SQL DML statements executed.	●	●	●	●	●	●
11	ASIUD	The sum of SQL INSERT, SQL UPDATE, and SQL DELETE statements executed.	●	●	●	●	●	●
12	ADCMPERU	The ratio of the sum of commits and rollbacks to the sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements.				●	●	●
13	QXLOCK	The number of SQL LOCK TABLE statements executed.		●	●	●	●	●
14	QXGRANT	The number of SQL GRANT statements executed.		●	●	●	●	●
15	QXREVOK	The number of SQL REVOKE statements executed.		●	●	●	●	●
16	ASCDCL	The total number of DCL statements executed.	●	●	●	●	●	●
17	QXDRPIX	The number of SQL DROP INDEX statements executed.		●		●	●	●
18	QXALTIX	The number of SQL ALTER INDEX statements executed.		●		●	●	●
19	QXCRSTG	The number of SQL CREATE STOGROUP statements executed.		●		●	●	●
20	QXDRPST	The number of SQL DROP STOGROUP statements executed.		●		●	●	●
21	QXALTST	The number of SQL ALTER STOGROUP statements executed.		●		●	●	●
22	QXCRDAB	The number of SQL CREATE DATABASE statements executed.		●		●	●	●
23	QXDRPDB	The number of SQL DROP DATABASE statements executed.		●		●	●	●
24	QXALDAB	The number of SQL ALTER DATABASE statements executed.		●		●	●	●
25	QXCRSYN	The number of SQL CREATE SYNONYM statements executed.		●		●	●	●
26	QXDRPSY	The number of SQL DROP SYNONYM statements executed.		●		●	●	●
27	QXDEFVU	The number of SQL CREATE VIEW statements executed.		●		●	●	●
28	QXDRPVU	The number of SQL DROP VIEW statements executed.		●		●	●	●
29	QXCRALS	The number of SQL CREATE ALIAS statements executed.		●		●	●	●
30	QXDRPAL	The number of SQL DROP ALIAS statements executed.		●		●	●	●

Table 29. SQL Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
31	QXDRPPKG	The number of SQL DROP PACKAGE statements executed.		●		●	●	●
32	ASTOTCRT	The number of SQL CREATE statements executed.				●	●	●
33	ASTOTDRP	The number of SQL DROP statements executed.				●	●	●
34	ASTOTALT	The number of SQL ALTER statements executed.				●	●	●
35	ADTDDL	The total number of DDL statements executed.	●	●	●	●	●	●
36	QXSETCRL	The number of SQL SET CURRENT RULES statements executed.				●	●	●
38	QXCALLAB	The number of times a stored procedure terminated abnormally.	●	●	●	●	●	●
39	QXCALLTO	The number of times an SQL CALL statement timed out waiting to be scheduled.	●	●	●	●	●	●
40	QXCALLRJ	The number of times an SQL CALL statement was rejected.	●	●	●	●	●	●
41	QXSETSQL	The number of SQL SET CURRENT SQLID statements executed.				●	●	●
42	QXDSCRTB	The number of SQL DESCRIBE TABLE statements executed.				●	●	●
43	QXSETHV	The total number of SQL SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked. Refer to the *DB2 SQL Reference* for a list of special registers.		●		●	●	●
44	QXSETCDG	The number of SQL SET CURRENT DEGREE statements executed.				●	●	●
45	QXCON1	The number of SQL CONNECT type 1 statements executed.				●	●	●
46	QXCON2	The number of SQL CONNECT type 2 statements executed.				●	●	●
47	QXREL	The number of SQL RELEASE statements executed.				●	●	●
48	QXSETCON	The number of SQL SET CONNECTION statements executed.				●	●	●
49	QXCMTON	The number of SQL COMMENT ON statements executed.		●		●	●	●
50	QXLABON	The number of SQL LABEL ON statements executed.		●		●	●	●
51	QXCRTAB	The number of SQL CREATE TABLE statements executed.		●		●	●	●
52	QXDRPTA	The number of SQL DROP TABLE statements executed.		●		●	●	●
53	QXALTTA	The number of SQL ALTER TABLE statements executed.		●		●	●	●

Table 29. SQL Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
54	QXCTABS	The number of SQL CREATE TABLESPACE statements executed.		●		●	●	●
55	QXDRPTS	The number of SQL DROP TABLESPACE statements executed.		●		●	●	●
56	QXALTTS	The number of SQL ALTER TABLESPACE statements executed.		●		●	●	●
57	QXCRINX	The number of SQL CREATE INDEX statements executed.		●		●	●	●
58	QXCRGTT	The number of SQL CREATE GLOBAL TEMPORARY TABLE statements executed.		●			●	●
59	QXALOCL	The number of SQL ASSOCIATE LOCATORS statements executed. This field shows N/A for data produced by releases prior to DB2 Version 6.					●	●
60	QXALOCC	The number of SQL ALLOCATE CURSOR statements executed. This field shows N/A for data produced by releases prior to DB2 Version 6.					●	●
61	QXRNTAB	The number of SQL RENAME TABLE statements executed.					●	●
65	ASRIUDCA	The sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements executed per commit.	●			●	●	●
76	QXDRPTR	The number of DROP TRIGGER statements executed.						●
77	QXCTRIG	The number of CREATE TRIGGER statements executed.						●
78	QXCRATB	The number of CREATE AUXILLIARY TABLE statements executed.						●
79	QXCRUDF	The number of CREATE FUNCTION statements executed.						●
80	QXDRPFN	The number of DROP FUNCTION statements executed.						●
81	QXHLDLOC	The number of HOLD LOCATOR statements executed.						●
82	QXFRELOC	The number of FREE LOCATOR statements executed.						●
83	QXSETPTH	The number of SET CURRENT PATH statements executed.						●
84	QXCDIST	The number of CREATE DISTINCT TYPE statements executed.						●
85	QXDDIST	The number of DROP DISTINCT TYPE statements executed.						●
86	QXCRPRO	The number of CREATE PROCEDURE statements executed.						●
87	QXDRPPR	The number of DROP PROCEDURE statements executed.						●

Table 30. RID List Processing

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QXMIAP	The number of times RID list (also called RID pool) processing is used. During RID (RECORD ID) list processing, DB2 uses an index to produce a list of candidate RIDs, which is called an RID list. The RID list can be sorted and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed. This field is incremented once for a given table access when RID list processing is used for index access with list prefetch, for multiple index access, or for both. For multiple index access, if a final RID list is obtained through ANDing and ORing of RID lists, the counter is incremented once, even if not all indexes were used by the RIDs in the multiple index access.		●	●	●	●	●
2	QXNSMIAP	The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID list process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). This field can be incremented during retrieval, sorting, ANDing, and ORing of RID lists for index access with list prefetch (single index). For single index access, this field can only be incremented once per access. For multiple index access, it can be incremented for every index involved in the ANDing and ORing of RID lists.	●	●	●	●	●	●
3	QXMRMIAP	The number of times DB2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs. For index access with list prefetch (single index), this field can only be incremented during RID list retrieval. For multiple index access, this field can be incremented during RID list retrieval, ANDing, and ORing. This counter reflects the number of times internal limits or threshold values were exceeded for the RID lists obtained directly from an index as well as for RID lists derived during the ANDing and ORing process.	●	●	●	●	●	●

Table 30. RID List Processing (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
4	ARTTERM	The number of times RID list processing failed.	●	●	●	●	●	●

Table 31. Query Parallelism

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QXMAXDEG	The maximum degree of parallel processing executed among all the parallel groups. This field indicates the extent to which queries were processed in parallel.	●	●	●	●	●	●
2	QXTOTGRP	The total number of parallel groups executed.		●	●	●	●	●
3	QXDEGCUR	The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.	●	●	●	●	●	●
4	QXDEGESA	The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort support.	●	●	●	●	●	●
5	QXDEGBUF	The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.	●	●	●	●	●	●
6	ADTOTPFL	The total number of parallel groups that fell back to sequential mode due to any of the following reasons: • The cursor can be used in UPDATE or DELETE • Lack of ESA sort support • Shortage of, or contention, on the buffer pool • Unavailability of MVS/ESA enclave services.	●	●	●	●	●	●
7	QXREDGRP	The total number of parallel groups that executed in reduced parallel degree because of a storage shortage or contention on the buffer pool. If this field is not zero, increase the size of the current buffer pool by using the ALTER BUFFERPOOL command, or use the ALTER TABLESPACE statement to assign table spaces accessed by this query to a different buffer pool.	●	●	●	●	●	●
8	QXNORGRP	The total number of parallel groups that executed to the planned degree of parallel processing. This field is incremented by one for each parallel group that executed with the planned degree of parallel processing (as determined by DB2).		●	●	●	●	●
9	QXDEGENC	The total number of parallel groups that executed in sequential mode due to MVS/ESA enclave services being unavailable.	●	●	●	●	●	●

Table 31. Query Parallelism (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6

10	ADPARLEV	An indicator to show which type of parallel processing is used when SQL statements are executed:
		
		I/O For threads exploiting query I/O parallelism but no query CP or Sysplex query parallelism
		
		CP For threads exploiting query CP parallelism
		
		SYSPLEX
		    For threads exploiting Sysplex query parallelism
		
		UTILITY
		    For utility threads with subtasks
		
		NO For threads without subtasks
				●	●	●	●	●

11	ASPARIO	The number of accounting records that indicated that I/O parallelism was used by at least one SQL statement and query CP and Sysplex query parallelism was not used by any SQL statement.		●	●	●	●	●
12	ASPARCPU	The number of originating accounting records where query CP and Sysplex query parallelism was used for at least one SQL statement. I/O parallelism might have been used by other SQL statements.		●	●	●	●	●
13	ADPARDIS	Indicates whether query parallelism is disabled by the Resource Limit Facility for at least one dynamic Select statement in this thread. Possible values are: **NO** Query parallelism is not disabled by RLF. **YES** Query parallelism is disabled by RLF for at least one SQL statement.				●	●	●
14	ADPARDNR	The number of threads where at least one dynamic SQL statement was disabled by the Resource Limit Facility (RLF).				●	●	●
15	ASPARNO	The number of entries where query parallel processing was not used.		●	●	●	●	●
16	QXCOORNO	The total number of parallel groups executed on a single DB2 due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.		●	●		●	●

Table 31. Query Parallelism (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
17	QXISORR	The total number of parallel groups executed on a single DB2 due to repeatable-read or read-stability isolation.		●	●		●	●
18	AXXCRAT	The percentage of parallel groups that were not distributed over the data sharing group, as originally planned at bind time, because one or more DB2 members did not have enough buffer pool storage. This only applies to parallel groups that were intended to run in Sysplex query parallelism. This percentage is to indicate a lack of buffers at a member. It is only increased when the buffer pool is defined to allow for parallelism. For example, if VPXPSEQT=0 on an assistant, DB2 does not send parallel work there, and the percentage is not increased.					●	●
19	AMAXMEMB	The maximum number of DB2 members that participated in the processing of a query.		●	●		●	●
20	QXREPOP1	The total number of parallel groups where DB2 reformulated the parallel potion of the access path because because of a change in the number of active members, or because of a change of processor models on which they run, from bind time to run time. This counter is incremented only on the parallelism coordinator at run time.						●
21	QXREPOP2	The total number of parallel groups in which DB2 reformulated the parallel portion of the access path because there were insufficient buffer-pool resources. This counter is incremented only on the parallelism coordinator at run time.						●

Table 32. Stored Procedures

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
37	QXCALL	The number of SQL CALL statements executed.				●	●	●
38	QXSTTRG	The number of times a statement trigger was activated.						●
39		QXROWTRG The number of times a row trigger was activated.						●
40	QXTRGERR	The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.						●
41	QXCASCDP	The maximum level of indirect SQL cascading. This includes cascading due to triggers UDFs or stored procedures.	●					●

Table 32. Stored Procedures (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
44	QWACTRTT	The accumulated TCB time used when executing under the control of a trigger. This does not include the time used while in User Defined Functions or Stored Procedures that are called from the trigger.						●
45	QWACLRN	The number of log records written.						●
46	QWACLRAB	The total number of log record bytes written.						●
47	QWSTLOBV	Maximum storage used for LOB values.						●

Table 33. ROW ID

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QXROIMAT	The number of times that direct row access was successful.						●
2	QXROIIDX	The number of times that direct row access failed and an index was used to find a record.						●
3	QXROITS	The number of times that an attempt to use direct row access reverted to using a table-space scan to locate a record.						●

Table 34. Locking Activity

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QTXATIM	The number of times a unit of work was suspended for a time that exceeded the timeout value. This number should be low, ideally zero.	●	●	●	●	●	●
2	QTXADEA	The number of deadlocks detected. This number should be low, ideally zero.	●	●	●	●	●	●
3	ADTIMDLK	The number of deadlocks and timeouts.	●	●	●	●	●	●
4	ALRSUSP	The number of all types of lock suspensions.	●	●	●	●	●	●
5	QTXASLOC	The number of times a lock could not be obtained because of a lock conflict, and the unit of work was suspended. Suspensions are highly dependent on the application and table space locking protocols. This number should be low, ideally zero.	●	●	●	●	●	●
6	QTXASLAT	The number of IRLM latch suspensions, excluding internal DB2 latch suspensions.		●	●	●	●	●
7	QTXALOCK	The number of lock requests.		●	●	●	●	●
8	QTXAUNLK	The number of unlock requests.		●	●	●	●	●
9	QTXACHG	The number of change requests.		●	●	●	●	●

Table 34. Locking Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
10	QTXALES	The number of lock escalations to shared mode. This field represents the number of times the "Locks per table(space)" parameter on panel DSNTIPJ was exceeded and the table space lock was promoted from a page or row lock (IS) to a table or table space lock (S) for this thread. Escalation can cause unpredictable response times. Lock escalation should only happen when an application process updates or references (if repeatable read is used) more pages or rows than normally.	●	●	●	●	●	●
11	QTXALEX	The number of lock escalations to exclusive mode. This field represents the number of times the "Locks per table(space)" parameter on panel DSNTIPJ was exceeded and the table space lock was promoted from a page or row lock (IX) to a table or table space lock (X) for this thread. Escalation can cause unpredictable response times. Lock escalation should only happen on an exception basis; for example, when an application process updates or references (if repeatable read is used) more pages or rows than normally.	●	●	●	●	●	●
12	ALCLKET	The sum of shared and exclusive lock escalations.	●			●	●	●
13	QTXANPL	The maximum number of page or row locks concurrently held against all table spaces by a single application during its execution. This count is a high-water mark. It cannot exceed the "Locks per user" parameter on panel DSNTIPJ.	●	●	●	●	●	●
14	QTXACLNO	The number of claim requests.		●	●	●	●	●
15	QTXACLUN	The number of unsuccessful claim requests.	●	●	●	●	●	●
16	QTXADRNO	The number of drain requests.		●	●	●	●	●
17	QTXADRUN	The number of unsuccessful drain requests.	●	●	●	●	●	●
18	QTXASOTH	The number of suspensions caused by something other than lock and latch.		●		●	●	●
19	QTXAQRY	The number of query requests.		●		●	●	●
20	QTXAIRLM	The number of other IRLM requests (requests to perform a function other than QUERY, LOCK, UNLOCK, and CHANGE).		●		●	●	●

Table 35. Data Sharing Locking Activity

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QTGALPLK	The number of lock requests for physical locks. These lock requests are a subset of the **Lock requests** field, which reflects the total number of logical and physical locks.				●	●	●
2	QTGAUPLK	The number of unlock requests for physical locks. These unlock requests are a subset of the **Unlock requests** field, which reflects the total number of unlock requests for logical and physical locks.				●	●	●
3	QTGACPLK	The number of change requests for physical locks. These change requests are a subset of the **Change requests** field, which reflects the total number of change requests for logical and physical locks.				●	●	●
4	QTGALSLM	The number of lock requests propagated to MVS XES.				●	●	●
5	QTGAUSLM	The number of unlock requests propagated to MVS XES.				●	●	●
6	QTGACSLM	The number of change requests propagated to MVS XES.				●	●	●
7	QTGAIGLO	The number of suspensions due to IRLM global resource contention (IRLM lock states were in conflict).				●	●	●
8	QTGASGLO	The number of suspensions due to MVS XES global resource contention (MVS XES lock states were in conflict whereas IRLM lock states were not).				●	●	●
9	QTGAFLSE	The number of suspensions due to false contention. This happens when different resource names hash to the same entry in the coupling facility lock table. This causes MVS XES to detect contention on the hash class. However, when MVS XES determines that there is no real conflict on the resource, the contention is called *false*.				●	●	●
10	QTGADRTA	The number of global lock or change requests denied or suspended due to an incompatible retained lock.	●			●	●	●
11	QTGANTFY	The number of notify messages sent.				●	●	●
12	ALTSUSP	The total number of all lock suspensions. This includes local and global lock suspensions.	●		●	●	●	●
13	ALDSUSP	The number of suspensions due to any of the following reasons: • IRLM global resource contention • MVS XES global resource contention • False contention.	●		●	●	●	●
14	ALLPSUSP	The total number of suspensions.	●	●		●	●	●

Table 35. Data Sharing Locking Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
15	APLKSUSP	The total number of data sharing suspensions.	●	●		●	●	●
16	AGLOBRAT	The total number of suspends because of contention, divided by the total number of requests that went to XES (excluding asynchronous requests), and multiplied by 100. Aim for a total global lock contention of less than 5%, preferably less than 1%.				●	●	●
17	AFLSERAT	The number of false contentions, divided by the total number of requests, and multiplied by 100. A false contention is where two different locks on different resources hash to the same lock entry. Try to keep the false contention rate to no more than 50% of the total global lock contention.				●	●	●
18	ABUFFRAT	The total number of GETPAGE operations minus the number of pages read from DASD (both synchronously and using prefetch), divided by the total number of GETPAGE operations, and multiplied by 100. The highest possible hit ratio is 100%, that is, when every page requested is always in the buffer pool. If no requested page is in the buffer pool, the hit ratio is 0% or less. If the hit ratio is negative, this means that prefetch brought pages into the buffer pool that are not subsequently referenced, either because the query stops before it reaches the end of the table space, or because the prefetched pages are stolen by DB2 for reuse before the query can access them.				●	●	●

Table 36. RLF Activity

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QTXARLID	The resource limit specification table ID.				●	●	●
2	ASRLFOCC*	The number of RLF occurrences.			●	●	●	●
3	QTXASLMT*	The limit in service units as defined in the ASUTIME column of the resource limit specification table.		●		●	●	●
4	ADRLFCPU*	The number of CPU seconds used.		●	●	●	●	●
5	ADRLFMAX*	The highest CPU seconds used in a successful DB2 internal call rather than in a single SQL call. Because there are usually many DB2 calls for each SQL call, this value could be quite small compared to the total CPU time used in the SQL call. Only times for successful DB2 calls are used to determine the value of this field.		●	●	●	●	●

Table 36. RLF Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
6	ADRLFTYP	The resource limit type.				●	●	●
7	QTXACLMT	The internal CPU limit (in 16-microsecond units).				●	●	●

Table 37. Data Capture and IFI Class 5 Times

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QIFAAIET	The accumulated elapsed time for processing IFI calls. This field is only calculated if accounting class 5 is active.	●	●	●	●	●	●
2	QIFAAITT	The accumulated CPU time spent processing IFI calls. This is the same as the TCB time (class 5). This field is only calculated if accounting class 5 is active.	●	●	●	●	●	●
3	QIFAAMBT	The accumulated elapsed time for processing data capture describes. Data capture describes occur only during IFI read requests for IFCID 185. This time is a subset of the time provided in **Log extraction time**.		●	●	●	●	●
4	QIFAAMLT	The accumulated elapsed time for extracting log records for tables defined with DATA CAPTURE CHANGES. This time is a subset of the time provided in **Class 5 elapsed time**.		●	●	●	●	●
5	ADIFICAL	The total number of IFI calls. This field is only calculated if accounting class 5 is active.	●	●	●	●	●	●
6	QIFAANDR	The number of data rows returned in IFCID 185. Two rows are returned for each row altered by an SQL UPDATE statement.		●	●	●	●	●
7	ADTOTC5N	The total number of accounting records with class 5 times and events. In query CP and Syplex query parallelism, these are aggregate records because parallel records are aggregated to the originating record. Together, they count as one record.				●	●	●
8	QIFAANLR	The number of log reads performed for processing IFI READS requests for IFCID 185.				●	●	●
9	QIFAANRC	The number of retrievable log records that were written for tables defined with DATA CAPTURE CHANGES. This number includes only those log records that can be retrieved by an IFI READS call for IFCID 185. Some records can be written but not retrieved, for example if monitor trace class 6 is not active.				●	●	●
10	QIFAANRR	The number of log records returned to the caller of the IFI READS call for IFCID 185.				●	●	●
11	QIFAANDD	The number of data descriptions returned in IFCID 185. The data descriptions are mapped in IFCID 185.				●	●	●

Table 37. Data Capture and IFI Class 5 Times (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
12	QIFAANMB	The number of data capture describes for processing READS requests for IFCID 185 data.				●	●	●
13	QIFAANTB	The total number of tables returned to the caller of IFI READS call for IFCID 185.				●	●	●
14	QWACTRET	The accumulated elapsed time used when executing under the control of a trigger. This does not include the time used while in User Defined Functions or Stored Procedures that are called from the trigger.						●
15	ADSUTCT2	The number of TCB service units accumulated in DB2 used while executing under control of a trigger.						●
Notes:								
1. All time fields are provided in the "seconds" format.								
2. Class 5 times are considered present if DSNDQIFA is also present.								

Note:

All fields marked with an asterisk (*) can be explicitly qualified by one of the following in a DISTRIBUTE command and graphics:Authid, Plan, Package, and Collection are abbreviated to the shortest unambiguous truncation (that is, A, PL, PA, and C respectively). Letters corresponding to the specified identifiers appear at the start of the qualifier and those which can have any value follow the letters "ANY".

The numbers assigned to the right of the qualifiers are the values for ADRLFTYP (resource limit type) in the FILE and SAVE data sets only.

APL	1	Authid/Plan
AANYPL	2	Authid Any Plan
PANYA	3	Plan Any Authid
BLANKAPL	4	Blank Authid and Plan
INSTNOEN	5	Install No Entry
INSTIOER	6	Install I/O Error
NOLIMSYS	7	No Limit - Sysadm/Sysopr
ACPA	8	Authid/Collection/Package
AANYPA	9	Authid Any Package
AANYC	10	Authid Any Collection
AANYPAC	11	Authid Any Package/Collection
PACANYA	12	Package/Collection Any Authid
ANYAPA	13	Any Authid/Package
ANYAC	14	Any Authid/Collection
ANYAPAC	15	Any Authid/Package/Collection
INFLIMIT	99	Infinite Limit
NORUN	100	No Run/Zero Limit

Table 38. Buffer Pool Activity

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QBACGET	The number of GETPAGE requests. This counter is incremented by successful GETPAGE requests for queries processed in parallel for each thread and for all successful and unsuccessful GETPAGE requests for queries that are not processed in parallel.	●	●	●	●	●	●
2	QBACRIO	The number of synchronous read I/O operations. DB2 increments this counter for each media manager synchronous physical read. Asynchronous I/O requests are not counted.	●	●	●	●	●	●
3	QBACSEQ	The number of SEQUENTIAL PREFETCH requests. It is incremented for each PREFETCH request. Each request can result in an I/O read. If it does, up to 32 pages can be read for SQL and up to 64 pages for utilities. For SQL, depending on the buffer pool size, a request does not result in an I/O if all the pages to be prefetched are already in the buffer pool. DB2 can use sequential prefetch if the data is being accessed in sequential order even though sequential prefetch was not requested when binding. This is known as sequential detection and is not included in the sequential prefetch count. Sequential detection is included in **Dynamic prefetch requests**.		●	●	●	●	●
4	QBACLPF	The number of LIST PREFETCH requests. *Special Considerations:* 1. List prefetch allows DB2 to access data pages efficiently even when the needed data pages are not contiguous. It can be used with single index access and is always used with multiple index access. 2. List prefetch is always used to access data from the inner table during a hybrid join. 3. Data pages are read in quantities equal to the sequential prefetch quantity (see **Sequential prefetch requests**) which depends on the buffer pool size and is usually 32 pages. 4. During bind time DB2 does not use list prefetch if the estimated number of RIDs to be processed would take more than 50% of the RID pool. During execution time, list prefetch processing terminates if DB2 detects that more than 25% of the rows in the table need to be accessed. If list prefetch is terminated, it is indicated in IFCID 125.		●	●	●	●	●

Table 38. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
5	QBACDPF	The number of (dynamic) PREFETCH requests. This is the process that is triggered because of sequential detection. This field also counts prefetches for segmented table spaces. For information about when sequential detection is used, see the *DB2 Administration Guide*.		●	●	●	●	●
6	QBACHRE	The number of successful synchronous requests to move a page from a hiperpool to a virtual buffer pool. On behalf of a page access request, DB2 moves a page from a hiperpool to a virtual buffer pool (if the page is found in the hiperpool).		●	●	●	●	●
7	QBACHRF	The number of unsuccessful synchronous read requests. An unsuccessful read occurs when a requested page was found in the hiperpool, but its content was discarded by MVS. For hiperpools defined as CASTOUT=YES, the written data can be discarded by MVS if the hiperpool usage is low or if the expanded memory is not large enough to back the hiperpool. If this number is large for CASTOUT=YES hiperpools, reduce the size of the hiperpool. For hiperpools defined as CASTOUT=NO, an unsuccessful read can only happen when the backing expanded storage page was explicitly reconfigured out of the system.	●	●	●	●	●	●
8	QBACSWS	The number of times a buffer update occurs. This number is incremented every time a page is updated and is ready to be written to DASD. If the same page is updated twice, for example, the number is incremented by 2. This number is kept for all types of pages including data pages and work file pages.	●	●	●	●	●	●
9	QBACIMW	The number of immediate (synchronous) write I/O operations.	●	●	●	●	●	●
10	QBACHWR	The number of successful requests issued by DB2 to synchronously move a page from the virtual buffer pool to the hiperpool. This is the number of times that pages are cached in the hiperpool. Before reusing a buffer in a virtual pool for a page request, its old content needs to be saved in a hiperpool if it is a candidate for hiperpool caching. (Data accessed by parallel queries is not cached in a hiperpool.)		●	●	●	●	●
11	QBACHWF	The number of unsuccessful write requests because of a shortage of expanded storage. If this number is high, reduce the hiperpool size.	●	●	●	●	●	●

Table 38. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
12	QBACSIO	The number of asynchronous pages read by prefetch that the agent triggered.		●	●	●	●	●
13	QBACHPG	The number of pages that were found in a hiperpool and moved to a virtual buffer pool because of a prefetch that the agent triggered.		●	●	●	●	●
14	ABCLSPR	The number of sequential, dynamic, and list prefetch requests.	●	●	●	●	●	●
15	ABCRWIO	The sum of synchronous reads and writes.				●	●	●
16	ADRGPRIO	The number of GETPAGES per synchronous read I/O.	●			●	●	●
17	QBACPID	The buffer pool ID. This field identifies which buffer pool the information in this section refers to: • Values 0 through 49 are identifiers for BP0 through BP49. • Values 80 through 89 are identifiers for BP32K through BP32K9. • Values 100 through 109 are identifiers for BP8K through BP8K9. • Values 120 through 129 are identifiers for BP16K through BP16K9.		●	●	●	●	●

Note:

All fields can be explicitly qualified by one of the following in an exception, frequency distribution, or graphics specification:

BPn   4 KB buffer pool number (0 ≤ n ≤ 49)

BP32K   32 KB buffer pool

BP32Kn
        32 KB buffer pool number (1 ≤ n ≤ 9)

TOT4K   total of all 4 KB buffer pools

TOT32K
        total of all 32 KB buffer pools

TOTAL   total of all 4 KB and 32 KB buffer pools

Buffer pool averages are calculated per record.

Table 39. Group Buffer Pool Activity

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	QBGAXD	The number of coupling facility read requests required because the buffer was marked *invalid*. Data is returned from the group buffer pool.	●	●	●	●	●	●

Table 39. Group Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
2	QBGAMD	The number of coupling facility read requests necessary because the requested page was not found in the buffer pool. Data is returned from the coupling facility.	●	●	●	●	●	●
3	QBGAMN	The number of pages read from the group buffer pool due to prefetch under the control of the agent.	●	●	●		●	●
4	QBGAWC	The number of clean pages written to the group buffer pool.	●	●	●	●	●	●
5	QBGASW	The number of changed pages written to the group buffer pool.	●	●	●	●	●	●
6	QBGAGN	The ID of the group buffer pool. This field identifies which buffer pool the information in this section refers to.				●	●	●
7	QBGADG	The number of coupling facility requests to unregister a page. This field shows N/A for data produced by releases prior to DB2 Version 6.					●	●
8	ABGAMR	The number of synchronous coupling facility read requests necessary because the requested page was not found in the buffer pool. Data is not returned from the coupling facility.	●	●	●	●	●	●
9	ABGAXR	The number of synchronous coupling facility read requests necessary because the buffer was marked invalid. Data is not returned from the group buffer pool.	●	●	●	●	●	●
10	QBGAEX	The number of times an explicit coupling facility cross-invalidation request was issued.						●
12	QBGA2W	The number of requests to write changed pages to the secondary GBP for duplexing.						●

Note:

All fields can be explicitly qualified by one of the following in an exception, frequency distribution, or graphics specification:

GBPn   4 KB group buffer pool number (0 ≤ n ≤ 49)

GBP32K
　　　32 KB group buffer pool

GBP32Kn
　　　32 KB group buffer pool number (1 ≤ n ≤ 9)

TOT4K   total of all 4 KB group buffer pools

TOT32K
　　　total of all 32 KB group buffer pools

TOTAL   total of all 4 KB and 32 KB group buffer pools

Group buffer pool averages are calculated per record.

Table 40. DDF Activity

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	ADPROTOC	The method of access: DB2 private protocol, DRDA protocol or both.				●	●	●
2	QLACPRID	The product ID and version of the remote location.				●	●	●
3	ASDDF	The number of occurrences of the remote location and method pair.				●	●	●
4	QLACCNVQ	A number of conversation requests queued by DDF that are waiting for allocation. This value is maintained at the requester location. If the value is a large number, you might want to increase the limit for the number of conversations. Refer to the *DB2 Administration Guide* for more information.	●	●	●	●	●	●
5	QLACCIEL	The maximum number of conversations open at any time (QLACCNVA - QLACCNVT). QLACCIEL is updated only when (QLACCNVA - QLACCNVT) is greater than the current value of QLACCIEL. QLACFLG1 and QLACFLG2 indicate whether the conversations use DB2 private protocol, DRDA protocol, or both. This value is maintained at the requester location.	●	●	●	●	●	●
6	QLACBROW	The number of rows transmitted or received in DB2 message buffers using block fetch. This field counts both requester and server activity.	●	●		●	●	●
7	QLACCBLB	The number of times continuous block mode switched to limited block mode (DB2 private protocol only).	●	●	●	●	●	●
8	QLACBRBF	The number of blocks received using block fetch. This value is maintained at the requester location.	●	●	●	●	●	●
9	QLACBTBF	The number of blocks transmitted using block fetch. This value is maintained at the server location.	●	●	●	●	●	●
10	QLACCOMS	The number of single-phase commit requests sent to the server location. This value is maintained at the requester location.		●	●	●	●	●
11	QLACCOMR	The number of single-phase commit requests received from the requester location. This value is maintained at the server location.		●	●	●	●	●
12	QLACABRS	The number of rollback requests sent to the server location (single-phase commit operations only). This value is maintained at the requester location.		●	●	●	●	●
13	QLACABRR	The number of rollback requests received from the requester location (single-phase commit operations only). This value is maintained at the server location.		●	●	●	●	●

Table 40. DDF Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
14	QLACSQLS	The number of SQL statements sent to the server location. This value is maintained at the requesting location.	●	●	●	●	●	●
15	QLACSQLR	The number of SQL statements received from the requester location.	●	●	●	●	●	●
16	QLACROWS	The number of rows sent from the server location to the requester location. The value includes SQLDA and is maintained at the server location.		●	●	●	●	●
17	QLACROWR	The number of rows of data retrieved from the server location. This value is maintained at the requester location. *Special Considerations:* 1. The number of rows received from the server location does not include either the SQLDA or SQLCA. 2. Block fetch can significantly affect the number of rows sent across the network. When used with non-UPDATE cursors, block fetch puts as many rows as possible into the message buffer, and transmits the buffer across the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the reporting (requester) location. This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages sent by the requester.		●	●	●	●	●
18	QLACMSGS	The number of messages sent to the location. It is maintained at the location where the messages originated.		●	●	●	●	●
19	QLACMSGR	The number of messages received from the location. This value is maintained at the location where the messages were received. More messages might be sent from the server location than are received by the requester because of the way in which distributed SQL statements are processed internally.		●	●	●	●	●
20	QLACBYTS	The number of bytes the server location sent to the requester location. This value is maintained at the server location. More bytes of data might be sent from the server location than are received by the requester due to the way in which distributed SQL statements are processed internally.		●	●	●	●	●

Table 40. DDF Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
21	QLACBYTR	The number of bytes the server location received from the requester location. More bytes of data might be sent from the server location than are received by the requester, because of the way in which distributed SQL statements are processed internally.		●	●	●	●	●
22	QLACRBND	The number of static SQL statements that were bound for remote access (DB2 private protocol only). This value is maintained at the requester location.	●	●	●	●	●	●
23	ADDSELRQ	The elapsed time at the requester. It includes the total of DB2 and network time.	●	●	●	●	●	●
24	ADDSELSR	The elapsed database access agent time at the server location. This value is updated at the requester location. *Special Considerations*: 1. This value is reported only for DB2 private protocol. If only DRDA protocol, *N/C* is shown. 2. If both DB2 private protocol and DRDA protocol are used, then only the elapsed time associated with the DB2 private protocol is reported, and this can be misleading. 3. This value is calculated by accumulating the difference between the store clock values obtained after receiving a request message and before sending the associated reply message. 4. When block fetch is used, this time can be longer than the time for ADDSELRQ (ELAPSED REQ). 5. Compare this value with the accounting class 2 time (allied agent time in DB2) to see if the distributed-allied thread using the database access agent spends too much time in remote processing.	●	●	●	●	●	●

Table 40. DDF Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
25	ADDSSRSR	The database access agent CPU time spent at the server location. This value is updated at the requester location, is intended for problem determination only, and should not be used for charge back. *Special Considerations*: 1. This value is reported only for DB2 private protocol. If only DRDA protocol is used, *N/C* is shown. 2. If both DB2 private protocol and DRDA protocol are used, then only the CPU time associated with the DB2 private protocol is reported, and this can be misleading. 3. This value is calculated by accumulating the amount of CPU time spent by the database access thread at the DB2 server location each time a request message is processed. 4. Certain programming techniques can cause this value to not be received at the requester location (and therefore not included in this field), even though the CPU time was spent at the server location and was properly measured and sent to the requester location.	●	●	●	●	●	●
26	QLACCRSE	The number of commit requests sent to the participant (two-phase commit operations only). This value is maintained at the participant, indicating that the participant was read only.		●	●	●	●	●
27	QLACCRRC	The number of commit requests received from the coordinator (two-phase commit operations only). This value is maintained at the participant, indicating that the participant was read only.		●	●	●	●	●
28	QLACBKSE	The number of backout requests sent to the participant (two-phase commit operations only).		●	●	●	●	●
29	QLACBKRC	The number of backout requests received from the coordinator (two-phase commit operations only). This value is maintained at the participant.		●	●	●	●	●
30	QLACTRNS	The number of CREATE DATABASE ACCESS THREAD (DBAT) requests the requester allied agent sent to the server location. This number is maintained by the requester allied agent. In some cases, for example when a new user signs on or a resignon occurs, the value of this field can be zero. This indicates that the existing DBAT at the server was reused by this user.		●		●	●	●

Table 40. DDF Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
31	QLACTRNR	The number of CREATE DATABASE ACCESS THREAD (DBAT) requests received by the server DBAT from the requester allied agent. This number is maintained by the server DBAT and is always 1.		●		●	●	●
32	QLACCNVS	The number of conversations (both successful and unsuccessful) initiated by the requester location to be executed at the server location. This number is maintained at the requester.		●		●	●	●
33	QLACCNVR	A count of conversations initiated by the requester. This number is updated at the server location.		●		●	●	●
34	QLACCNVA	The number of successful conversation allocations made to the server (DB2 private protocol only). This value is maintained at the requester location. All allocation attempts, whether successful or not, are counted in QLACCNVS. The difference between QLACCNVS and this field can be used to identify a session resource constraint problem. Counting the number of unsuccessful conversations is useful for session tuning.		●		●	●	●
35	QLACCNVT	The number of terminated conversations in the server block (system-directed access only). It is maintained at the requester location. This number might not be the same as the number of successful conversation allocations, because some conversations might not have been terminated when the accounting record was written.		●		●	●	●
36	QLACPRSE	The number of PREPARE requests sent to the participant (two-phase commit operations only). It is maintained at the coordinator.				●	●	●
37	QLACPRRC	The number of PREPARE requests received from the coordinator (two-phase commit operations only). It is maintained at the participant.				●	●	●
38	QLACLASE	The number of last agent requests sent to the coordinator (two-phase commit operations only). A last agent request reduces the number of messages that must be sent for the commit. When DB2 is the requester, this number is incremented when a conversation is deallocated *and* this conversation was not used since the last commit. If this number is large, and your application design permits it, you can save another message by issuing a release before the commit (only for a DB2 requester).				●	●	●

Table 40. DDF Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
39	QLACLARC	The number of last agent requests received from the initiator (two-phase commit operations only). It is maintained at the participant.				●	●	●
40	QLACRRSE	The number of forget responses sent to the coordinator (two-phase commit operations only). It is maintained at the participant.				●	●	●
41	QLACRRRC	The number of forget responses received from the participant (two-phase commit operations only). It is maintained at the coordinator.				●	●	●
42	QLACVYSE	The number of request commit responses sent to the coordinator (two-phase commit operations only). It is maintained at the participant.				●	●	●
43	QLACVYRC	The number of request commit responses received from the participant (two-phase commit operations only). It is maintained at the coordinator.				●	●	●
44	QLACVNSE	The number of backout responses sent to the coordinator (two-phase commit operations only). It is maintained at the participant and indicates that the participant rejected the PREPARE request.				●	●	●
45	QLACVNRC	The number of backout responses received from the participant (two-phase commit operations only). It is maintained at the coordinator and indicates that the participant rejected the PREPARE request.				●	●	●
46	QLACINDT	The number of threads that went indoubt with the remote location as coordinator (two-phase commit operations only). It is maintained at the participant and indicates that the communication with the coordinator was lost.				●	●	●
47	QLACCPTR	The number of commit operations performed with the remote location as coordinator (two-phase commit operations only). It is maintained at the participant.				●	●	●
48	QLACRBTR	The number of rollback operations performed with the remote location as coordinator (two-phase commit operations only). It is maintained at the participant.				●	●	●
49	ADROL12S	The number of rollback requests sent to the server (single-phase commit operations) and backout requests sent to the participant (two-phase commit operations).	●			●	●	●
50	ADCOM12S	The number of commit requests sent to the server (single-phase commit operations) and commit requests sent to the participant (two-phase commit operations).	●			●	●	●

Table 40. DDF Activity (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
51	ADROL12R	The number of rollback requests received from the requester (single-phase commit operations) and backout requests received from the coordinator (two-phase commit operations).	●			●	●	●
52	ADCOM12R	The number of commit requests received from the requester (single-phase commit operations) and commit requests received from the coordinator (two-phase commit operations).	●			●	●	●
53	QLACLOCN	The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.		●	●	●	●	●
54	ALACPTYP	The product ID of the remote location. This is derived from the product name within the product identification field. Possible values are: • DB2 • SQL/DS • CL/SERV for the common servers DB2/2 or DB2/6000 • DB2/400 • N/P if the record was written at the application requester location				●	●	●
55	ALACPVER	The product version of the remote location. This is derived from the product name within the product identification field. It is shown in the form V*nn*R*nn*M*n*.				●	●	●

Notes:

1. All of these fields can be explicitly qualified by the remote location in an exception, frequency distribution or graphics specification.
2. All time fields are provided in the "seconds" format as well.

Table 41. Package Data

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
1	ADPCKTYP	An indicator of whether the block describes a package or a DBRM. Possible values are PACKAGE, DBRM, and BOTH. BOTH can appear in reports if there are packages and DBRMs with the same program name.				●	●	●

Table 41. Package Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
2	QPACLOCN	The location name. If this field is blank, the package or DBRM was executed locally. If it is not blank, all times represent the time spent locally to execute the remote package for this APPL_DIR requester.		●	●	●	●	●
3	QPACCOLN	The package collection ID. This field does not apply to DBRMs. If the program name cannot be identified, this field is not present.		●	●	●	●	●
4	QPACCONT	The program (package or DBRM) consistency token.				●	●	●
5	QPACSQLC	The number of SQL statements issued in this package or DBRM. This number may not be equal to the total number of SQL statements in the QXST data section because QXST does not count all SQL statements. For example, it does not count commit or rollback statements.	●	●	●	●	●	●
6	ADELCL7L	The elapsed time in DB2 for the last execution of the package or DBRM.				●	●	●
7	QPACSCT	The total elapsed time for executing the package or DBRM.	●	●	●	●	●	●
8	ADTCCL7L	The TCB time in DB2 for the last execution of the package or DBRM.		●		●	●	●
9	QPACTJST	The class 7 TCB time in DB2 for executing the package or DBRM. This does not include the class 7 time for parallel tasks.		●		●	●	●
10	ADWTCL7L	The waiting time in DB2 for the last execution of the package or DBRM.				●	●	●
11	ADLLPSSC*	The number of lock or latch suspensions during the execution of the package or DBRM.	●	●	●	●	●	●
12	QPACAWTL*	The accumulated elapsed waiting time for lock and latch suspensions during the execution of the package or DBRM. If class 9 is not active, this time does not include the time for latch suspensions.	●	●	●	●	●	●
13	AALLPTMC*	The lock or latch suspension time per event.				●	●	●
14	ADIOPSSC*	The total number of synchronous I/O suspensions under this thread during the execution of the package or DBRM.	●	●	●	●	●	●
15	QPACAWTI*	The accumulated elapsed wait time for I/O suspensions under this thread during the execution of the package or DBRM.	●	●	●	●	●	●
16	AAIOPTMC*	The synchronous I/O suspension time per event.				●	●	●
17	ADARPSSC*	The total number of suspensions due to a read I/O performed under a thread other than the one being reported.	●	●	●	●	●	●

Table 41. Package Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
18	QPACAWTR*	The accumulated waiting time for a read I/O performed under a thread other than this one during the execution of the package or DBRM.	●	●	●	●	●	●
19	AAARPTMC*	Any other read time per event.				●	●	●
20	ADAWPSSC*	The total number of suspensions due to a write I/O performed under a thread other than this one during the execution of a package or DBRM.	●	●	●	●	●	●
21	QPACAWTW*	The accumulated waiting time due to a write I/O performed under a thread other than this one during the execution of a package or DBRM.	●	●	●	●	●	●
22	AAAWPTMC*	Any other write time per event.				●	●	●
23	ADSTPSSC*	The total number of suspensions due to a synchronous execution unit switch to DB2 services during the execution of the package or DBRM.	●	●	●	●	●	●
24	QPACAWTE*	The accumulated waiting time due to a synchronous execution unit switch to DB2 services from this thread during the execution of the package or DBRM.	●	●	●	●	●	●
25	AASTPTMC*	The synchronous execution service time per event.				●	●	●
26	AAALPTMC*	The archive log time per event.				●	●	●
27	ADDRPSSC*	The total number of suspensions due to drain lock processing during the execution of the package or DBRM.		●	●	●	●	●
28	QPACAWDR*	The accumulated waiting time for a drain lock. This is the time the requester is suspended while waiting to acquire the drain lock.		●	●	●	●	●
29	AADRPTMC*	The drain lock time per event.				●	●	●
30	AACMPTMC*	The claim release time per event.				●	●	●
31	AAPGPTMC*	The page latch time per event.				●	●	●
32	AALRPTMC*	The archive read suspension time per event.				●	●	●
33	ADTSUSCP*	The number of all types of class 8 suspensions.	●	●	●	●	●	●
34	ADTSUSTP*	The waiting time for all types of class 8, package or DBRM, suspensions by the originating task and parallel tasks, if parallelism is employed.	●	●	●	●	●	●
35	AATOTSTP*	The class 8 time per event.				●	●	●
36	ADNACL7T	The total unaccounted time in DB2 due to the execution of the package or DBRM. In query CP and Sysplex query parallelism, it is the unaccounted time of the originating task only.			●	●	●	●

Table 41. Package Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
37	ADTOTC7N	The number of accounting records with class 7 times and events. In query CP and Sysplex query parallelism, these are aggregate records because parallel records are aggregated to the originating record. Together, they count as one record.				●	●	●
38	ADTOTC8N	The total number of package records with class 8 times and events.				●	●	●
39	ADTOTPOC	The number of accounting records with accounting data for this package or DBRM. This number is used for calculating averages (as a divisor) for class 7 and 8 times and events.				●	●	●
40	ADTOTC78	The number of accounting records with class 7 and class 8 times and events.				●	●	●
41	QPACCAST	The accumulated waiting time for an available TCB before the stored procedure could be scheduled. This value is only calculated if accounting class 8 is active.				●	●	●
42	QPACAWTG*	The accumulated elapsed waiting time due to suspensions caused by sending notify messages to other members in the data sharing group. Messages are sent, for example, when database descriptors are changed due to DDL. This value is only calculated if accounting class 8 is active and DB2 is a member of a DB2 data sharing group.				●	●	●
43	ADNOPSSC*	The number of suspensions due to messages being sent to other members in the data sharing group. This value is calculated only if accounting class 8 is active and DB2 is a member of a data sharing group.				●	●	●
44	AANOPTMC*	The notify messages time per event.				●	●	●
45	QPACAWTJ*	The accumulated elapsed waiting time caused by a suspension due to global lock contentions (lock contentions which require inter-system communication between IRLMs and MVSs to resolve) in a data-sharing environment. This value is calculated only if accounting class 8 is active and DB2 is a member of a DB2 data-sharing group.				●	●	●
46	AAGCPTMC*	The global contention time per event.				●	●	●
47	AASPPTMC*	The stored procedures time per event.				●	●	●

Table 41. Package Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
48	ADCPUTP *	The Class 7 CPU time spent by the package or DBRM. It indicates: • The TCB time • The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, Sysplex query parallelism, and parallel tasks generated by utilities.	●	●	●	●	●	●
49	ADALPSSC*	The total number of suspensions caused by processing ARCHIVE LOG(QUIESCE) commands during the execution of the package or DBRM.				●	●	●
50	QPACALOG*	The accumulated waiting time caused by processing ARCHIVE LOG(QUIESCE) commands during the execution of the package or DBRM. This number represents the amount of time that an individual thread was suspended because of the command, not the time it took for the entire command to complete.				●	●	●
51	ADCMPSSC*	The total number of suspensions until the claims are released during the execution of the package or DBRM.				●	●	●
52	QPACAWCL*	The accumulated waiting time for a drain waiting for claims to be released during the execution of the package or DBRM.				●	●	●
53	ADPGPSSC*	The total number of suspensions due to page latch contentions during the execution of the package or DBRM.				●	●	●
54	QPACAWTP*	The accumulated waiting time caused by a page latch contention during the execution of this package or DBRM.				●	●	●
55	ADLRPSSC*	The total number of suspensions during archive reads during the execution of this package or DBRM.				●	●	●
56	QPACAWAR*	The accumulated waiting time for an archive read from tape during the execution of the package or DBRM.				●	●	●
57	QPACARNA	The number of DB2 entries or exits processed during the execution of the package or DBRM.				●	●	●
58	ADCPCL7T	The accumulated time for the package or DBRM to process parallel tasks. These tasks can be query CP, Sysplex query, or utility parallel tasks. In Sysplex query parallelism, the time is normalized by the conversion factor of the parallel tasks, which is related to the originating task.				●	●	●

Table 41. Package Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
59	QPACPKID	The program name (package ID or DBRM name).		●	●	●	●	●
60	ADSPPSSC	The number of times an SQL CALL statement had to wait for an available TCB before the stored procedure could be scheduled. This value is calculated only if accounting class 8 is active.				●	●	●
61	ADGCPSSC*	The number of suspensions during a global lock contention. This value is calculated only if accounting class 8 is active and DB2 is a member of a data sharing group.				●	●	●
62	ADPCKSTP	Indicates whether the package was invoked by a stored procedure. Possible values are: **NO** The package was not invoked by a stored procedure. **YES** The package was invoked by a stored procedure.				●	●	●
63	ADTCBCL8	The class 8 suspension time for executing the package or DBRM. In query or utility parallelism, this does not include the class 8 time for parallel tasks.		●		●	●	●
64	ADCPCL8T	The sum of the suspension times of the parallel tasks for the package or DBRM. The tasks can be query CP or sysplex query parallel tasks or tasks generated by utilities.				●	●	●
65	ADPCKSNR	The number of times this package was invoked by a stored procedure.				●	●	●
66	ADSUCPU7	The CPU service unit time for a package or DBRM. It indicates: • The TCB time. • The accumulated time for processing parallel tasks if query CP or Sysplex query parallelism is exploited.					●	●
67	ADSUTCB7	The TCB service unit time for a package or DBRM.					●	●
68	ADSUCPP7	The CPU service unit times accumulated for a package or DBRM for processing parallel tasks. These tasks can be query CP or Sysplex query parallel tasks.					●	●
69	ADPCKAUT	Indicates whether authorization information was found for this package without accessing the DB2 catalog. This field is valid for traces only. This field shows N/A for data produced by DB2 releases prior to DB2 Version 6.					●	●

Table 41. Package Data (continued)

Ref No	Field ID	Description	Supported by			Applicable to DB2		
			Excep	Distr	Graph	V4	V5	V6
70	ARATCL7	The ratio of the class 7 elapsed time, expressed as a percentage of the total class 7 elepsed time of all programs.				●	●	●
71	ADPCKANR	Number of times authorization information was found for this package without accessing the DB2 catalog. This field is valid for reports only. This field shows N/A for data produced by DB2 releases prior to DB2 Version 6.					●	●
72	ADWTCL7T	The total waiting time in DB2 for executing the package or DBRM. In query or utility parallelism, it is the waiting time of the originating task only.	●		●	●	●	●

Notes:

1. Class 7 times are considered present if the QPACCLS7 flag is on.

2. Class 8 times and events are considered present if the QPACCLS8 flag is on.

3. All of the fields can be explicitly qualified by the package name (location, collection ID, package ID) in an exception, frequency distribution or graphics specification.

4. All time fields are provided in the "seconds" format as well.

5. In CP parallelism, class 3 times and numbers include all parallel tasks and the originating task. Because many of the times are parallel, the real waiting time for a particular suspension is not generally shown in the report and trace entries. This applies to all the fields marked with an asterisk (*).

Chapter 28. The Accounting Save-File Utility

You can use the DB2 PM Save-File utility to:

- Migrate Accounting Save data sets created using Version 4 and Version 5 into DB2 PM Version 6 record format with the MIGRATE command. The reformatted records are written into a DB2 PM Version 6 Save data set. DB2 PM Save data sets from previous versions cannot be restored until migrated to Version 6 format.
- Convert Accounting Save data sets into sequential data sets with the CONVERT command, suitable for use by the DB2 load utility.

The function performed is specified in a parameter on the EXEC command.

How to Use the Save-File Utility

This section describes how to migrate and convert data using the Save-File utility.

Migrating Data

DB2 PM Version 6 provides stand-alone migration programs to convert Version 4 and Version 5 Accounting Save data sets into a format suitable for DB2 PM Version 6.

There are only two steps in the migration:

1. Define a DB2 PM Version 6 VSAM data set using IDCAMS.
2. Migrate the data to DB2 PM Version 6 format using the MIGRATE function of the DB2 PM Version 6 Save-File utility.

The sample job, DGOPJAMI, is provided with DB2 PM Version 6 in the SDGOSAMP library for migrating Accounting Save data. This member is provided only as an example and can be modified as required by your installation.

Converting Data Sets

The sample job, DGOPJACO, is provided with DB2 PM Version 6 in the SDGOSAMP library for converting Save data sets into sequential Save-File data sets, suitable for use with the DB2 load utility. This member is provided only as an example and can be modified as required by your installation.

Save-File Utility DD statements

This section lists the DD statements needed for migration and conversion. All of the DD statements described here are required.

Input

The DDNAME of the input data set. This can be a DB2 PM Version 4 or Version 5 Accounting Save data set for the MIGRATE function, or a DB2 Version 6 Accounting VSAM Save data set for the CONVERT function.

Output

The DDNAME of the output data set.

For CONVERT, allocate the data set with the following characteristics:

Table 42.

RECFM	VB
LRECL	9072
BLKSIZE	9076

For MIGRATE, use the name of the DB2 PM Version 6 VSAM Save data set.

DPMLOG

DB2 PM command processor messages and messages indicating exceptional processing conditions are written to DPMLOG. If DPMLOG is not specified, it is dynamically allocated to the SYSOUT message class of the job. Allocate the data set with the following attributes:

Table 43.

RECFM	FBA
LRECL	133
BLKSIZE	6251

Accounting Save-File Output Records

The Save data is converted and written to a Save-File data set. The following types of records are created:

- General data records
- Buffer pool data records
- Distributed Data Facility (DDF) data records
- Group buffer pool records
- Package records
- Resource Limit Facility (RLF) records

Descriptions of the layouts of these records can be found in the SDGOSAMP library under the following names:

DGOADSGE
General data records

DGOADSBU
Buffer pool data records

DGOADSDF
DDF data records

DGOADSGP
Group buffer pool records

DGOADSPK
Package records

DGOADSRF
Resource Limit Facility (RLF) records

Chapter 29. The Accounting File Data Set

You use the FILE subcommand to format DB2 Accounting records and write them to sequential data sets suitable for use by the DB2 load utility. You can place unreduced Accounting data into the DB2 PM performance database. Use the performance database to produce tailored reports using a reporting facility such as Query Management Facility (QMF). See "Part 8. The Performance Database" on page 557 for more information.

FILE can also be used to produce data sets containing only exception records. The following record format types are available:

- General Accounting data (for example, SQL counters, times, and locking activity)
- Buffer pool data
- DDF data
- Package data
- Group buffer pool data

The output is a sequential data set containing information from the DB2 IFCID 3 and IFCID 239 records. The parallel records are contained in the originating record. The number of records in the output are as follows:

- One record for General Accounting data
- Separate records for each buffer pool used
- Separate records for each remote location participating in the distributed activity
- Separate records for each package and DBRM executed

Accounting File Data Output Record

Descriptions of the Accounting File data sets and the fields contained can be found in the SDGOSAMP library under the following names:

DGOADFGE
General Accounting records

DGOADFBU
Buffer pool records

DGOADFDF
DDF records

DGOADFGP
Group buffer pool records

DGOADFPK
Package records

DGOADFRF
Resource Limit Facility (RLF) records

Part 7. The Statistics Report Set

Statistics

This part of the *DB2 PM Report Reference* describes the statistics report set. It is divided into the following chapters:

- "Chapter 30. Introduction to the Statistics Report Set" on page 369 gives you a brief overview of the statistics report set.

- "Chapter 31. General Statistics Information" on page 371 contains information that is common to all traces and reports. This includes information on the terms used in statistics, the input to statistics reports, functions of the statistics report set, the DB2 PM identifiers used in statistics, report and trace layouts, exception

processing, member-scope and group-scope reporting, and information on the
trace and report headers. It also describes elapsed time formats and how large
or missing values are reported.

- "Chapter 32. The STATISTICS Command" on page 389 describes the
  STATISTICS command and subcommands, and provides an example of how
  DB2 PM processes statistics data.

- "Statistics Short Report" on page 411 and "Statistics Long Report" on page 418
  show samples of the report layouts.

- "Chapter 34. Statistics Report and Trace Blocks" on page 441 describes the fields
  in the sample layout LONG.

- "Chapter 35. Statistics Report and Trace Fields" on page 501 gives a detailed
  description of the fields in the statistics reports and traces.

Statistics

Chapter 30. Introduction to the Statistics Report Set

DB2 accumulates statistics for the system services address space, database services address space, and DDF address space. These statistics are accumulated from the time DB2 is started until it is stopped. At a configurable interval (usually 30 minutes), DB2 logs the current statistics values using IFCID 1 and IFCID 2. DB2 PM statistics reports and traces provide you with a way to analyze DB2 statistics class 1 trace data. Using the statistics report set you can:

- View system-wide statistics for key DB2 components.
- Compare system performance over two or more reporting intervals.
- Assess system-wide performance for individual DB2 subsystems.
- Assess performance data for a group of data sharing DB2 subsystems.
- Summarize system performance data in one report.

The statistics report set consists of the following:

- Traces present the difference (delta) between the statistics recorded in two consecutive statistics record pairs.
- Reports summarize statistics data over one or more user-defined intervals.
- The file data set is used to produce records in a format suitable for use by the DB2 load utility.
- The save-file utility is used to change statistics save data sets from previous DB2 PM versions into DB2 PM Version 6 record format and to change save data sets into sequential data sets for use by the DB2 load utility.
- The REDUCE subcommand is used to specify intervals into which statistics data is accumulated and apportioned. A report can then be produced which is sorted by these intervals.
- The SAVE and RESTORE subcommands are used to consolidate statistics for a number of statistics record pairs and then save them in a save data set for later restoration and further processing.

In addition, the following functions are provided:

- The level of detail shown in a report can be controlled by choosing one of the sample layouts or one that you have previously tailored.
- Exception processing is used to identify entries with fields containing values outside limits that you have previously specified.
- In data sharing environments the reports can be member-specific or group-specific.

Chapter 31. General Statistics Information

This chapter contains information common to all statistics functions. It also includes examples of statistics processing. Information is provided on:

- The terms used in statistics
- How statistics delta records and interval records are calculated
- Input to the statistics report set
- Functions of the statistics report set
- DB2 PM identifiers used in the statistics report set
- The level of detail in reports and traces
- Exception processing
- Member-scope and group-scope reporting
- Interpretation of report and trace headers
- How large and missing values are reported
- Elapsed time formats

Statistics Terms

This section describes the various terms used in the statistics report set.

DB2 Statistics Records versus DB2 PM Delta and Interval Records

When a DB2 statistics trace is active, DB2 maintains various statistics counters and externalizes them at regular intervals (usually every 30 minutes). It takes two records, with record identifiers (IFCID) 1 and 2, to externalize all the statistics counters at a time. For the purpose of understanding and using DB2 PM statistics, assume that the records are externalized simultaneously (although there is a small difference in their timestamps). When referring to these two records, the term *DB2 statistics records pair* is used.

The counters provided in a DB2 statistics records pair represent the DB2 activity between the time the pair is externalized and the time the DB2 system was last started. A counter is given in one of the following forms:

- As an *accumulated value* since the DB2 system was last started. For example, the total number of SELECT statements executed since the system was last started.
- As a *current* or *snapshot value*. For example, the number of open data sets at the time the DB2 statistics records pair was externalized.
- As a *maximum* or *high water mark value* the counter has reached since the time the system was last started. For example, the maximum number of open data sets at any time since the system was last started.

The statistics report set does not report individual DB2 statistics records pairs (for that purpose use the long record trace). Instead, it calculates deltas between two consecutive DB2 statistics records pairs and externalizes the delta records in statistics traces and file data sets. It also uniformly distributes the delta records over user-specified intervals and externalizes the interval records in statistics reports and save data sets.

DB2 PM Delta Records

The *delta record* is a DB2 PM term for a set of counters describing the activity of a DB2 system between two consecutive DB2 statistics records pairs. For example, if a DB2 statistics records pair is externalized at time *t1* and the next DB2 statistics records pair is externalized at *t2*, DB2 PM creates only one delta record which represents the DB2 system activity for the period of time between *t1* and *t2*.

A counter in the delta records, like the one in the DB2 statistics records pairs, is given in one of the following forms:

- Accumulated value. For example, the total number of SELECT statements executed between two consecutive DB2 statistics records pairs. Note that the accumulated value from a delta record is generally smaller than the accumulated value from the DB2 statistics records pair which marks the end of the delta record and provides the values accumulated since the DB2 system was last started.
- Current or snapshot value. For example, the number of open data sets at the end of the delta record. It is the same as the value provided in the DB2 statistics records pair which marks the end of the delta record.
- The maximum or high-water mark value the counter reached from the time the system was last started until the end of the delta record, for example, the maximum number of open data sets. It is the same as the value provided in the DB2 statistics records pair which marks the end of the delta record.

Once a delta record is calculated, DB2 PM externalizes it to statistics traces and file data sets depending on your specification.

DB2 PM Interval Records

The *interval record* is a DB2 PM term for a set of counters describing the activity of a DB2 system in a user-specified period of time. Unlike the delta record, where the time interval is determined by two consecutive DB2 statistics records pairs, you can specify the duration of an interval record using the INTERVAL option of the REDUCE subcommand.

The interval records do not generally coincide with the delta records. Several delta records can be contained in one interval record, and vice versa. The interval records are not generally aligned with the delta records. The delta records are aligned with DB2 statistics records pairs, while you can align the interval record using the BOUNDARY option of the REDUCE subcommand.

Once an interval record is calculated, DB2 PM externalizes it to statistics reports and save data sets depending on your specification.

In order to understand the relationship between the delta records and interval records, consider the following example.

The DB2 statistics records pairs are generated every 30 minutes (their frequency is controlled via a DB2 system parameter). If a statistics trace is started at 9:15 and stopped at 11:15, five DB2 statistics records pairs are generated at the following times: 9:15, 9:45, 10:15, 10:45, and 11:15.

DB2 PM processes these records pairs and creates four 30-minute delta records starting at 9:15, 9:45, 10:15, and 10:45. You can print these delta records by

specifying the TRACE subcommand or store them in a data set suitable for loading into DB2 tables by specifying the FILE subcommand.

If a report on an hourly basis is needed, you specify the interval record duration of 60 minutes using the INTERVAL option of REDUCE. By default, the interval records are aligned with hour boundaries (if different alignment is required, the BOUNDARY option must be used). Based on this specification, DB2 PM uniformly distributes the already calculated 30-minute delta records into the corresponding interval records. Three 60-minute interval records are created starting at 9:00, 10:00, and 11:00. The first interval record contains the first delta record and a half of the second delta record. The second interval record contains a half of the second delta record, the third delta record, and a half of the fourth delta record. The third interval record contains a half of the fourth delta record. You can print these interval records by specifying the REPORT subcommand or store them into a data set for later use by specifying the SAVE subcommand.

A counter in the interval records, like the one in the delta records, is given in one of the following forms:
- Accumulated value. For example, the total number of SELECT statements executed in the period of time specified for the interval record. Generally, this value is an approximation because the interval records are not aligned with the delta records. When an interval record crosses delta record boundaries (and vice versa), the values of the delta record counters are apportioned and uniformly distributed into overlapping interval records.
- The current or snapshot value is an approximation of the counter value at the end of the interval record. It is derived from the delta records current values weighted according to the overlap between the delta records and the interval records.
- The maximum or high-water mark value the counter has reached between the time the system was last started and the end of the last delta record included in the interval record calculation.

To produce a report showing the statistics data for each interval record, you first specify the interval-record duration and alignment using the INTERVAL and BOUNDARY options of the REDUCE subcommand and then the ORDER(INTERVAL) option on the REPORT subcommand.

A special type of the statistics report is one where all the DB2 statistics records pairs found in the input data set are consolidated in one interval record. Such a report is produced if no INTERVAL option is specified and the default INTERVAL(0) is assumed. In this case, the BOUNDARY and ORDER(INTERVAL) options do not apply. The start of the interval record is aligned to the first DB2 statistics records pair, and there is no ordering by intervals because only one interval record is created. For example, if a statistics trace is started at 9:15 and ended at 11:15, one interval record for that period is created containing all the counters pertinent to that interval, such as the number of INSERT statements executed from 9:15 to 11:15.

Input to Statistics Reports and Traces

Statistics uses the DB2 IFCIDs 1 and 2 (DB2 trace type and class: Statistics 1) as input for the reports and traces.

Because the basic unit of processing in the DB2 PM statistics report set is the delta record, at least two DB2 statistics record pairs must be present in the input data set before statistics can be presented.

Functions of the Statistics Report Set

The following functions are provided in the statistics report set:

- REPORT

  REPORT enables you to show interval records containing DB2 statistics data aggregated over user-specified periods of time (see "DB2 PM Interval Records" on page 372) which generally do not coincide with periods in which DB2 statistics records are externalized. For example, you can produce reports showing DB2 system activity per hour, per day, or per the entire period in which the DB2 statistics data is collected.

  A special kind of the statistics reports are exception reports in which only the interval records are presented containing selected counters that exceed user-defined threshold values (see "Exception Processing" on page 383).

  The statistics reports are produced for each DB2 subsystem and DB2 location present in the input data set. In a data sharing environment you can request the statistics reports on a per-member basis or per-group basis where the statistics data is aggregated across all the members in the data sharing group (see "Member-Scope and Group-Scope Reporting" on page 376).

  You can also tailor the format of the reports by specifying which blocks of data and which fields from a block are included in a report or by defining your own labels and headings associated with the reported fields (see "Controlling the Level of Detail in Reports and Traces" on page 376).

- TRACE

  TRACE enables you to show delta records containing DB2 statistics data within periods of time marked by two consecutive DB2 statistics records pairs (see "DB2 PM Delta Records" on page 372).

  A special kind of the statistics traces are exception traces in which only the delta records are presented that contain selected counters exceeding user-defined thresholds (see "Exception Processing" on page 383).

  The statistics traces are produced for each DB2 subsystem and DB2 location present in the input data set. In a data sharing environment the statistics traces are presented for each member of a data sharing group.

  Like reports, you can tailor the layout of the traces (see "Controlling the Level of Detail in Reports and Traces" on page 376).

- FILE

  FILE enables you to store delta records (the same data structures presented by the TRACE function) into a sequential data set suitable for use by the DB2 load utility.

  Once delta records are in DB2 tables, you can produce tailored reports using a reporting facility such as Query Management Facility (QMF). The FILE function can also be considered as an alternative way of archiving the DB2 statistics data in save data sets.

  Checking on the exception conditions is also available in the FILE function in which case only the delta records are presented that contain selected counters exceeding user-defined thresholds (see "Exception Processing" on page 383).

- SAVE

  SAVE enables you to store interval records (the same data structures presented by the REPORT function) into a VSAM data set to:

  – Produce graphs using the graphic subsystem of the DB2 PM Interactive Report Facility

- Archive the statistics data for producing long-term reports
- Use the save-file utility to create a sequential data set suitable for use by the DB2 load utility.

- RESTORE

  RESTORE enables you to reload a previously saved data set in order to report it with or without new statistics data. Saved data can be restored and resaved as often as required.

- REDUCE

  REDUCE enables you to specify the duration of the interval records which are to be presented in statistics reports or stored in a save data set.

  You can also control the volume of data to be reported and saved using the FROM/TO and INCLUDE/EXCLUDE options.

- Save-file utility

  The DB2 PM save-file utility enables you to:

  - Migrate statistics save data sets created using DB2 PM Version 6. Data sets containing DB2 PM data from earlier releases cannot be restored until they have been migrated.
  - Convert statistics save data sets into sequential data sets suitable for use by the DB2 load utility.

DB2 PM Identifiers Used in Statistics

DB2 trace records contain identifiers that are used by DB2 PM to group data, order reports, identify trace records, include or exclude specific data, and graph data. These identifiers describe the object on which DB2 PM is reporting.

The DB2 PM identifiers used in Statistics describe the following:

GROUP — Group name
: The name of the data sharing group.

LOCATION — Location name
: The name of a DB2 system. The location name is unique among DB2 systems that can communicate with each other.

  In DB2 Version 3 or Version 4, a DB2 subsystem can be installed without a location name. In non-data-sharing environments, DB2 PM then uses the DB2 subsystem ID as the location name. In data sharing environments, DB2 PM uses the data sharing group name as the location name.

  If an input data set contains data from several subsystems, at least one of the following identifiers has to be different if DB2 PM is to distinguish between different subsystems: group name, location name, member name, or subsystem ID.

MEMBER — Member name
: The name of the data sharing member.

SUBSYSTEMID — Subsystem ID
: The ID of the DB2 subsystem that generated the data.

These identifers can be used with the INCLUDE/EXCLUDE option, as field qualifiers for exception processing, and for Statistics graphs. SUBSYSTEMID can also be used with DISTRIBUTE.

See "Chapter 1. DB2 PM Identifiers" on page 3 for more information.

Controlling the Level of Detail in Reports and Traces

You can specify the level of detail and layout of the statistics reports and traces by using the LAYOUT option of the REPORT or TRACE subcommand. The following sample layouts are supplied:

- SHORT
- LONG

See "Chapter 33. Statistics Default Layouts" on page 411 for examples of these layouts.

In statistics reports and traces, the SHORT and LONG layouts provide general and comprehensive data, respectively. The SHORT layout contains selected blocks and fields from statistics categories, whereas the LONG layout contains most of the available blocks and fields, but not all.

There are circumstances where you may want a report or trace to show only specific fields or blocks. In this case, you can tailor your own report or trace layouts using user-tailored reporting (UTR). With UTR, you can control the volume, contents, and layout of statistics traces and reports. You can:

- Add entire blocks and individual fields to an existing layout.

  You might want to include some additional fields or entire blocks of related fields in a trace or report.

- Remove entire blocks and individual fields from an existing layout.

  You might want to produce more compact traces or reports by excluding some fields or entire blocks of related fields.

- Change the relative positions of blocks and fields in an existing layout.

  By rearranging blocks and fields, you can produce more compact traces or reports or make fields that are of particular interest to you more prominent.

- Change block and field labels.

  You can define the block and field labels and use abbreviations that you find meaningful.

Read Part 4. User-Tailored Reporting for more information about customizing your own layouts.

Member-Scope and Group-Scope Reporting

The information in this section only applies to DB2 data sharing environments.

DB2 collects the statistics data on a per-member basis. DB2 statistics traces have a local scope. To get the statistics for all members of a data sharing group, a DB2 statistics trace has to be started at each of the members. These traces generally have different start and stop times and can have different periods in which the DB2 statistics records are externalized.

Member-Scope Reports and Traces

DB2 PM can process all members of a data sharing group at the same time and produce reports and traces showing the statistics data on a per-member basis. Such member-scope reports and traces are equal to those reports and traces

produced in non-data-sharing environments where several DB2 subsystems can be processed at the same time and reports and traces are produced on a per-subsystem basis.

The following example demonstrates the concepts of member-scope reporting.

The data sharing group DSNDG0G consists of two members, DG1G and DG2G. Figure 181 shows a member-scope report with the following specifics:

Note: In this example, only the first page for each member is shown.

- The statistics is presented separately for each member (note the member name in the page heading).
- The non-data-sharing counters (such as the CPU TIMES block) as well as the data sharing counters (such as the group buffer pools activity blocks) are presented. To keep the figure compact only selected statistics data is shown.
- The default statistics interval is assumed, which means that the data is presented for the entire period the statistics is available.
- There is no aggregated statistics data for the entire group.

```
         LOCATION: DSNDG0G                DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-1
            GROUP: DSNDG0G                  STATISTICS REPORT - SHORT            REQUESTED FROM: NOT SPECIFIED
           MEMBER: DG1G                                                                     TO: NOT SPECIFIED
        SUBSYSTEM: DG1G                                                         INTERVAL FROM: 04/03/99 18:35:00.80
      DB2 VERSION: V6                            SCOPE: MEMBER                               TO: 04/03/99 18:45:01.07

      ---- HIGHLIGHTS ----------------------------------------------------------------------------------------------
      INTERVAL START: 04/03/99 18:35:00.80   INTERVAL ELAPSED: 10:00.27374   INCREMENTAL BINDS    :      0.00   DBAT QUEUED:      N/P
      INTERVAL END  : 04/03/99 18:45:01.07   OUTAGE ELAPSED  :   0.000000   AUTH SUCC.W/OUT CATALOG: 6946.00   DB2 COMMAND:     38.00
      SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS   :     37.00   BUFF.UPDT/PAGES WRITTEN:    1.93   TOTAL API :       0.00
      SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS   :  26862.00   PAGES WRITTEN/WRITE I/O:    3.06   MEMBER    :        N/A

      CPU TIMES                             TCB TIME        SRB TIME       TOTAL TIME   OPEN/CLOSE ACTIVITY  QUANTITY
      ------------------------------    --------------  --------------  --------------  -------------------  --------
      SYSTEM SERVICES ADDRESS SPACE         0.869050       57.600096       58.469147   OPEN DATASETS - HWM  1007.00
      DATABASE SERVICES ADDRESS SPACE       0.230720     1:32.047157     1:32.277877   OPEN DATASETS        1007.00
      IRLM                                  0.000184        2.604072        2.604255   IN USE DATA SETS      156.00
      DDF ADDRESS SPACE                          N/P             N/P             N/P

      SQL DML    QUANTITY   SQL DCL          QUANTITY   SQL DDL     QUANTITY   LOCKING ACTIVITY QUANTITY   DATA SHARING LOCKS QUANTITY
      --------  --------   -------------    --------   ----------  --------   ---------------- --------   ------------------ --------
      SELECT      129.5K   LOCK TABLE           0.00   CREATES         0.00   DEADLOCKS            0.00   GLB CONT.RATE (%)     0.14
      INSERT    76187.00   GRANT                0.00   DROPS           0.00   TIMEOUTS             0.00   FLS CONT.RATE (%)     0.02
      UPDATE    93616.00   REVOKE               0.00   ALTERS          0.00   SUSPENSIONS-LOCK    79.00   LOCK REQ.(P-LOCK)  38383.00
      DELETE     3720.00   SET HOST VAR.        0.00   RENAME TBL      0.00   SUSPENSIONS-OTHR     8.00   UNLOCK REQ.(P-LCK) 38358.00
      PREPARE       0.00   SET SQLID            0.00   COMMENT ON      0.00   LOCK REQUESTS      189.9K   CHANGE REQ.(P-LCK)    0.00
      DESCRIBE      0.00   SET DEGREE           0.00   LABEL ON        0.00   UNLOCK REQUEST   71254.00   SYNC.XES - LOCK     166.3K
      DESC.TBL      0.00   SET RULES            0.00   TOTAL           0.00   LOCK ESCALAT(SH)     0.00   SYNC.XES - CHANGE  94297.00
      OPEN        118.8K   SET PATH             0.00                          LOCK ESCALAT(EX)     0.00   SYNC.XES - UNLOCK   163.5K
      CLOSE     65854.00   CONNECT TYPE 1       0.00                          DRAIN REQUESTS       0.00   ASYN.XES-RESOURCES    0.00
      FETCH       245.1K   CONNECT TYPE 2       0.00                          CLAIM REQUESTS     254.4K   TOTAL SUSPENDS      600.00
      TOTAL       732.7K   RELEASE              0.00                                                      P-LCK/NFY ENG.UNAV    0.00
                          SET CONNECTION       0.00                                                      INCOM.RETAINED LCK    0.00
                          ASSOC LOCATORS       0.00                                                      PSET/PART NEGOTIAT    0.00
                          ALLOC CURSOR         0.00                                                      PAGE NEGOTIATION    425.00
                          HOLD LOCATOR         0.00
                          FREE LOCATOR         0.00
                          TOTAL                0.00

      RID LIST             QUANTITY   ROW ID          QUANTITY   QUERY PARALLELISM  QUANTITY   PLAN/PACKAGE PROC.  QUANTITY
      --------------------  --------  -------------   --------   -----------------  --------   ------------------  --------
      MAX BLOCKS ALLOCATED    22.00   DIRECT ACCESS       0.00   MAX DEGREE             0.00   PLAN ALLOC-ATTEMPTS     0.00
      CURRENT BLKS ALLOC.     12.00   INDEX USED          0.00   GROUPS EXECUTED        0.00   PLAN ALLOC-SUCCESS      0.00
      FAILED-NO STORAGE        0.00   TS SCAN USED        0.00    RAN AS PLANNED        0.00   PACK ALLOC-ATTEMPTS     0.00
      FAILED-RDS LIMIT         0.00                                RAN REDUCED          0.00   PACK ALLOC-SUCCESS      0.00
      FAILED-DM LIMIT          0.00                                FALL TO SEQUENTIAL   0.00   AUTOBIND ATTEMPTS       0.00
      FAILED-PROCESS LIMIT     0.00                                ONE DB2 COORD P=NO   0.00   AUTOBIND SUCCESSFUL     0.00
                                                                   ONE DB2 ISO LVL     0.00
                                                                   MEMBER SKIPPED (%)    N/C
                                                                   REFORM PARAL-CONFIG  0.00
                                                                   REFORM PARAL-NO BUF  0.00

      STORED PROCEDURES  QUANTITY   UDF          QUANTITY   TRIGGERS            QUANTITY
      -----------------  --------   ---------    --------   ------------------  --------
      CALL STATEMENTS        0.00   EXECUTED         0.00   STATEMENT TRIGGER       0.00
      PROCEDURE ABENDED      0.00   ABENDED          0.00   ROW TRIGGER             0.00
      CALL TIMED OUT         0.00   TIMED OUT        0.00   SQL ERROR OCCURRED      0.00
      CALL REJECTED          0.00   REJECTED         0.00
```

Figure 181. Partial Member-Scope Statistics Short Report for DSNDG0G (Part 1 of 2)

```
            LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                            PAGE: 2-1
               GROUP: DSNDG0G                     STATISTICS REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
              MEMBER: DG2G                                                                          TO: NOT SPECIFIED
           SUBSYSTEM: DG2G                                                              INTERVAL FROM: 04/03/99 18:35:00.88
         DB2 VERSION: V6                            SCOPE: MEMBER                                   TO: 04/03/99 18:45:01.12
```

```
 ---- HIGHLIGHTS ---------------------------------------------------------------------------------------------------------
 INTERVAL START: 04/03/99 18:35:00.88   INTERVAL ELAPSED: 10:00.24469   INCREMENTAL BINDS      :     0.00   DBAT QUEUED:     N/P
 INTERVAL END  : 04/03/99 18:45:01.12   OUTAGE ELAPSED  :   0.000000    AUTH SUCC.W/OUT CATALOG: 10554.00   DB2 COMMAND:    38.00
 SAMPLING START: 04/03/99 18:35:00.88   TOTAL THREADS   :     37.00     BUFF.UPDT/PAGES WRITTEN:    11.39   TOTAL API  :     0.00
 SAMPLING END  : 04/03/99 18:45:01.12   TOTAL COMMITS   :  27038.00     PAGES WRITTEN/WRITE I/O:    25.18   MEMBER     :     N/A

 CPU TIMES                                    TCB TIME         SRB TIME        TOTAL TIME   OPEN/CLOSE ACTIVITY  QUANTITY
 ------------------------------           --------------   --------------   --------------  -------------------  --------
 SYSTEM SERVICES ADDRESS SPACE                  0.857983        1:00.400642     1:01.258625  OPEN DATASETS - HWM  1006.00
 DATABASE SERVICES ADDRESS SPACE                0.191683        1:24.905898     1:25.097581  OPEN DATASETS        1006.00
 IRLM                                           0.000451           2.650958        2.651408  IN USE DATA SETS      137.00
 DDF ADDRESS SPACE                                   N/P              N/P             N/P

 SQL DML   QUANTITY    SQL DCL         QUANTITY    SQL DDL     QUANTITY    LOCKING ACTIVITY  QUANTITY    DATA SHARING LOCKS  QUANTITY
 --------  --------    --------------  --------    ----------  --------    ----------------  --------    ------------------  --------
 SELECT      131.1K    LOCK TABLE          0.00    CREATES         0.00    DEADLOCKS            0.00    GLB CONT.RATE (%)      0.14
 INSERT    76934.00    GRANT               0.00    DROPS           0.00    TIMEOUTS             0.00    FLS CONT.RATE (%)      0.02
 UPDATE      100.1K    REVOKE              0.00    ALTERS          0.00    SUSPENSIONS-LOCK    82.00    LOCK REQ.(P-LOCK)  40764.00
 DELETE     5638.00    SET HOST VAR.       0.00    RENAME TBL      0.00    SUSPENSIONS-OTHR    24.00    UNLOCK REQ.(P-LCK) 40746.00
 PREPARE       0.00    SET SQLID           0.00    COMMENT ON      0.00    LOCK REQUESTS      204.8K    CHANGE REQ.(P-LCK)     0.00
 DESCRIBE      0.00    SET DEGREE          0.00    LABEL ON        0.00    UNLOCK REQUEST   77361.00    SYNC.XES - LOCK      179.2K
 DESC.TBL      0.00    SET RULES           0.00    TOTAL           0.00    LOCK ESCALAT(SH)     0.00    SYNC.XES - CHANGE    101.4K
 OPEN        123.3K    SET PATH            0.00                            LOCK ESCALAT(EX)     0.00    SYNC.XES - UNLOCK    175.3K
 CLOSE     70432.00    CONNECT TYPE 1      0.00                            DRAIN REQUESTS       0.00    ASYN.XES-RESOURCES     0.00
 FETCH       250.4K    CONNECT TYPE 2      0.00                            CLAIM REQUESTS     254.9K    TOTAL SUSPENDS       645.00
 TOTAL       757.9K    RELEASE             0.00                                                        P-LCK/NFY ENG.UNAV     0.00
                       SET CONNECTION      0.00                                                        INCOM.RETAINED LCK     0.00
                       ASSOC LOCATORS      0.00                                                        PSET/PART NEGOTIAT     0.00
                       ALLOC CURSOR        0.00                                                        PAGE NEGOTIATION     390.00
                       HOLD LOCATOR        0.00
                       FREE LOCATOR        0.00
                       TOTAL               0.00

 RID LIST              QUANTITY    ROW ID          QUANTITY    QUERY PARALLELISM  QUANTITY    PLAN/PACKAGE PROC.   QUANTITY
 --------------------  --------    -------------   --------    -----------------  --------    ------------------   --------
 MAX BLOCKS ALLOCATED     24.00    DIRECT ACCESS       0.00    MAX DEGREE            0.00    PLAN ALLOC-ATTEMPTS     0.00
 CURRENT BLKS ALLOC.       0.00    INDEX USED          0.00    GROUPS EXECUTED       0.00    PLAN ALLOC-SUCCESS      0.00
 FAILED-NO STORAGE         0.00    TS SCAN USED        0.00     RAN AS PLANNED       0.00    PACK ALLOC-ATTEMPTS     0.00
 FAILED-RDS LIMIT          0.00                                 RAN REDUCED          0.00    PACK ALLOC-SUCCESS      0.00
 FAILED-DM LIMIT           0.00                                 FALL TO SEQUENTIAL   0.00    AUTOBIND ATTEMPTS       0.00
 FAILED-PROCESS LIMIT      0.00                                 ONE DB2 COORD P=NO   0.00    AUTOBIND SUCCESSFUL     0.00
                                                                ONE DB2 ISO LVL      0.00
                                                                MEMBER SKIPPED (%)    N/C
                                                                REFORM PARAL-CONFIG  0.00
                                                                REFORM PARAL-NO BUF  0.00

 STORED PROCEDURES  QUANTITY    UDF         QUANTITY    TRIGGERS           QUANTITY
 -----------------  --------    ---------   --------    -----------------  --------
 CALL STATEMENTS       0.00    EXECUTED        0.00    STATEMENT TRIGGER      0.00
 PROCEDURE ABENDED     0.00    ABENDED         0.00    ROW TRIGGER            0.00
 CALL TIMED OUT        0.00    TIMED OUT       0.00    SQL ERROR OCCURRED     0.00
 CALL REJECTED         0.00    REJECTED        0.00
```

Figure 181. Partial Member-Scope Statistics Short Report for DSNDG0G (Part 2 of 2)

Group-Scope Reports

Most of the statistics counters are pertinent to the member which maintains them, for example the counters describing the local buffer pool activity. There are, however, some statistics counters which are also pertinent to the entire data sharing group, for example the counters describing the global locking activity and group-buffer-pools usage. In order to present these counters on a per-group basis, DB2 PM combines the statistics data of the individual members and presents it for the entire group. There are no group-scope traces because DB2 statistics traces are not synchronized across a data sharing group. They have generally different start and stop times and frequency of externalizing the statistics data.

In group-scope reports, DB2 PM applies the same user-specified statistics interval to all the members in a group, presents these statistics intervals for each member, and then adds up the counters across all the members and presents them as statistics on a per-group basis.

The following example demonstrates the concepts of group-scope reporting.

Figure 182 shows a group-scope report with the following specifics:

- The statistics is presented separately for each members (note the MEMBER field in the HIGHLIGHTS block).
- Only selected counters (data sharing locking, group buffer pools, and highlights) are presented.
- After the members' statistics is presented, the aggregated statistics data for the entire group is shown.
    - The MEMBER field in the HIGHLIGHTS block displays the number of members for which the statistics is aggregated.
    - The group's statistics counters are calculated by adding up the members' statistics counters.
    - As the default statistics interval is assumed (the data is presented for the entire period the statistics is available), the statistics is given from the earliest to the latest time for which the statistics data is available.
    - The group's interval elapsed time is the average elapsed time of the members' interval elapsed times.

```
          LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-1
             GROUP: DSNDG0G                     STATISTICS REPORT - SHORT               REQUESTED FROM: NOT SPECIFIED
                                                                                                   TO: NOT SPECIFIED
                                                                                       INTERVAL FROM: 04/03/99 18:35:00.80
   DB2 VERSION: V6                                 SCOPE: GROUP                                    TO: 04/03/99 18:45:01.12

   ---- HIGHLIGHTS ------------------------------------------------------------------------------------------------------
   INTERVAL START: 04/03/99 18:35:00.80   INTERVAL ELAPSED: 10:00.27374   INCREMENTAL BINDS     :     0.00   DBAT QUEUED:      0.00
   INTERVAL END  : 04/03/99 18:45:01.07   OUTAGE ELAPSED  :   0.000000    AUTH SUCC.W/OUT CATALOG: 6946.00   DB2 COMMAND:     38.00
   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS   :      37.00    BUFF.UPDT/PAGES WRITTEN:    1.93   TOTAL API  :      0.00
   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS   :   26862.00    PAGES WRITTEN/WRITE I/O:    3.06   MEMBER     : DG1G

   DATA SHARING LOCKS  QUANTITY
   ------------------  --------
   GLB CONT.RATE (%)      0.14
   FLS CONT.RATE (%)      0.02
   LOCK REQ.(P-LOCK)  38383.00
   UNLOCK REQ.(P-LCK) 38358.00
   CHANGE REQ.(P-LCK)     0.00
   SYNC.XES - LOCK      166.3K
   SYNC.XES - CHANGE  94297.00
   SYNC.XES - UNLOCK    163.5K
   ASYN.XES-RESOURCES     0.00
   TOTAL SUSPENDS       600.00
   P-LCK/NFY ENG.UNAV     0.00
   INCOM.RETAINED LCK     0.00
   PSET/PART NEGOTIAT     0.00
   PAGE NEGOTIATION     425.00

   GROUP BP0                   QUANTITY   GROUP BP1                   QUANTITY   GROUP TOT4K                 QUANTITY
   -------------------------   --------   -------------------------   --------   -------------------------   --------
   SYN.READ(XI)-DATA RETURNED   3043.00   SYN.READ(XI)-DATA RETURNED  10321.00   SYN.READ(XI)-DATA RETURNED  13364.00
   SYN.READ(XI)-NO DATA RETURN     0.00   SYN.READ(XI)-NO DATA RETURN     0.00   SYN.READ(XI)-NO DATA RETURN     0.00
   SYN.READ(NF)-DATA RETURNED      0.00   SYN.READ(NF)-DATA RETURNED      0.00   SYN.READ(NF)-DATA RETURNED      0.00
   SYN.READ(NF)-NO DATA RETURN     0.00   SYN.READ(NF)-NO DATA RETURN     0.00   SYN.READ(NF)-NO DATA RETURN     0.00
   CLEAN PAGES SYN.WRTN            0.00   CLEAN PAGES SYN.WRTN            0.00   CLEAN PAGES SYN.WRTN            0.00
   CHANGED PGS SYN.WRTN         6099.00   CHANGED PGS SYN.WRTN         18100.00   CHANGED PGS SYN.WRTN         24199.00
   CLEAN PAGES ASYN.WRT            0.00   CLEAN PAGES ASYN.WRT            0.00   CLEAN PAGES ASYN.WRT            0.00
   CHANGED PGS ASYN.WRT            9.00   CHANGED PGS ASYN.WRT            1.00   CHANGED PGS ASYN.WRT           10.00
   REG.PG LIST (RPL) RQ           20.00   REG.PG LIST (RPL) RQ           35.00   REG.PG LIST (RPL) RQ           55.00
   CLEAN PGS READ RPL             23.00   CLEAN PGS READ RPL              0.00   CLEAN PGS READ RPL             23.00
   CHANGED PGS READ RPL            5.00   CHANGED PGS READ RPL          284.00   CHANGED PGS READ RPL          289.00
   PGS READ FRM DASD AFTER RPL    63.00   PGS READ FRM DASD AFTER RPL     4.00   PGS READ FRM DASD AFTER RPL    67.00
   ASYN.READ-DATA RETURNED         0.00   ASYN.READ-DATA RETURNED         0.00   ASYN.READ-DATA RETURNED         0.00
   PAGES CASTOUT                  60.00   PAGES CASTOUT               10624.00   PAGES CASTOUT               10684.00
   EXPLICIT X-INVALIDATIONS        0.00   EXPLICIT X-INVALIDATIONS        0.00   EXPLICIT X-INVALIDATIONS        0.00
   CASTOUT CLASS THRESH            1.00   CASTOUT CLASS THRESH           61.00   CASTOUT CLASS THRESH           62.00
   GROUP BP CAST.THRESH            0.00   GROUP BP CAST.THRESH            0.00   GROUP BP CAST.THRESH            0.00
   CASTOUT ENG.UNAVAIL.            0.00   CASTOUT ENG.UNAVAIL.            0.00   CASTOUT ENG.UNAVAIL.            0.00
   WRITE ENG.UNAVAIL.              0.00   WRITE ENG.UNAVAIL.              0.00   WRITE ENG.UNAVAIL.              0.00
   READ FAILED-NO STOR.            0.00   READ FAILED-NO STOR.            0.00   READ FAILED-NO STOR.            0.00
   WRITE FAILED-NO STOR            0.00   WRITE FAILED-NO STOR            0.00   WRITE FAILED-NO STOR            0.00
```

Figure 182. Group-Scope Statistics Short Report for DSGROUP1 (Part 1 of 3)

```
      LOCATION: DSNDG0G                       DB2 PERFORMANCE MONITOR (V6)                       PAGE: 1-2
         GROUP: DSNDG0G                        STATISTICS REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
                                                                                                 TO: NOT SPECIFIED
                                                                                   INTERVAL FROM: 04/03/99 18:35:00.80
DB2 VERSION: V6                                   SCOPE: GROUP                                 TO: 04/03/99 18:45:01.12

---- HIGHLIGHTS ----------------------------------------------------------------------------------------------------
INTERVAL START: 04/03/99 18:35:00.88   INTERVAL ELAPSED: 10:00.24469   INCREMENTAL BINDS     :      0.00   DBAT QUEUED:        0.00
INTERVAL END  : 04/03/99 18:45:01.12   OUTAGE ELAPSED   :    0.000000   AUTH SUCC.W/OUT CATALOG: 10554.00   DB2 COMMAND:       38.00
SAMPLING START: 04/03/99 18:35:00.88   TOTAL THREADS    :      37.00   BUFF.UPDT/PAGES WRITTEN:    11.39   TOTAL API  :        0.00
SAMPLING END  : 04/03/99 18:45:01.12   TOTAL COMMITS    :   27038.00   PAGES WRITTEN/WRITE I/O:    25.18   MEMBER     : DG2G

DATA SHARING LOCKS  QUANTITY
------------------  --------
GLB CONT.RATE (%)       0.14
FLS CONT.RATE (%)       0.02
LOCK REQ.(P-LOCK)   40764.00
UNLOCK REQ.(P-LCK)  40746.00
CHANGE REQ.(P-LCK)      0.00
SYNC.XES - LOCK       179.2K
SYNC.XES - CHANGE     101.4K
SYNC.XES - UNLOCK     175.3K
ASYN.XES-RESOURCES      0.00
TOTAL SUSPENDS        645.00
P-LCK/NFY ENG.UNAV      0.00
INCOM.RETAINED LCK      0.00
PSET/PART NEGOTIAT      0.00
PAGE NEGOTIATION      390.00

GROUP BP0                   QUANTITY   GROUP BP1                   QUANTITY   GROUP TOT4K                 QUANTITY
--------------------------- --------   --------------------------- --------   --------------------------- --------
SYN.READ(XI)-DATA RETURNED   3050.00   SYN.READ(XI)-DATA RETURNED  10352.00   SYN.READ(XI)-DATA RETURNED  13402.00
SYN.READ(XI)-NO DATA RETURN     2.00   SYN.READ(XI)-NO DATA RETURN     0.00   SYN.READ(XI)-NO DATA RETURN     2.00
SYN.READ(NF)-DATA RETURNED      0.00   SYN.READ(NF)-DATA RETURNED      0.00   SYN.READ(NF)-DATA RETURNED      0.00
SYN.READ(NF)-NO DATA RETURN     0.00   SYN.READ(NF)-NO DATA RETURN     0.00   SYN.READ(NF)-NO DATA RETURN     0.00
CLEAN PAGES SYN.WRTN            0.00   CLEAN PAGES SYN.WRTN            0.00   CLEAN PAGES SYN.WRTN            0.00
CHANGED PGS SYN.WRTN         6092.00   CHANGED PGS SYN.WRTN        18106.00   CHANGED PGS SYN.WRTN        24198.00
CLEAN PAGES ASYN.WRT            0.00   CLEAN PAGES ASYN.WRT            0.00   CLEAN PAGES ASYN.WRT            0.00
CHANGED PGS ASYN.WRT            5.00   CHANGED PGS ASYN.WRT            2.00   CHANGED PGS ASYN.WRT            7.00
REG.PG LIST (RPL) RQ          18.00   REG.PG LIST (RPL) RQ          38.00   REG.PG LIST (RPL) RQ          56.00
CLEAN PGS READ RPL            23.00   CLEAN PGS READ RPL             0.00   CLEAN PGS READ RPL            23.00
CHANGED PGS READ RPL           4.00   CHANGED PGS READ RPL         263.00   CHANGED PGS READ RPL         267.00
PGS READ FRM DASD AFTER RPL   85.00   PGS READ FRM DASD AFTER RPL    7.00   PGS READ FRM DASD AFTER RPL   92.00
ASYN.READ-DATA RETURNED        0.00   ASYN.READ-DATA RETURNED        0.00   ASYN.READ-DATA RETURNED        0.00
PAGES CASTOUT                120.00   PAGES CASTOUT               5248.00   PAGES CASTOUT               5368.00
EXPLICIT X-INVALIDATIONS       0.00   EXPLICIT X-INVALIDATIONS       0.00   EXPLICIT X-INVALIDATIONS       0.00
CASTOUT CLASS THRESH           2.00   CASTOUT CLASS THRESH          63.00   CASTOUT CLASS THRESH          65.00
GROUP BP CAST.THRESH           0.00   GROUP BP CAST.THRESH           0.00   GROUP BP CAST.THRESH           0.00
CASTOUT ENG.UNAVAIL.           0.00   CASTOUT ENG.UNAVAIL.           0.00   CASTOUT ENG.UNAVAIL.           0.00
WRITE ENG.UNAVAIL.             0.00   WRITE ENG.UNAVAIL.             0.00   WRITE ENG.UNAVAIL.             0.00
READ FAILED-NO STOR.           0.00   READ FAILED-NO STOR.           0.00   READ FAILED-NO STOR.           0.00
WRITE FAILED-NO STOR           0.00   WRITE FAILED-NO STOR           0.00   WRITE FAILED-NO STOR           0.00
```

Figure 182. Group-Scope Statistics Short Report for DSGROUP1 (Part 2 of 3)

```
       LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-3
          GROUP: DSNDG0G                     STATISTICS REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
                                                                                              TO: NOT SPECIFIED
                                                                                   INTERVAL FROM: 04/03/99 18:35:00.80
   DB2 VERSION: V6                               SCOPE: GROUP                                   TO: 04/03/99 18:45:01.12

   ---- HIGHLIGHTS ---------------------------------------------------------------------------------------------------
   INTERVAL START: 04/03/99 18:35:00.80   INTERVAL ELAPSED: 10:00.25921   INCREMENTAL BINDS    :    0.00   DBAT QUEUED:     0.00
   INTERVAL END  : 04/03/99 18:45:01.12   OUTAGE ELAPSED  :    0.000000   AUTH SUCC.W/OUT CATALOG: 17500.00   DB2 COMMAND:    76.00
   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS   :      74.00    BUFF.UPDT/PAGES WRITTEN:     2.55   TOTAL API  :     0.00
   SAMPLING END  : 04/03/99 18:45:01.12   TOTAL COMMITS   :   53900.00    PAGES WRITTEN/WRITE I/O:     3.25   MEMBER     :        2

   DATA SHARING LOCKS   QUANTITY
   ------------------   --------
   GLB CONT.RATE (%)       0.14
   FLS CONT.RATE (%)       0.02
   LOCK REQ.(P-LOCK)   79147.00
   UNLOCK REQ.(P-LCK)  79104.00
   CHANGE REQ.(P-LCK)      0.00
   SYNC.XES - LOCK      345.4K
   SYNC.XES - CHANGE    195.7K
   SYNC.XES - UNLOCK    338.8K
   ASYN.XES-RESOURCES      0.00
   TOTAL SUSPENDS       1245.00
   P-LCK/NFY ENG.UNAV      0.00
   INCOM.RETAINED LCK      0.00
   PSET/PART NEGOTIAT      0.00
   PAGE NEGOTIATION      815.00

   GROUP BP0                    QUANTITY   GROUP BP1                    QUANTITY   GROUP TOT4K                  QUANTITY
   --------------------------   --------   --------------------------   --------   --------------------------   --------
   SYN.READ(XI)-DATA RETURNED    6093.00   SYN.READ(XI)-DATA RETURNED   20673.00   SYN.READ(XI)-DATA RETURNED   26766.00
   SYN.READ(XI)-NO DATA RETURN      2.00   SYN.READ(XI)-NO DATA RETURN      0.00   SYN.READ(XI)-NO DATA RETURN      2.00
   SYN.READ(NF)-DATA RETURNED       0.00   SYN.READ(NF)-DATA RETURNED       0.00   SYN.READ(NF)-DATA RETURNED       0.00
   SYN.READ(NF)-NO DATA RETURN      0.00   SYN.READ(NF)-NO DATA RETURN      0.00   SYN.READ(NF)-NO DATA RETURN      0.00
   CLEAN PAGES SYN.WRTN             0.00   CLEAN PAGES SYN.WRTN             0.00   CLEAN PAGES SYN.WRTN             0.00
   CHANGED PGS SYN.WRTN         12191.00   CHANGED PGS SYN.WRTN         36206.00   CHANGED PGS SYN.WRTN         48397.00
   CLEAN PAGES ASYN.WRT             0.00   CLEAN PAGES ASYN.WRT             0.00   CLEAN PAGES ASYN.WRT             0.00
   CHANGED PGS ASYN.WRT            14.00   CHANGED PGS ASYN.WRT             3.00   CHANGED PGS ASYN.WRT            17.00
   REG.PG LIST (RPL) RQ            38.00   REG.PG LIST (RPL) RQ            73.00   REG.PG LIST (RPL) RQ           111.00
   CLEAN PGS READ RPL              46.00   CLEAN PGS READ RPL              0.00   CLEAN PGS READ RPL              46.00
   CHANGED PGS READ RPL             9.00   CHANGED PGS READ RPL           547.00   CHANGED PGS READ RPL           556.00
   PGS READ FRM DASD AFTER RPL    148.00   PGS READ FRM DASD AFTER RPL     11.00   PGS READ FRM DASD AFTER RPL    159.00
   ASYN.READ-DATA RETURNED          0.00   ASYN.READ-DATA RETURNED          0.00   ASYN.READ-DATA RETURNED          0.00
   PAGES CASTOUT                  180.00   PAGES CASTOUT                15872.00   PAGES CASTOUT                16052.00
   EXPLICIT X-INVALIDATIONS         0.00   EXPLICIT X-INVALIDATIONS         0.00   EXPLICIT X-INVALIDATIONS         0.00
   CASTOUT CLASS THRESH             3.00   CASTOUT CLASS THRESH           124.00   CASTOUT CLASS THRESH           127.00
   GROUP BP CAST.THRESH             0.00   GROUP BP CAST.THRESH             0.00   GROUP BP CAST.THRESH             0.00
   CASTOUT ENG.UNAVAIL.             0.00   CASTOUT ENG.UNAVAIL.             0.00   CASTOUT ENG.UNAVAIL.             0.00
   WRITE ENG.UNAVAIL.               0.00   WRITE ENG.UNAVAIL.               0.00   WRITE ENG.UNAVAIL.               0.00
   READ FAILED-NO STOR.             0.00   READ FAILED-NO STOR.             0.00   READ FAILED-NO STOR.             0.00
   WRITE FAILED-NO STOR             0.00   WRITE FAILED-NO STOR             0.00   WRITE FAILED-NO STOR             0.00

   STATISTICS REPORT COMPLETE
```

Figure 182. Group-Scope Statistics Short Report for DSGROUP1 (Part 3 of 3)

Exception Processing

Exception processing is used to identify statistics report, trace, and file data set entries, with fields containing values outside limits you previously specified. These limits are called *thresholds* and are set in the exception threshold data set. When exception processing is requested for reports and traces, the data to be reported is checked against these thresholds. There are two threshold types that you can set: warning and problem. A warning message is printed if a value is outside the first threshold and a problem message is printed if a value is outside the second threshold.

When exception processing is requested for a file data set, only delta records in exception are included in the output data set.

Statistics exception reports, traces, and file data sets are identical to the usual statistics reports, traces, and file data sets, except that they only contain interval records and delta records that have at least one field in exception status.

When delta records and interval records are processed during exception processing, values defined in the exception threshold data set are compared with the corresponding values in a delta or interval record. If any field is in exception, the following occurs:

- If the JCL contains a valid DD statement for EXTRCDD1 or EXFILDD1, the identity of the delta or interval record (timestamp and subsystem identification) and the fields in exception are logged in the exception logs (refer to Figure 257 for more information).

- If EXCEPTION is specified on the REPORT, TRACE, or FILE subcommand, the interval or delta record is formatted and printed (or filed in the case of the FILE subcommand) in the requested layout followed by the exception messages block, an example of which is shown in Figure 183. The exception messages block identifies the fields in exception.

Notes:

1. The type of layout used has no effect on exception processing or on the content of the exception messages block; all fields in exception are reported. The layout used only affects the level of detail in the formatted interval or delta record. This means, the exception report can contain fields that have not been included in the corresponding trace or report.

2. For group-scope reports, exceptions are checked only against the interval records which are aggregated across a data sharing group. However, member-specific statistics appear wherever exceptions are found for the entire group.

The fields that caused the entry to be in exception are identified along with the appropriate warning or problem message, and are printed in the exception messages block of the report or trace.

An example of an exception messages block is shown in Figure 183. It is printed after each interval or delta record that is found to be in exception status, provided that EXCEPTION is specified in the REPORT or TRACE subcommand.

```
****************************************************************************************************************************
*  TYPE          FIELD ID   FIELD DESCRIPTION                                        BY                   VALUE   THRESHOLD   *
*                           FIELD QUALIFIER                                                                                   *
*  PROBLEM       QBSTRIO    SYNCHRONOUS READS                                        TOTAL                 53 > 50            *
*                           BP0                                                                                               *
*  WARNING       QBSTRIO    SYNCHRONOUS READS                                        TOTAL                  9 > 1             *
*                           BP2                                                                                               *
*  WARNING       QBSTRIO    SYNCHRONOUS READS                                        TOTAL                  9 > 1             *
*                           BP7                                                                                               *
****************************************************************************************************************************
```

Figure 183. Statistics Exception Messages Block

The following columns of data are presented:

TYPE The type of threshold. WARNING or PROBLEM can be printed in this field.

FIELD ID
The name of the field from the exception threshold data set.

FIELD DESCRIPTION
The description of the field.

FIELD QUALIFIER
The qualifier of the field. This is either the buffer pool ID, the group buffer pool ID, or the remote location. This field is blank if there is no field qualifier.

BY The basis for the comparison. The following values can be printed in this column:

TOTAL
The threshold is specified as a *total* value.

MINUTE
The threshold is specified as a *by minute* value. The value in the interval or delta record is divided by the number of minutes in the interval or delta before making the comparison.

SECOND
The threshold is specified as a *by second* value. The value in the interval or delta record is divided by the number of seconds in the interval or delta before making the comparison.

COMMIT
The threshold is specified as a *by commit* value. The value in the interval or delta record is divided by the number of commits in the interval or delta before making the comparison.

THREAD
The threshold is specified as a *by thread* value. The value in the interval or delta record is divided by the number of threads in the interval or delta before making the comparison.

VALUE
The actual field value used for the comparison. For total comparisons, the value from the interval or delta record is printed. For by minute, by second, by commit, or by thread comparisons, the calculated by minute, by second, by commit, or by thread value is printed. The symbols > or < are printed between this column and the THRESHOLD column indicating whether the value is larger or smaller than the threshold value.

THRESHOLD
The threshold defined in the exception threshold data set.

The fields available for statistics exception processing are shown in "Chapter 35. Statistics Report and Trace Fields" on page 501.

Headers Used in Statistics

The headers for statistics reports and traces are identical, except that INTERVAL FROM/TO in the report header is replaced by ACTUAL FROM in the trace header, and the SCOPE field does not apply to statistics traces.

An example of a statistics report header is shown in Figure 184.

```
LOCATION: DSGROUP2                    DB2 PERFORMANCE MONITOR (V6)                         PAGE: 1-1
   GROUP: DSGROUP2                      STATISTICS REPORT - LONG                REQUESTED FROM: NOT SPECIFIED
  MEMBER: DSM5                                                                             TO: NOT SPECIFIED
SUBSYSTEM: DSM5                                                                 INTERVAL FROM: 02/18/98 20:00:00.00
DB2 VERSION: V6                             SCOPE: MEMBER                                   TO: 02/18/98 20:45:00.00
```

Figure 184. Statistics Report Header Example

The statistics report and trace headers contain the following information described in the order left block, middle block, right block:

LOCATION

The DB2 reporting location. If the DB2 subsystem is installed without a location name, either the DB2 subsystem ID (in non-data-sharing environments) or the data sharing group name (in data sharing environments) is shown.

GROUP

The data sharing group the DB2 subsystem belongs to.

MEMBER

The name of the DB2 data sharing member. This field is not printed for group-scope reports.

SUBSYSTEM

The ID of the DB2 subsystem that generated the data. This field is not printed for group-scope reports.

DB2 VERSION

The DB2 version number of the subsystem that generated the data.

DB2 PERFORMANCE MONITOR (V6)

The product name and version.

Title - layout

The title of the report or trace and the layout. The layout can be the default layout provided with DB2 PM or a layout you have tailored yourself.

SCOPE

The scope of the report, which can be MEMBER or GROUP. A member-scope report shows a group's instrumentation data member by member without merging the data. A group-scope report merges the instrumentation data belonging to the individual members and presents it for the entire group.

Note: All reports in a non-data-sharing environment are member-scope reports.

EXCEPTION

Indicates an exception report or trace.

PAGE The page number in the format *lll-nnnnnn*, where *lll* denotes the location number within the report and *nnnnnn* the page number within the location.

REQUESTED FROM/TO

The FROM/TO dates and times specified in the REPORT or TRACE subcommand. If both FROM and TO dates and times are omitted from the subcommand, the FROM/TO dates and times specified in the GLOBAL command are printed.

If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value. If FROM/TO is not specified in the subcommand and GLOBAL command, NOT SPECIFIED appears for both the FROM and TO values.

If you specified FROM/TO times without dates in the subcommand and GLOBAL command, ALL DATES is printed together with the specified times.

Note: Any FROM/TO times specified in REDUCE can affect the GLOBAL FROM/TO times.

ACTUAL FROM

The date and time of the first DB2 statistics record processed by the trace.

INTERVAL FROM

        The start date and time of the first interval record covered by the report.

INTERVAL TO

        The end date and time of the last interval record covered by the report.

Chapter 32. The STATISTICS Command

You use the STATISTICS command to generate reports, traces, and file data sets. You can also use it to reduce, save, and restore data. The command can be used once in a job step. However, it can be used in the same job step with commands of the other report sets. The following subcommands are associated with the STATISTICS command:

- REDUCE
- REPORT
- SAVE
- RESTORE
- TRACE
- FILE

You can choose between two methods for entering DB2 PM commands:

- **The Interactive Report Facility (IRF)**

  The IRF provides a series of interactive menus and panels you can use to specify the commands and options required to generate reports and traces, as well as review and edit your selections. You can either generate the command stream and submit the job in background, or execute your job in foreground. Refer to the *DB2 PM Batch User's Guide* for more information on the IRF.

- **The DB2 PM Command Language**

  You can use an editor to enter the DB2 PM commands in the proper syntax, specifying the appropriate subcommands, options, and keywords, and the JCL required to execute the job.

This chapter is intended for the user who wants to build a command stream using the DB2 PM command language.

Building a Command Stream

Figure 185 is a sample of the JCL required to produce statistic reports and traces. A description of the DD statements follows the sample.

```
//DB2PM   JOB (INSTALLATION DEPENDENCIES)
//*
//* ================================================================*
//*           D B 2   P M   R E P O R T   G E N E R A T I O N       *
//* ================================================================*
//*
//        EXEC PGM=DB2PM
//* FOLLOWING ARE DB2PM SYSTEM DDNAMES
//STEPLIB  DD  DSN=DGO.V6R1M0.SDGOLOAD,DISP=SHR
//DPMPARMS DD  DSN=DGO.V6R1M0.DPMPARMS,DISP=SHR
//INPUTDD  DD  DSN=DGO.V6R1M0.DPMIN61,DISP=SHR
//DPMLOG   DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//JOBSUMDD DD  SYSOUT=*
//EXCPTDD  DD  DSN=DGO.EXCEPT.THRESH,DISP=OLD
//EXTRCDD1 DD  SYSOUT=*
//EXFILDD1 DD  DSN=DGO.EXCEPT.LOGFILE,DISP=OLD
//SYSPRMDD DD  SYSOUT=*
//DPMOUTDD DD  DSN=DGO.V6R1M0.DPMOUT.DATA,DISP=OLD
//JSSRSDD  DD  DSN=DGO.V6R1M0.JSSRS.DATA,DISP=OLD
//SYSUDUMP DD  DUMMY
//* FOLLOWING ARE DB2PM REPORT SET DDNAMES
//STRPTDD  DD  SYSOUT=*
//STTRCDD1 DD  SYSOUT=*
//STSAVDD  DD  DSN=DGO.V6R1M0.STSAV.DATA,DISP=OLD
//STRSTDD  DD  DSN=DGO.V6R1M0.STRST.DATA,DISP=SHR
//STFILDD1 DD  DSN=DGO.V6R1M0.STFIL.DATA,DISP=SHR
//STWORK   DD  DSN=DGO.V6R1M0.STA.WORKDD,DISP=OLD
//* FOLLOWING IS THE DB2PM COMMAND STREAM
//SYSIN    DD  *

  :
  :
  STATISTICS
       REDUCE
       TRACE
       REPORT
          LAYOUT (LONG)
       RESTORE
       SAVE
       FILE
  :
  :
  EXEC
```

Figure 185. Sample JCL for Requesting Statistics Functions

The DB2 PM command language shown in Figure 185 is not appropriate in all circumstances. You must modify it to meet your requirements.

Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by DB2 PM. See the individual DD statement descriptions for more information.

Notes:

1. There is a performance advantage in omitting DPMOUTDD from your JCL. For more information, see the description of DPMOUTDD on page 393.

2. The DB2 PM command stream is only processed if EXEC is included as the last command. Otherwise, DB2 PM only checks the syntax.

DD Statements

This section describes the DD statements and the data sets defined in Figure 185.

The values for RECFM, LRECL, and BLKSIZE shown for some data sets are the values that DB2 PM generated at run time. Note that the generated value for BLKSIZE is not mandatory, but is suggested. Do not override the values for RECFM and LRECL.

DPMPARMS

The DPMPARMS data set is used to store changes that you have made to standard DB2 PM settings. For example, if you tailor your own report layout, it is stored in the DPMPARMS data set. Specify DPMPARMS if you want to use this layout. The modified DB2 PM settings stored in DPMPARMS are:

- Time zone processing
- Exception messages
- UTR layouts

DPMPARMS must be a partitioned data set. You use the following attributes if you want to preallocate a new DPMPARMS data set. It is recommended that you increase the number of directory blocks if you intend to tailor many report layouts:

RECFM:
FB

LRECL:
80

BLKSIZE:
6160

Dir blocks
5

Note: Do not specify DUMMY for DPMPARMS.

INPUTDD

Lists the input data sets containing the DB2 performance data created by the DB2 trace facility. You can process several input data sets. These data sets are concatenated in the JCL to create one logical data set. The input data sets can be in SMF, GTF, or DPMOUT format or data sets generated by the Collect Report Data function of the Online Monitor. The normal rules for concatenating data sets apply. If DFSORT is used, refer to the *DFSORT Application Programming Guide* for rules governing the concatenation of data sets.

INPUTDD is required if your job stream contains a REDUCE, TRACE, or FILE subcommand, or if exception processing is performed.

Note: The default ddname for the input data set is INPUTDD. You can specify another ddname using the INPUTDD option of the GLOBAL command. If you specify another ddname, make sure your JCL includes a valid DD statement for the new name. Refer to "The GLOBAL Command" on page 40 for more information.

DPMLOG

DB2 PM command processor messages are written to DPMLOG. If DPMLOG is omitted, it is dynamically allocated to the SYSOUT message class of the job. Refer to "Chapter 7. DPMLOG Execution Log" on page 83 for more information.

RECFM:
>FBA

LRECL:
>133

BLKSIZE:
>6251

SYSOUT
>Messages from DFSORT are written to the ddname SYSOUT. If SYSOUT is omitted, it is dynamically allocated to the SYSOUT message class of the job.

>**RECFM:**
>>FBA

>**LRECL:**
>>133

>**BLKSIZE:**
>>6251

JOBSUMDD
>The job summary log and the IFCID frequency distribution log are written to JOBSUMDD. This ddname is not required unless you want these logs.

>Refer to "Chapter 9. Job Summary Log" on page 91 and "Chapter 10. IFCID Frequency Distribution Log" on page 95 for more information.

>**RECFM:**
>>FBA

>**LRECL:**
>>133

>**BLKSIZE:**
>>6251

EXCPTDD
>The exception threshold data set contains the user-defined exception thresholds. This ddname is required if you want to produce an exception log or if you specified EXCEPTION on the TRACE, REPORT, or FILE subcommand.

>**RECFM:**
>>VB

>**LRECL:**
>>255

>**BLKSIZE:**
>>6233

EXTRCDD1
>The data for the exception log is written to EXTRCDD1. This DD statement is required if you want to produce an exception log. Refer to "Chapter 8. Exception Log" on page 85 for more information.

Note: The exception threshold data set, as defined in EXCPTDD, is also required to produce an exception log.

> **RECFM:**
> FBA
>
> **LRECL:**
> 133
>
> **BLKSIZE:**
> 6251

EXFILDD1

The data for the exception log file data set is written to EXFILDD1. This DD statement is required if you want to produce an exception log file data set.

Note: The exception threshold data set, as defined in EXCPTDD, is also required to produce an exception log file data set.

> **RECFM:**
> VB
>
> **LRECL:**
> 512
>
> **BLKSIZE:**
> 4096

SYSPRMDD

The system parameters report is written to SYSPRMDD. This ddname is optional. You must only include it if you want a system parameters report.

Note: The default ddname for the system parameters report is SYSPRMDD. You can specify another ddname using the SYSPRMDD option of the DB2 PM GLOBAL command. If you specify another ddname, make sure your JCL contains a valid DD statement for the new ddname. Refer to "The GLOBAL Command" on page 40 for information about the GLOBAL command, and to Part 15. The System Parameters Report Set for information about the system parameters report.

> **RECFM:**
> FBA
>
> **LRECL:**
> 133
>
> **BLKSIZE:**
> 6251

DPMOUTDD

The DPMOUT data set is optional.

If you do not specify DPMOUTDD:

All DPMOUT-related processing is completed in storage. Only the records which relate to the report set commands in the same job step are processed. No data is externalized.

Note: There is a performance advantage in omitting DPMOUTDD from your JCL because only the records required for the current job step are processed.

If you specify DPMOUTDD:

All records that satisfy GLOBAL FROM/TO and INCLUDE/EXCLUDE selection criteria are reformatted, sorted, and written to the data set specified by DPMOUTDD.

Notes:

1. Include DPMOUTDD in your JCL only if you want to:
   - Retain a copy of the input data.
   - Control the size, disposition, or placement of the work data set for merged processing.
2. You can specify a permanent or temporary data set for DPMOUTDD.
3. Do not specify DUMMY or DISP=MOD for DPMOUTDD.
4. The size of the DPMOUT data set depends on the number of input records—which are the IFCID records included in the DB2-related SMF record types 100, 101, and 102—and the GLOBAL filters. One input record occupies approximately 1.5 KB of the space in the DPMOUT data set. Because DB2 PM, by default, allocates up to 68 MB for a work data set, the temporary DPMOUT data set needs to be specified only if the number of input records that satisfy GLOBAL criteria exceeds approximately 45 000.
5. An alternative way of estimating the size of the DPMOUT data set is to make it 1.6 times the size of the input data set, if the input data set is composed mostly of DB2-related records.

RECFM:
   VBS

LRECL:
   32 756

BLKSIZE:
   6233

JSSRSDD

Job summary data is written to JSSRSDD when a SAVE subcommand is processed, and is restored from JSSRSDD when a RESTORE subcommand is processed. If you are restoring data, the data set defined by JSSRSDD and the data set defined by STRSTDD should match, that is, be produced by the same save operation. Refer to "Job Summary VSAM Data Set" on page 93 for more information.

JSSRSDD is optional. If you omit JSSRSDD, information about the previous processing of saved data is not restored, and information about current processing is not saved.

The VSAM data set defined by JSSRSDD must already exist when you run DB2 PM. Either specify an existing data set from a previous DB2 PM run (when restoring data), or specify a new data set allocated using the IDCAMS DEFINE CLUSTER function. If an existing data set is used and the SAVE subcommand is specified, the new job summary data is added to the previous content.

Refer to "Appendix B. DB2 PM VSAM Data Sets" on page 1277 for a description of VSAM data sets.

Note: Do not specify DUMMY for JSSRSDD.

STTRCDDx

The output ddname for the TRACE subcommand. Up to five traces can be run in one job step. If STTRCDDx is omitted, it is dynamically allocated to the SYSOUT message class of the job. The default ddname for the first statistics trace is STTRCDD1. The default ddnames for the second to fifth statistics traces are STTRCDD2 to STTRCDD5.

You can specify a different ddname using the DDNAME option in the corresponding TRACE subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname.

RECFM:
FBA

LRECL:
133

BLKSIZE:
6251

STRPTDD

The output from statistics REPORT subcommands is written by default to STRPTDD. Up to five reports (corresponding to five REPORT subcommands in one job step) can be written to STRPTDD in sequence. If STRPTDD is omitted, it is dynamically allocated to the SYSOUT message class of the job.

You can specify a different ddname using the DDNAME option of each REPORT subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname.

RECFM:
FBA

LRECL:
133

BLKSIZE:
6251

STSAVDD

Reduced data processed by the SAVE subcommand is written as a VSAM data set to STSAVDD by default. A valid DD statement is required if your job stream contains a SAVE subcommand.

You can specify another ddname using the DDNAME option of the SAVE subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname. If you do not specify a different ddname, your JCL must contain a valid DD statement for the default ddname.

The VSAM data set defined by STSAVDD must already exist when you run DB2 PM. Either specify an existing data set from a previous DB2 PM run (when restoring data), or specify a new data set allocated using the

IDCAMS DEFINE CLUSTER function. Note that the existing contents of the data set are lost unless the DDNAME options of both SAVE and RESTORE specify the same ddname or data set.

Refer to "Appendix B. DB2 PM VSAM Data Sets" on page 1277 for a description of VSAM data sets.

Note: Do not specify DUMMY for STSAVDD.

STRSTDD

Data processed by the RESTORE subcommand is read from STRSTDD by default. A valid DD statement is required if your job stream contains a RESTORE subcommand.

You can specify a different ddname using the DDNAME option of the RESTORE subcommand. If your job stream contains a RESTORE subcommand that uses the DDNAME option, your JCL must contain a valid DD statement for the specified ddname. If your job stream contains a RESTORE subcommand that does not use the DDNAME option, your JCL must contain a valid DD statement for the default ddname.

Note: Do not specify DUMMY for STRSTDD.

STFILDD1

The output from the FILE subcommand is, by default, written to STFILDD1. You can specify a different ddname using the DDNAME option of the FILE subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname. If you do not specify a different ddname, your JCL must contain a valid DD statement for the default ddname.

RECFM:
VB

LRECL:
9072

BLKSIZE:
9076

STWORK

When you reduce data, reduce processing temporarily uses a REDUCE work data set to provide virtual storage constraint relief. This is normally created on the MVS-defined work volumes, and deleted by DB2 PM. Only include STWORK in your JCL when you want to control the placement or size of the data set.

Note: Do not specify DUMMY or DISP=MOD for this data set.

RECFM:
VBS

LRECL:
32 756

BLKSIZE:
6233

SYSIN SYSIN contains the commands of each DB2 PM report set that are input to DB2 PM. This DD statement is required.

> **RECFM:**
> > FB
>
> **LRECL:**
> > 80
>
> **BLKSIZE:**
> > 6160

Using the STATISTICS Command

You use the STATISTICS command to generate statistics reports, traces, and data sets. The subcommands are described in detail, together with their various options, in the following sections.

The command can be used once in a job step.

```
►►─STATISTICS─┬─┬─REPORT subcommand¹──┬─┬───────────────────►◄
              │ │                     │ │
              │ ├─REDUCE subcommand²──┤ │
              │ ├─SAVE subcommand─────┤ │
              │ ├─RESTORE subcommand──┤ │
              │ ├─TRACE subcommand¹───┤ │
              │ └─FILE subcommand─────┘ │
              └─────────────────────────┘
```
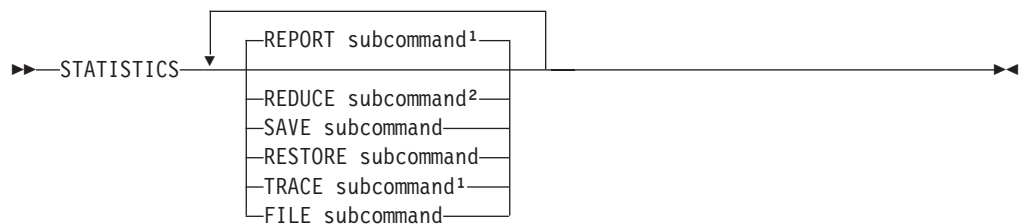
Notes:
1. You can specify both REPORT and TRACE up to 5 times.
2. You cannot specify REDUCE without specifying at least one REPORT or SAVE.

Figure 186. Syntax of the STATISTICS Command

Using the REDUCE Subcommand

By specifying REDUCE you can control the following:
- The duration and alignment of statistics interval records. For a definition of the interval record, see "DB2 PM Interval Records" on page 372.

- The volume of data to be presented in traces and reports and stored in file and save data sets.

REDUCE is invoked automatically when you use the REPORT or SAVE subcommand. REDUCE can be used once in a STATISTICS command.

Figure 187. Syntax of the REDUCE Subcommand

The following options can be used with the REDUCE subcommand:

FROM/TO

Limits the range of DB2 statistics records to process by date and time. Combinations of FROM date and time and TO date and time can be specified. DB2 statistics records are included from the last with a timestamp less than the FROM date and time to the last with a timestamp less than the TO date and time.

The DB2 statistics records available to REDUCE are limited by the GLOBAL FROM/TO dates and times.

If you do not specify a date and time, FROM/TO defaults to the date and time specified in the GLOBAL command. If dates and times are not specified in the GLOBAL command, all DB2 statistics records are included in the reduction process. The FROM/TO dates and times specified in REDUCE affect the other functions.

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the DB2 statistics record timestamp before FROM/TO processing.

Refer to Part 2. Auxiliary and Troubleshooting Commands for more information about the GLOBAL command, the FROM/TO option, and TIMEZONE.

INTERVAL

Defines the duration of statistics interval records. The range is from 0 to 99 999 and is specified in minutes. Once the DB2 statistics data is distributed to the interval records, they can be presented in statistics reports and stored in a save data set.

For example, if INTERVAL(15) is specified, 15-minute intervals are created over the period for which the DB2 statistics data is available and the DB2 data is distributed to these intervals.

INTERVAL(0) specifies that only one interval record is created, starting with the first and ending with the last DB2 statistics record pair.

If no interval is specified, DB2 PM defaults to the interval specified in the GLOBAL command. If no interval is specified in GLOBAL, the default is 0.

Note: INTERVAL has an impact on performance. Always use the largest interval that meets your reporting requirements. If interval processing is not required, the default INTERVAL (0) is recommended for

optimum performance. For more information on intervals, refer to "Processing Intervals".

Example

This example using INTERVAL specifies an interval of 2 hours:
⋮
```
INTERVAL (120)
```
⋮

BOUNDARY

Controls the alignment of the statistic interval records defined by the INTERVAL option. The range is from 0 to 60. A boundary of 0 specifies that interval records are aligned with the number of minutes in the FROM time. A boundary of 60 specifies that interval records are aligned with hour boundaries.

If no boundary is specified, the default is the boundary specified in the GLOBAL command. If no boundary is specified in global, the default is 60.

Boundary is ignored for INTERVAL (0). The interval record starts at the timestamp of the first record that satisfies FROM.

If you use RESTORE and REDUCE in the same job stream, the interval and boundary specified in REDUCE should match the interval and boundary that were used to reduce the data being restored. If these values are different, the interval and boundary from the restored data is used. For more information on boundaries, refer to "Processing Intervals".

INCLUDE/EXCLUDE

Includes or excludes data associated with specific DB2 PM identifiers. The following DB2 PM identifiers can be used with the INCLUDE/EXCLUDE option of REDUCE:

- GROUP (group name)
- LOCATION (location)
- MEMBER (member name)
- SUBSYSTEMID (DB2 subsystem ID)

Refer to "INCLUDE/EXCLUDE" on page 28 for more information on how to use the INCLUDE/EXCLUDE option.

Refer to "Chapter 1. DB2 PM Identifiers" on page 3 for definitions of DB2 PM identifiers.

Processing Intervals

The start time of the first interval processed by REDUCE is influenced by BOUNDARY, INTERVAL, and FROM.

DB2 PM attempts to reduce all data that falls between FROM and TO dates and times. The first interval processed starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval cannot be aligned with the FROM time, the first properly aligned interval starting before the FROM time is used.

Although there is no restriction on the INTERVAL and BOUNDARY combination, your specification should comply with the following recommendations:

- For intervals of less than 60 (excluding 0), there should be a whole number of intervals in an hour. Choose one of the following values:

    1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30.

- For intervals of 60 or greater, there should be a whole number of intervals in a day. Choose one of the following values:

    60, 120, 180, 240, 360, 480, 720, or 1440.

- For intervals of one day (1440) or greater, INTERVAL should be a multiple of 1440.

- Select your interval and boundary so that the first interval starts at the FROM time.

The first interval record starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval record cannot start at the FROM time, it starts before, at the nearest time which satisfies the BOUNDARY specification. Note that an interval record starting before the FROM time only contains data between the FROM time and the end of the interval record. Input data before the FROM time is not processed. Also, an interval record ending after the TO time only contains data between the begining of the interval record and the TO time. Input data after the TO time is not processed.

Examples

Example 1:
```
:
:
REDUCE
   FROM     (,08:00)
   TO       (,10:00)
   INTERVAL (30)
   BOUNDARY (60)
   INCLUDE  (LOCATION(SYDNEY))
:
:
```

BOUNDARY(60) aligns the start time of interval records at the start of an hour, so the first interval record starts at the FROM time (08:00). Subsequent interval records start every 30 minutes (08:30, 09:00, and 09:30 each day). Only the DB2 statistics for location SYDNEY is processed.

Example 2:
```
:
:
REDUCE
   INTERVAL (1440)
   BOUNDARY (60)
SAVE
:
:
```

The following defaults are applied:
- FROM defaults to all dates, and a time of 00:00:00.00.
- TO defaults to all dates, and a time of 23:59:59.99.

BOUNDARY(60) aligns the start time of interval records at the start of an hour, so the first interval record starts at the FROM time (00:00). Subsequent interval records cover 1440 minutes or one day; an interval starts at 00:00 each day.

The interval records are saved in a data set for subsequent use.

Example 3:

```
⋮
REDUCE
   FROM      (,08:15)
   TO        (,13:00)
   INTERVAL (120)
   BOUNDARY (60)
REPORT
   ORDER     (INTERVAL)
⋮
```

BOUNDARY(60) aligns the start time of interval records at the start of an hour, so the first interval record starts at the first properly aligned time before the FROM time, which is 08:00. Subsequent interval records start every two hours (10:00 and 12:00).

A report presenting the statistics data for each of the 2-hour periods is produced.

Using the REPORT Subcommand

You use the REPORT subcommand to present statistics interval records. For the definition of the interval records see "DB2 PM Interval Records" on page 372. The duration and alignment of the interval records are specified by the REDUCE subcommand.

The interval records can be either presented individually (if the ORDER(INTERVAL) option is specified) or aggregated into a new interval record the duration of which is specified with the FROM/TO option in the REPORT subcommand.

Up to five REPORT subcommands can be specified within a STATISTICS command.
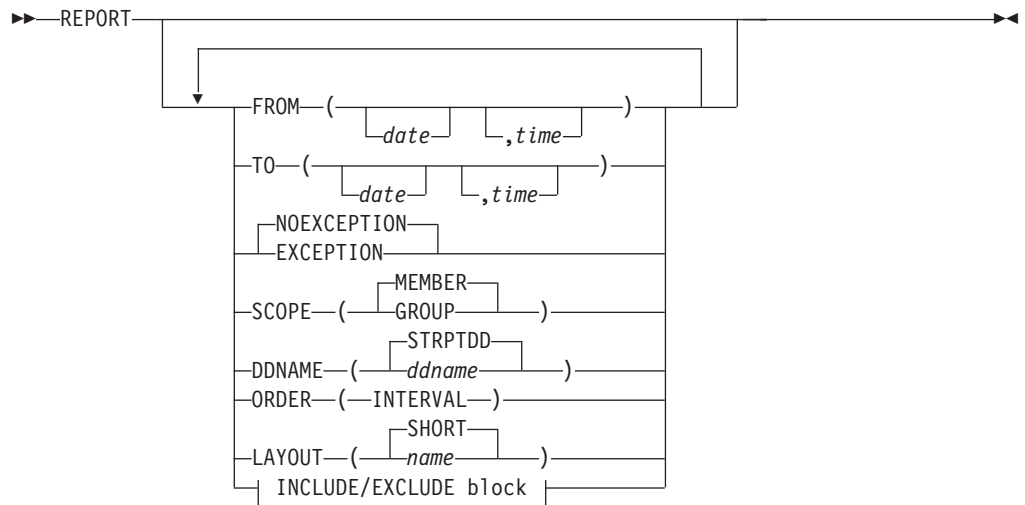
Figure 188. Syntax of the REPORT Subcommand

The following options can be used with the REPORT subcommand:

FROM/TO

Limits the range of interval records included in the reporting process by date and time. Combinations of FROM date and time, and TO date and time can be specified. Interval records are included from the first with an ending timestamp greater than or equal to the FROM date and time, to the last with an ending timestamp less than the TO date and time.

If you do not specify a date and time, FROM/TO defaults to the dates and times specified in the GLOBAL command. If FROM/TO is not specified in GLOBAL, all records are included in the report.

The specified FROM/TO dates and times are printed on the report. If FROM/TO is not specified in REPORT or GLOBAL, NOT SPECIFIED is printed on the report. If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value.

Any FROM/TO dates and times specified in GLOBAL can affect the data available for reporting.

Note, however, that GLOBAL FROM/TO filters individual DB2 statistics records whereas REPORT FROM/TO filters interval records. For example, a REPORT FROM time of 14:15 would allow an interval record starting at 14:00 and ending at 14:30 to appear on a report (based on the end interval record time). However, a GLOBAL FROM time of 14:15 would filter the DB2 statistics records at 14:00 and the interval record (14:00 to 14:30) might not be created (subject to the BOUNDARY specification).

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the record timestamp before FROM/TO processing.

The FROM/TO date and time specification in REDUCE affects the data available for reporting in the same way as FROM/TO on GLOBAL.

Refer to "The GLOBAL Command" on page 40 for more information.

Refer to "FROM/TO" on page 41 for more information on how to use the FROM/TO option.

LAYOUT

Specifies the name of a report layout. You can specify one of the supplied layouts or one that you have previously tailored. The following sample layouts are supplied:

SHORT (the default)
LONG

You can tailor your own report layouts by specifying which blocks of data and which fields within the blocks are included, and their relative order. Refer to Part 4. User-Tailored Reporting for information about tailoring report layouts.

SCOPE

Specifies the scope of the report in a data sharing environment. You can specify MEMBER or GROUP. The default is MEMBER.

Member-scope reporting presents DB2 statistics on a per-member basis without aggregating data-sharing-related counters for the entire data-sharing group.

Group-scope reporting presents data-sharing-related counters for an entire data-sharing group.

NOEXCEPTION/EXCEPTION

Specify EXCEPTION if you want to report only those interval records on statistics reports with at least one field in exception status. Specify NOEXCEPTION to produce a standard report. NOEXCEPTION is the default.

The thresholds for exception fields are defined in the exception threshold data set. Refer to Chapter 16. Exception Threshold Data Set for more information about the exception threshold data set.

If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. Refer to "Building a Command Stream" on page 191 for more information about required ddnames.

DDNAME

Specifies the data set to which the report is written. You can specify any valid ddname including the default, provided that your JCL contains a DD statement for it. If a DD statement is omitted, it will be dynamically allocated to the SYSOUT message class of the job. The default ddname for report is STRPTDD.

ORDER(INTERVAL)

Specifies that your report contains statistics data for each interval record which satisfies input filters.

If you want to report the statistics data for the entire period covered by the interval records, do not specify this option.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific DB2 PM identifiers. If you omit this option, all records are included. The following DB2 PM identifiers can be used with INCLUDE/EXCLUDE:

- GROUP (group name)
- LOCATION (location)
- MEMBER (member name)
- SUBSYSTEMID (DB2 subsystem ID)

Refer to "Chapter 1. DB2 PM Identifiers" on page 3 for definitions of DB2 PM identifiers.

Refer to "INCLUDE/EXCLUDE" on page 28 for more information on how to use the INCLUDE/EXCLUDE option.

Examples Using REPORT

Example 1:
```
.
.
.
REDUCE
REPORT
   INCLUDE (LOCATION(R(LOCN01 LOCN05)))
.
.
.
```

This example specifies the following:

- One interval record is derived. It covers the entire period for which the DB2 statistics data is available.

- The report uses the default SHORT layout.
- Data is included that is only associated with the location in the range of LOCN01 to LOCN05

Example 2:
⋮
```
REDUCE
   INTERVAL(60)
REPORT
   FROM    (09/18/98,10:00:00.00)
   TO      (09/19/98,12:00:00.00)
   LAYOUT  (LONG)
   EXCEPTION
   ORDER   (INTERVAL)
```
⋮

This example specifies the following:
- The input DB2 statistics data is distributed over 60-minutes intervals aligned with hour boundaries.
- The interval records between 10:00 a.m. on 18 March 1996 and noon on 19 March 1996 are considered for reporting, subject to the exception criteria.
- Each of the qualifying interval records is reported.
- The report uses the LONG layout.

Using the SAVE Subcommand

You use the SAVE subcommand to produce a VSAM data set containing interval records. After the data has been saved, you can:
- Convert the save files to sequential data sets using the save-file utility and load them into DB2 for subsequent use.
- Produce graphs using the graphics subsystem of the IRF.
- Restore and combine it with newly reduced data to produce long-term reports.
- Restore it and use it in later reporting.

Note: VSAM data sets cannot be concatenated.

```
►►──SAVE─────────────────────────────────────────────────────►◄
            │                 ┌─STSAVDD─┐          │
            └─DDNAME──(──────┴─ddname──┴───)──────┘
```
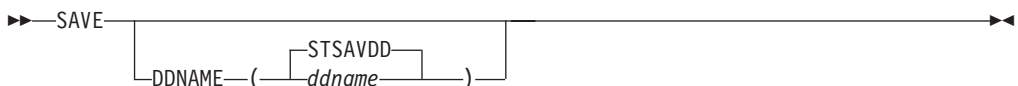
Figure 189. Syntax of the SAVE Subcommand

The option used with the SAVE subcommand is DDNAME.

DDNAME

Specifies the ddname to which the save data is written. The default ddname is STSAVDD. You can specify any valid ddname provided that your JCL contains a valid DD statement for it.

When using SAVE, your JCL can also include a valid DD statement for JSSRSDD, so that the related job summary information can be saved.

> **Note:** Do not specify DUMMY in the JCL for either STSAVDD or
> JSSRSDD. When you are not using SAVE, omit these ddnames from
> your JCL.

The VSAM data set defined by the default ddname must already exist when
you run DB2 PM. Refer to "Appendix B. DB2 PM VSAM Data Sets" on
page 1277 for a description of VSAM data sets. Either specify an existing
data set from a previous DB2 PM run (when restoring data), or specify a
new data set allocated using the IDCAMS DEFINE CLUSTER function.

Example Using SAVE

```
⋮
REDUCE
SAVE
   DDNAME (SAVDSNDD)
⋮
```

This example specifies that one interval record covering the entire input statistics
data (because INTERVAL(0) is issued) is written to the external data set defined by
the ddname SAVDSNDD.

Using the RESTORE Subcommand

You use the RESTORE subcommand to reload previously saved data for additional
processing. After the data is restored, you can produce reports from the restored
data alone, or from the restored data combined with newly reduced data. Saved
data can be restored as often as required.

```
►►─RESTORE──────────────────────────────────────────────────────►◄
         │                ┌─STRSTDD─┐        │
         └─DDNAME──(───────┴─ddname─┴───)────┘
```
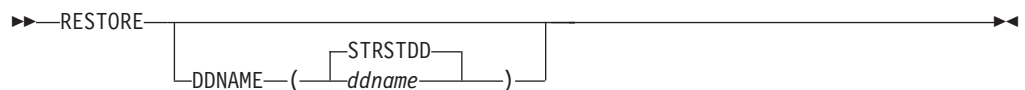
Figure 190. Syntax of the RESTORE Subcommand

The option used with the RESTORE command is DDNAME.

DDNAME
Specifies the ddname used to reload a previously saved file for additional
use. The ddname specifies the data set being restored. The default ddname
is STRSTDD. You can specify any valid ddname, provided your JCL
contains a valid DD statement for it.

When using RESTORE, your JCL can also include a valid DD statement for
JSSRSDD, so that the related job summary information can also be
restored.

Example Using RESTORE

```
⋮
RESTORE
   DDNAME (RESDSNDD)
⋮
```

This example specifies that the previously saved, reduced data is read from the
data set defined by the ddname RESDSNDD.

Notes:

1. Do not specify DUMMY in the JCL for either STRSTDD or JSSRSDD. When you are not using RESTORE, omit these ddnames from your JCL.

2. If you use RESTORE and REDUCE in the same job stream, the INTERVAL and BOUNDARY specified in REDUCE should match the INTERVAL and BOUNDARY that were used to reduce the data being restored.

3. Data from previous versions of DB2 PM cannot be restored until it has been changed to the DB2 PM Version 6 format using the migrate function of the save-file utility. Refer to "Chapter 36. The Statistics Save-File Utility" on page 553 for information about migrating data.

Using the TRACE Subcommand

You use the TRACE subcommand to present statistics delta records. For the definition of the delta records, see "DB2 PM Delta Records" on page 372.

Up to five traces can be requested in a job step.
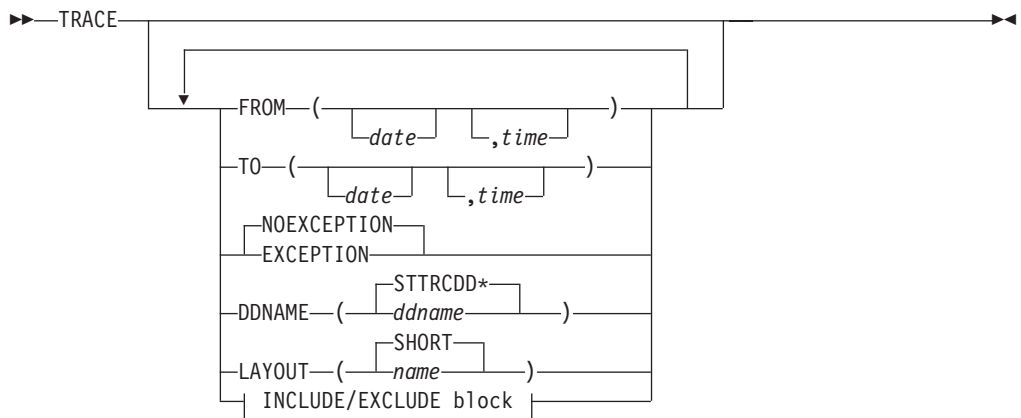
Figure 191. Syntax of the TRACE Subcommand

The following options can be used with the TRACE subcommand:

FROM/TO

Limits the range of delta records included in the trace by date and time. Combinations of FROM date and time, and TO date and time can be specified. Delta records are included from the first with an ending timestamp greater than or equal to the FROM date and time, to the last with an ending timestamp less than the TO date and time.

If you do not specify a date and time, FROM/TO defaults to the dates and times specified in the GLOBAL command. If FROM/TO is not specified in GLOBAL, all records are included in the trace.

The specified FROM/TO dates and times are printed on the trace. If FROM/TO is not specified in TRACE or GLOBAL, NOT SPECIFIED is printed on the trace. If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value.

Any FROM/TO times specified in GLOBAL can affect the data available for reporting.

Note, however, that GLOBAL FROM/TO filters individual DB2 statistics records whereas TRACE FROM/TO filters delta records. For example, a TRACE FROM time of 14:15 would allow a delta record starting at 14:00 and ending at 14:30 to appear on a trace (based on the end delta record time). However, a GLOBAL FROM time of 14:15 would filter the DB2 statistics records at 14:00 and the delta record (14:00 to 14:30) might not be created (subject to the BOUNDARY specification.

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the record timestamp before FROM/TO processing.

The FROM/TO times specification in REDUCE affects the data available for tracing in the same way as FROM/TO on GLOBAL does.

Refer to "The GLOBAL Command" on page 40 for more information.

Refer to "FROM/TO" on page 41 for more information on how to use the FROM/TO option.

LAYOUT

Specifies the name of a trace layout. You can specify one of the supplied layouts or one that you have previously tailored. The following sample layouts are supplied:

SHORT (the default)

LONG

You can tailor your own trace layouts by specifying which blocks of data and which fields within the blocks are included and their relative order. Examples of these layouts are provided in later chapters. Refer to Part 4. User-Tailored Reporting for information about tailoring trace layouts.

NOEXCEPTION/EXCEPTION

Specify EXCEPTION if you want to show those statistics delta records with at least one field in exception status. Specify NOEXCEPTION to produce a standard trace. NOEXCEPTION is the default.

The thresholds for exception fields are defined in the exception threshold data set. Refer to Chapter 16. Exception Threshold Data Set for more information about the exception threshold data set.

If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. Refer to "Building a Command Stream" on page 389 for more information about required ddnames.

DDNAME

Specifies the data set to which the trace is written. The default ddname for the first trace is STTRCDD1. The default ddnames for the second to fifth traces are STTRCDD2 through STTRCDD5.

You can specify a different ddname using the DDNAME option in the TRACE subcommand. In this case, your JCL must contain a valid DD statement for the ddname you specify.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific DB2 PM identifiers. If you omit this option, all records are included. The following DB2 PM identifiers can be used with INCLUDE/EXCLUDE:

- GROUP (group name)
- LOCATION (location)

- MEMBER (member name)
- SUBSYSTEMID (DB2 subsystem ID)

Refer to "INCLUDE/EXCLUDE" on page 28 for more information on how to use the INCLUDE/EXCLUDE option.

Refer to "Chapter 1. DB2 PM Identifiers" on page 3 for definitions of DB2 PM identifiers.

Using the FILE Subcommand

You use the FILE subcommand to format unreduced DB2 data and store it in sequential data sets suitable for use by the DB2 load utility. The records can be placed in DB2 tables and you can produce reports using a reporting facility such as Query Management Facility (QMF).

The data is stored in delta records in a sequential data set.

```
►►─FILE──────────────────────────────────────────────────────────►◄
        ┌─────────────────────────────────────────────┐
        │  ┌─FROM──(──────────────────────────────)─┐ │
        └──┤        └─date─┘   └─,time─┘            ├─┘
           ├─TO──(──────────────────────────────)──┤
           │     └─date─┘   └─,time─┘              │
           ├─NOEXCEPTION───────────────────────────┤
           ├─EXCEPTION─────────────────────────────┤
           │          ┌─STFILDD1─┐                 │
           ├─DDNAME──(─┴─ddname──┴──)──────────────┤
           └─┤ INCLUDE/EXCLUDE block ├─────────────┘
```
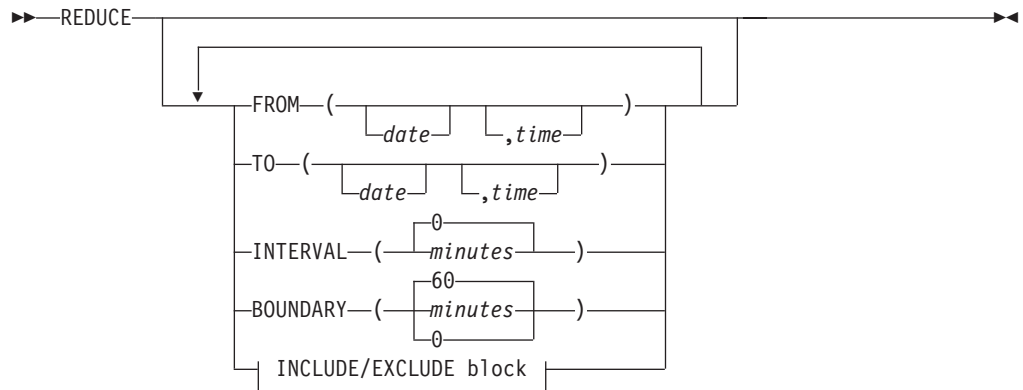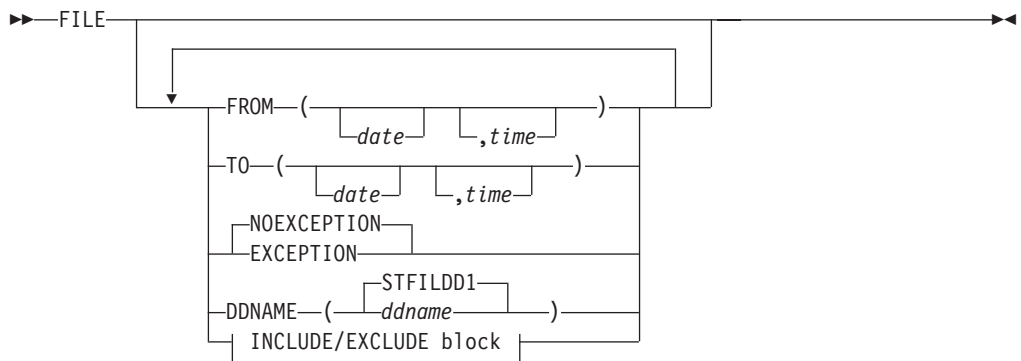
Figure 192. Syntax of the FILE Subcommand

The following options are used with the FILE subcommand:

FROM/TO

Limits the range of delta records included in the data set by date and time. Combinations of FROM date and time, and TO date and time can be specified. Delta records are included from the first with an ending timestamp greater than or equal to the FROM date and time, to the last with an ending timestamp less than the TO date and time.

Any FROM/TO dates and times specified in GLOBAL can restrict the range of delta records included in the file data set. GLOBAL FROM/TO filters the raw DB2 statistics records used to make up the delta records. Therefore, all records with begin or end times outside the GLOBAL dates and times are discarded. If the date and time is not specified in GLOBAL, all records in the input data are available.

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the record timestamp before FROM/TO processing.

If you are reducing data, the FROM/TO times specified in REDUCE affect the data available for filing.

Refer to "The GLOBAL Command" on page 40 for more information about the GLOBAL command.

Refer to "FROM/TO" on page 41 for more information on how to use the FROM/TO option.

NOEXCEPTION/EXCEPTION

Specify EXCEPTION to include only those file entries containing fields with values outside the user-specified limits. Specify NOEXCEPTION to include all records. NOEXCEPTION is the default.

The thresholds for exception fields are defined in the exception threshold data set. Refer to "Chapter 16. Exception Threshold Data Set" on page 159 for more information about the exception threshold data set.

If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. Refer to "Building a Command Stream" on page 389 for more information about required ddnames.

DDNAME

Specifies the ddname to which the file data set is written. You can specify any valid ddname including the default, provided that your JCL contains a DD statement for it. If you omit the DDNAME option, the default value is applied. The default ddname is STFILDD1.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific DB2 PM identifiers. If you omit this option, all records are included in the file data set. The following DB2 PM identifiers can be used with INCLUDE/EXCLUDE:

- GROUP (group name)
- LOCATION (location)
- MEMBER (member name)
- SUBSYSTEMID (DB2 subsystem ID)

Refer to "INCLUDE/EXCLUDE" on page 28 for more information on how to use the INCLUDE/EXCLUDE option.

Refer to "Chapter 1. DB2 PM Identifiers" on page 3 for definitions of DB2 PM identifiers.

Chapter 33. Statistics Default Layouts

This section provides examples of the statistics default layout for SHORT and LONG. Descriptions of the fields in the layout are described in the next section. Because the layout of the report and trace is the same (apart from the highlights block), only a report example is reproduced here.

When data from a particular DB2 version is processed, N/A is printed for all fields in the report that are not applicable to that version. For example, when DB2 Version 6 data is processed, N/A is printed for all fields in the report that are specific to DB2 Version 5.

You can use the user-tailored reporting (UTR) facility to modify the layouts and store the changes. If you do this, store your layouts under a different name to avoid confusion and keep the layouts relevant to this documentation.

Statistics Short Report

The SHORT layout presents selected data from all statistics categories using the following blocks of data:
- Highlights
- CPU times
- Open/close activity
- SQL DML activity
- SQL DCL activity
- SQL DDL activity
- Locking activity
- Data sharing locking
- RID list activity
- Row ID
- Stored procedures
- UDF
- Triggers
- Query parallelism
- Plan/package processing
- Subsystem services
- Log activity
- EDM pool activity
- Buffer pool activity
- Group buffer pool activity
- DDF activity

The following report is an example of a member-scope statistics short report, produced with the command:

```
                        :
                        :
                  STATISTICS
                        REPORT
                        :
                        :


       LOCATION: DSNDG0G                   DB2 PERFORMANCE MONITOR (V6)                     PAGE: 1-1
          GROUP: DSNDG0G                     STATISTICS REPORT - SHORT            REQUESTED FROM: NOT SPECIFIED
         MEMBER: DG1G                                                                        TO: NOT SPECIFIED
      SUBSYSTEM: DG1G                                                          INTERVAL FROM: 04/03/99 18:35:00.80
     DB2 VERSION: V6                            SCOPE: MEMBER                              TO: 04/03/99 18:45:01.07

    ---- HIGHLIGHTS -------------------------------------------------------------------------------------------------
    INTERVAL START: 04/03/99 18:35:00.80  INTERVAL ELAPSED: 10:00.27374  INCREMENTAL BINDS   :    0.00   DBAT QUEUED:      N/P
    INTERVAL END  : 04/03/99 18:45:01.07  OUTAGE ELAPSED  :   0.000000   AUTH SUCC.W/OUT CATALOG: 6946.00  DB2 COMMAND:    38.00
    SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS   :     37.00    BUFF.UPDT/PAGES WRITTEN:   1.93   TOTAL API  :     0.00
    SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS   :  26862.00    PAGES WRITTEN/WRITE I/O:   3.06   MEMBER     :      N/A

    CPU TIMES                             TCB TIME         SRB TIME        TOTAL TIME    OPEN/CLOSE ACTIVITY   QUANTITY
    ------------------------------------  --------------   --------------  --------------  -------------------  --------
    SYSTEM SERVICES ADDRESS SPACE         0.869050           57.600096       58.469147    OPEN DATASETS - HWM  1007.00
    DATABASE SERVICES ADDRESS SPACE       0.230720         1:32.047157     1:32.277877    OPEN DATASETS        1007.00
    IRLM                                  0.000184            2.604072        2.604255    IN USE DATA SETS      156.00
    DDF ADDRESS SPACE                          N/P                 N/P             N/P

    SQL DML   QUANTITY   SQL DCL       QUANTITY   SQL DDL    QUANTITY   LOCKING ACTIVITY  QUANTITY   DATA SHARING LOCKS QUANTITY
    --------  --------   --------------  --------   ----------  --------   ----------------  --------   ------------------ --------
    SELECT     129.5K    LOCK TABLE        0.00   CREATES       0.00   DEADLOCKS            0.00   GLB CONT.RATE (%)     0.14
    INSERT   76187.00    GRANT             0.00   DROPS         0.00   TIMEOUTS             0.00   FLS CONT.RATE (%)     0.02
    UPDATE   93616.00    REVOKE            0.00   ALTERS        0.00   SUSPENSIONS-LOCK    79.00   LOCK REQ.(P-LOCK)  38383.00
    DELETE    3720.00    SET HOST VAR.     0.00   RENAME TBL    0.00   SUSPENSIONS-OTHR     8.00   UNLOCK REQ.(P-LCK) 38358.00
    PREPARE      0.00    SET SQLID         0.00   COMMENT ON    0.00   LOCK REQUESTS      189.9K   CHANGE REQ.(P-LCK)    0.00
    DESCRIBE     0.00    SET DEGREE        0.00   LABEL ON      0.00   UNLOCK REQUEST   71254.00   SYNC.XES - LOCK     166.3K
    DESC.TBL     0.00    SET RULES         0.00   TOTAL         0.00   LOCK ESCALAT(SH)     0.00   SYNC.XES - CHANGE 94297.00
    OPEN       118.8K    SET PATH          0.00                        LOCK ESCALAT(EX)     0.00   SYNC.XES - UNLOCK   163.5K
    CLOSE    65854.00    CONNECT TYPE 1    0.00                        DRAIN REQUESTS       0.00   ASYN.XES-RESOURCES    0.00
    FETCH      245.1K    CONNECT TYPE 2    0.00                        CLAIM REQUESTS     254.4K   TOTAL SUSPENDS      600.00
    TOTAL      732.7K    RELEASE           0.00                                                    P-LCK/NFY ENG.UNAV    0.00
                        SET CONNECTION     0.00                                                    INCOM.RETAINED LCK    0.00
                        ASSOC LOCATORS     0.00                                                    PSET/PART NEGOTIAT    0.00
                        ALLOC CURSOR       0.00                                                    PAGE NEGOTIATION    425.00
                        HOLD LOCATOR       0.00
                        FREE LOCATOR       0.00
                        TOTAL              0.00

    RID LIST             QUANTITY   ROW ID        QUANTITY   QUERY PARALLELISM   QUANTITY   PLAN/PACKAGE PROC.  QUANTITY
    --------------------  --------   -------------  --------   ------------------  --------   ------------------ --------
    MAX BLOCKS ALLOCATED    22.00    DIRECT ACCESS     0.00   MAX DEGREE            0.00   PLAN ALLOC-ATTEMPTS     0.00
    CURRENT BLKS ALLOC.     12.00    INDEX USED        0.00   GROUPS EXECUTED       0.00   PLAN ALLOC-SUCCESS      0.00
    FAILED-NO STORAGE        0.00    TS SCAN USED      0.00    RAN AS PLANNED       0.00   PACK ALLOC-ATTEMPTS     0.00
    FAILED-RDS LIMIT         0.00                               RAN REDUCED          0.00   PACK ALLOC-SUCCESS      0.00
    FAILED-DM LIMIT          0.00                               FALL TO SEQUENTIAL   0.00   AUTOBIND ATTEMPTS       0.00
    FAILED-PROCESS LIMIT     0.00                               ONE DB2 COORD P=NO   0.00   AUTOBIND SUCCESSFUL     0.00
                                                               ONE DB2 ISO LVL      0.00
                                                               MEMBER SKIPPED (%)    N/C
                                                               REFORM PARAL-CONFIG  0.00
                                                               REFORM PARAL-NO BUF  0.00

    STORED PROCEDURES  QUANTITY   UDF       QUANTITY   TRIGGERS          QUANTITY
    -----------------  --------   --------- --------   ------------------ --------
    CALL STATEMENTS       0.00    EXECUTED     0.00   STATEMENT TRIGGER     0.00
    PROCEDURE ABENDED     0.00    ABENDED      0.00   ROW TRIGGER           0.00
    CALL TIMED OUT        0.00    TIMED OUT    0.00   SQL ERROR OCCURRED    0.00
    CALL REJECTED         0.00    REJECTED     0.00
```

Figure 193. Statistics Report — SHORT (Part 1 of 7)

```
      LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                           PAGE: 1-2
         GROUP: DSNDG0G                    STATISTICS REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
        MEMBER: DG1G                                                                         TO: NOT SPECIFIED
     SUBSYSTEM: DG1G                                                             INTERVAL FROM: 04/03/99 18:35:00.80
   DB2 VERSION: V6                            SCOPE: MEMBER                                  TO: 04/03/99 18:45:01.07

   ---- HIGHLIGHTS ---------------------------------------------------------------------------------------------------
   INTERVAL START: 04/03/99 18:35:00.80  INTERVAL ELAPSED: 10:00.27374  INCREMENTAL BINDS     :     0.00  DBAT QUEUED:      N/P
   INTERVAL END  : 04/03/99 18:45:01.07  OUTAGE ELAPSED   :    0.000000  AUTH SUCC.W/OUT CATALOG: 6946.00  DB2 COMMAND:    38.00
   SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS    :      37.00  BUFF.UPDT/PAGES WRITTEN:    1.93  TOTAL API  :     0.00
   SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS    :   26862.00  PAGES WRITTEN/WRITE I/O:    3.06  MEMBER     :      N/A

   SUBSYSTEM SERVICES              QUANTITY    LOG ACTIVITY                    QUANTITY    EDM POOL                   QUANTITY
   ------------------------------  --------    ------------------------------  --------    -------------------------  --------
   IDENTIFY                            1.00    READS SATISFIED-OUTPUT BUFFER       0.00    PAGES IN EDM POOL          5000.00
   CREATE THREAD                      37.00    READS SATISFIED-ACTIVE LOG          0.00    FREE PAGES IN FREE CHAIN   4316.00
   SIGNON                          26824.00    READS SATISFIED-ARCHIVE LOG         0.00    FAILS DUE TO POOL FULL        0.00
   TERMINATE                          38.00    READ DELAYED-UNAVAILABLE RESOURCE   0.00    PAGES USED FOR CT           399.00
   ROLLBACK                            0.00    LOG RECORDS CREATED               420.3K    PAGES USED FOR PT             0.00
   COMMIT PHASE 1                  26828.00    WRITE OUTPUT LOG BUFFERS         25520.00    PAGES USED FOR DBD           51.00
   COMMIT PHASE 2                  12399.00    BSDS ACCESS REQUESTS               21.00    PAGES USED FOR SKCT         174.00
   READ ONLY COMMIT                14426.00    UNAVAILABLE OUTPUT LOG BUFFER       0.00    PAGES USED FOR SKPT          60.00
   UNITS OF RECOVERY GONE INDOUBT      0.00    CONTROL INTERVAL CREATED-ACTIVE 19225.00    REQUESTS FOR CT SECTIONS      0.00
   UNITS OF RECOVERY INDOUBT RESOLV    0.00    ARCHIVE LOG READ ALLOCATION         0.00    CT NOT IN EDM POOL            0.00
   SYNCHS (SINGLE PHASE COMMIT)       37.00    ARCHIVE LOG WRITE ALLOCAT.          0.00    REQUESTS FOR PT SECTIONS      0.00
   QUEUED AT CREATE THREAD             0.00                                                PT NOT IN EDM POOL            0.00
   SYSTEM EVENT CHECKPOINT             0.00                                                REQUESTS FOR DBD SECTIONS     0.00
                                                                                           DBD NOT IN EDM POOL           0.00
                                                                                           PREP_STMT_HIT_RATIO           N/C
```

Figure 193. Statistics Report — SHORT (Part 2 of 7)

```
         LOCATION: DSNDG0G                      DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-3
            GROUP: DSNDG0G                        STATISTICS REPORT - SHORT               REQUESTED FROM: NOT SPECIFIED
           MEMBER: DG1G                                                                              TO: NOT SPECIFIED
        SUBSYSTEM: DG1G                                                                  INTERVAL FROM: 04/03/99 18:35:00.80
      DB2 VERSION: V6                                 SCOPE: MEMBER                                   TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS -----------------------------------------------------------------------------------------------------------
INTERVAL START: 04/03/99 18:35:00.80   INTERVAL ELAPSED: 10:00.27374   INCREMENTAL BINDS    :     0.00   DBAT QUEUED:     N/P
INTERVAL END  : 04/03/99 18:45:01.07   OUTAGE ELAPSED  :    0.000000   AUTH SUCC.W/OUT CATALOG: 6946.00   DB2 COMMAND:   38.00
SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS   :      37.00    BUFF.UPDT/PAGES WRITTEN:    1.93   TOTAL API  :    0.00
SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS   :   26862.00    PAGES WRITTEN/WRITE I/O:    3.06   MEMBER     :     N/A

BP0     GENERAL      QUANTITY    BP1     GENERAL      QUANTITY    BP2     GENERAL      QUANTITY    BP8K    GENERAL      QUANTITY
--------------------  --------   --------------------  --------   --------------------  --------   --------------------  --------
BPOOL HIT RATIO (%)     99.90    BPOOL HIT RATIO (%)    100.00    BPOOL HIT RATIO (%)     18.91    BPOOL HIT RATIO (%)     25.46
GETPAGES-SEQ&RANDOM  60690.00    GETPAGES-SEQ&RANDOM    544.1K    GETPAGES-SEQ&RANDOM    576.9K    GETPAGES-SEQ&RANDOM    293.7K
GETPAGES-SEQ.ONLY    22446.00    GETPAGES-SEQ.ONLY        0.00    GETPAGES-SEQ.ONLY        0.00    GETPAGES-SEQ.ONLY        0.00
SYNC.READ-SEQ&RANDOM     0.00    SYNC.READ-SEQ&RANDOM     0.00    SYNC.READ-SEQ&RANDOM 76353.00    SYNC.READ-SEQ&RANDOM 50462.00
SYNC.READ-SEQ.ONLY       0.00    SYNC.READ-SEQ.ONLY       0.00    SYNC.READ-SEQ.ONLY       0.00    SYNC.READ-SEQ.ONLY       0.00
SEQ.PREFETCH REQ      2243.00    SEQ.PREFETCH REQ         0.00    SEQ.PREFETCH REQ         0.00    SEQ.PREFETCH REQ         0.00
SEQ.PREFETCH READS       0.00    SEQ.PREFETCH READS       0.00    SEQ.PREFETCH READS       0.00    SEQ.PREFETCH READS       0.00
PAGES READ-SEQ.PREF.     0.00    PAGES READ-SEQ.PREF.     0.00    PAGES READ-SEQ.PREF.     0.00    PAGES READ-SEQ.PREF.     0.00
LST.PREFETCH REQUEST     0.00    LST.PREFETCH REQUEST     0.00    LST.PREFETCH REQUEST     0.00    LST.PREFETCH REQUEST  6900.00
LST.PREFETCH READS       0.00    LST.PREFETCH READS       0.00    LST.PREFETCH READS       0.00    LST.PREFETCH READS   43941.00
PAGES READ-LST.PREF.     0.00    PAGES READ-LST.PREF.     0.00    PAGES READ-LST.PREF.     0.00    PAGES READ-LST.PREF.   168.4K
DYN.PREFETCH REQUEST    34.00    DYN.PREFETCH REQUEST  2954.00    DYN.PREFETCH REQUEST 17237.00    DYN.PREFETCH REQUEST     0.00
DYN.PREFETCH READS      15.00    DYN.PREFETCH READS       1.00    DYN.PREFETCH READS   14582.00    DYN.PREFETCH READS       0.00
PAGES READ-DYN.PREF.    63.00    PAGES READ-DYN.PREF.     4.00    PAGES READ-DYN.PREF.   391.4K    PAGES READ-DYN.PREF.     0.00
BUFFER UPDATES       43803.00    BUFFER UPDATES       18110.00    BUFFER UPDATES           0.00    BUFFER UPDATES       89346.00
SYNCHRONOUS WRITES       0.00    SYNCHRONOUS WRITES       0.00    SYNCHRONOUS WRITES       0.00    SYNCHRONOUS WRITES       0.00
ASYNCHRONOUS WRITES      9.00    ASYNCHRONOUS WRITES    428.00    ASYNCHRONOUS WRITES      0.00    ASYNCHRONOUS WRITES  25119.00
DATA SET OPENS           0.00    DATA SET OPENS           0.00    DATA SET OPENS           0.00    DATA SET OPENS           0.00
HDW THRESHOLD            0.00    HDW THRESHOLD            0.00    HDW THRESHOLD            0.00    HDW THRESHOLD            0.00
VDW THRESHOLD            3.00    VDW THRESHOLD            0.00    VDW THRESHOLD            0.00    VDW THRESHOLD            0.00
DM THRESHOLD             0.00    DM THRESHOLD             0.00    DM THRESHOLD             0.00    DM THRESHOLD             0.00

TOT4K   GENERAL      QUANTITY    TOTAL   GENERAL      QUANTITY
--------------------  --------   --------------------  --------
BPOOL HIT RATIO (%)     60.41    BPOOL HIT RATIO (%)     53.45
GETPAGES-SEQ&RANDOM   1181.6K    GETPAGES-SEQ&RANDOM   1475.3K
GETPAGES-SEQ.ONLY    22446.00    GETPAGES-SEQ.ONLY    22446.00
SYNC.READ-SEQ&RANDOM 76353.00    SYNC.READ-SEQ&RANDOM   126.8K
SYNC.READ-SEQ.ONLY       0.00    SYNC.READ-SEQ.ONLY       0.00
SEQ.PREFETCH REQ      2243.00    SEQ.PREFETCH REQ      2243.00
SEQ.PREFETCH READS       0.00    SEQ.PREFETCH READS       0.00
PAGES READ-SEQ.PREF.     0.00    PAGES READ-SEQ.PREF.     0.00
LST.PREFETCH REQUEST     0.00    LST.PREFETCH REQUEST  6900.00
LST.PREFETCH READS       0.00    LST.PREFETCH READS   43941.00
PAGES READ-LST.PREF.     0.00    PAGES READ-LST.PREF.   168.4K
DYN.PREFETCH REQUEST 20225.00    DYN.PREFETCH REQUEST 20225.00
DYN.PREFETCH READS   14598.00    DYN.PREFETCH READS   14598.00
PAGES READ-DYN.PREF.   391.5K    PAGES READ-DYN.PREF.   391.5K
BUFFER UPDATES       61913.00    BUFFER UPDATES         151.3K
SYNCHRONOUS WRITES       0.00    SYNCHRONOUS WRITES       0.00
ASYNCHRONOUS WRITES    437.00    ASYNCHRONOUS WRITES  25556.00
DATA SET OPENS           0.00    DATA SET OPENS           0.00
HDW THRESHOLD            0.00    HDW THRESHOLD            0.00
VDW THRESHOLD            3.00    VDW THRESHOLD            3.00
DM THRESHOLD             0.00    DM THRESHOLD             0.00
```

Figure 193. Statistics Report — SHORT (Part 3 of 7)

```
       LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                           PAGE: 1-4
          GROUP: DSNDG0G                     STATISTICS REPORT - SHORT           REQUESTED FROM: NOT SPECIFIED
         MEMBER: DG1G                                                                        TO: NOT SPECIFIED
      SUBSYSTEM: DG1G                                                            INTERVAL FROM: 04/03/99 18:35:00.80
    DB2 VERSION: V6                             SCOPE: MEMBER                                TO: 04/03/99 18:45:01.07

    ---- HIGHLIGHTS -------------------------------------------------------------------------------------------------
    INTERVAL START: 04/03/99 18:35:00.80  INTERVAL ELAPSED: 10:00.27374   INCREMENTAL BINDS   :     0.00  DBAT QUEUED:     N/P
    INTERVAL END  : 04/03/99 18:45:01.07  OUTAGE ELAPSED  :    0.000000   AUTH SUCC.W/OUT CATALOG: 6946.00  DB2 COMMAND:   38.00
    SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS   :       37.00   BUFF.UPDT/PAGES WRITTEN:    1.93  TOTAL API  :    0.00
    SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS   :    26862.00   PAGES WRITTEN/WRITE I/O:    3.06  MEMBER     :     N/A

    GROUP BP0                   QUANTITY  GROUP BP1                   QUANTITY  GROUP TOT4K                  QUANTITY
    --------------------------  --------  --------------------------  --------  --------------------------  --------
    SYN.READ(XI)-DATA RETURNED   3043.00  SYN.READ(XI)-DATA RETURNED  10321.00  SYN.READ(XI)-DATA RETURNED  13364.00
    SYN.READ(XI)-NO DATA RETURN     0.00  SYN.READ(XI)-NO DATA RETURN     0.00  SYN.READ(XI)-NO DATA RETURN     0.00
    SYN.READ(NF)-DATA RETURNED      0.00  SYN.READ(NF)-DATA RETURNED      0.00  SYN.READ(NF)-DATA RETURNED      0.00
    SYN.READ(NF)-NO DATA RETURN     0.00  SYN.READ(NF)-NO DATA RETURN     0.00  SYN.READ(NF)-NO DATA RETURN     0.00
    CLEAN PAGES SYN.WRTN            0.00  CLEAN PAGES SYN.WRTN            0.00  CLEAN PAGES SYN.WRTN            0.00
    CHANGED PGS SYN.WRTN         6099.00  CHANGED PGS SYN.WRTN        18100.00  CHANGED PGS SYN.WRTN        24199.00
    CLEAN PAGES ASYN.WRT           0.00  CLEAN PAGES ASYN.WRT           0.00  CLEAN PAGES ASYN.WRT           0.00
    CHANGED PGS ASYN.WRT           9.00  CHANGED PGS ASYN.WRT           1.00  CHANGED PGS ASYN.WRT          10.00
    REG.PG LIST (RPL) RQ          20.00  REG.PG LIST (RPL) RQ          35.00  REG.PG LIST (RPL) RQ          55.00
    CLEAN PGS READ RPL            23.00  CLEAN PGS READ RPL             0.00  CLEAN PGS READ RPL            23.00
    CHANGED PGS READ RPL           5.00  CHANGED PGS READ RPL         284.00  CHANGED PGS READ RPL         289.00
    PGS READ FRM DASD AFTER RPL   63.00  PGS READ FRM DASD AFTER RPL    4.00  PGS READ FRM DASD AFTER RPL   67.00
    ASYN.READ-DATA RETURNED        0.00  ASYN.READ-DATA RETURNED        0.00  ASYN.READ-DATA RETURNED        0.00
    PAGES CASTOUT                 60.00  PAGES CASTOUT              10624.00  PAGES CASTOUT              10684.00
    EXPLICIT X-INVALIDATIONS       0.00  EXPLICIT X-INVALIDATIONS       0.00  EXPLICIT X-INVALIDATIONS       0.00
    CASTOUT CLASS THRESH           1.00  CASTOUT CLASS THRESH          61.00  CASTOUT CLASS THRESH          62.00
    GROUP BP CAST.THRESH           0.00  GROUP BP CAST.THRESH           0.00  GROUP BP CAST.THRESH           0.00
    CASTOUT ENG.UNAVAIL.           0.00  CASTOUT ENG.UNAVAIL.           0.00  CASTOUT ENG.UNAVAIL.           0.00
    WRITE ENG.UNAVAIL.             0.00  WRITE ENG.UNAVAIL.             0.00  WRITE ENG.UNAVAIL.             0.00
    READ FAILED-NO STOR.           0.00  READ FAILED-NO STOR.           0.00  READ FAILED-NO STOR.           0.00
    WRITE FAILED-NO STOR           0.00  WRITE FAILED-NO STOR           0.00  WRITE FAILED-NO STOR           0.00
```

Figure 193. Statistics Report — SHORT (Part 4 of 7)

```
      LOCATION: DSNDG0G                       DB2 PERFORMANCE MONITOR (V6)                         PAGE: 2-1
         GROUP: DSNDG0G                        STATISTICS REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
        MEMBER: DG2G                                                                             TO: NOT SPECIFIED
     SUBSYSTEM: DG2G                                                              INTERVAL FROM: 04/03/99 18:35:00.88
   DB2 VERSION: V6                                    SCOPE: MEMBER                            TO: 04/03/99 18:45:01.12

---- HIGHLIGHTS -----------------------------------------------------------------------------------------------------
INTERVAL START: 04/03/99 18:35:00.88  INTERVAL ELAPSED: 10:00.24469  INCREMENTAL BINDS     :    0.00  DBAT QUEUED:       N/P
INTERVAL END  : 04/03/99 18:45:01.12  OUTAGE ELAPSED  :   0.000000   AUTH SUCC.W/OUT CATALOG: 10554.00 DB2 COMMAND:    38.00
SAMPLING START: 04/03/99 18:35:00.88  TOTAL THREADS   :      37.00   BUFF.UPDT/PAGES WRITTEN:   11.39  TOTAL API  :     0.00
SAMPLING END  : 04/03/99 18:45:01.12  TOTAL COMMITS   :   27038.00   PAGES WRITTEN/WRITE I/O:   25.18  MEMBER     :      N/A

CPU TIMES                               TCB TIME         SRB TIME        TOTAL TIME    OPEN/CLOSE ACTIVITY  QUANTITY
------------------------------        -------------   ---------------   ---------------  -------------------  --------
SYSTEM SERVICES ADDRESS SPACE           0.857983       1:00.400642      1:01.258625     OPEN DATASETS - HWM  1006.00
DATABASE SERVICES ADDRESS SPACE         0.191683       1:24.905898      1:25.097581     OPEN DATASETS        1006.00
IRLM                                    0.000451          2.650958         2.651408     IN USE DATA SETS      137.00
DDF ADDRESS SPACE                            N/P              N/P              N/P

SQL DML   QUANTITY   SQL DCL        QUANTITY   SQL DDL    QUANTITY   LOCKING ACTIVITY  QUANTITY   DATA SHARING LOCKS  QUANTITY
--------  --------   --------------  --------   ---------- --------   ----------------  --------   ------------------  --------
SELECT     131.1K    LOCK TABLE         0.00    CREATES      0.00    DEADLOCKS            0.00     GLB CONT.RATE (%)      0.14
INSERT    76934.00   GRANT              0.00    DROPS        0.00    TIMEOUTS             0.00     FLS CONT.RATE (%)      0.02
UPDATE     100.1K    REVOKE             0.00    ALTERS       0.00    SUSPENSIONS-LOCK    82.00     LOCK REQ.(P-LOCK)  40764.00
DELETE    5638.00    SET HOST VAR.      0.00    RENAME TBL   0.00    SUSPENSIONS-OTHR    24.00     UNLOCK REQ.(P-LCK) 40746.00
PREPARE      0.00    SET SQLID          0.00    COMMENT ON   0.00    LOCK REQUESTS      204.8K     CHANGE REQ.(P-LCK)     0.00
DESCRIBE     0.00    SET DEGREE         0.00    LABEL ON     0.00    UNLOCK REQUEST    77361.00    SYNC.XES - LOCK      179.2K
DESC.TBL     0.00    SET RULES          0.00    TOTAL        0.00    LOCK ESCALAT(SH)     0.00     SYNC.XES - CHANGE    101.4K
OPEN       123.3K    SET PATH           0.00                        LOCK ESCALAT(EX)     0.00     SYNC.XES - UNLOCK    175.3K
CLOSE     70432.00   CONNECT TYPE 1     0.00                        DRAIN REQUESTS       0.00     ASYN.XES-RESOURCES     0.00
FETCH      250.4K    CONNECT TYPE 2     0.00                        CLAIM REQUESTS     254.9K      TOTAL SUSPENDS      645.00
TOTAL      757.9K    RELEASE            0.00                                                      P-LCK/NFY ENG.UNAV     0.00
                     SET CONNECTION     0.00                                                      INCOM.RETAINED LCK     0.00
                     ASSOC LOCATORS     0.00                                                      PSET/PART NEGOTIAT     0.00
                     ALLOC CURSOR       0.00                                                      PAGE NEGOTIATION     390.00
                     HOLD LOCATOR       0.00
                     FREE LOCATOR       0.00
                     TOTAL              0.00

RID LIST             QUANTITY   ROW ID          QUANTITY   QUERY PARALLELISM    QUANTITY   PLAN/PACKAGE PROC.   QUANTITY
--------------------  --------  -------------   --------   -------------------  --------   -------------------  --------
MAX BLOCKS ALLOCATED    24.00   DIRECT ACCESS      0.00    MAX DEGREE             0.00     PLAN ALLOC-ATTEMPTS    0.00
CURRENT BLKS ALLOC.      0.00   INDEX USED         0.00    GROUPS EXECUTED        0.00     PLAN ALLOC-SUCCESS     0.00
FAILED-NO STORAGE        0.00   TS SCAN USED       0.00     RAN AS PLANNED        0.00     PACK ALLOC-ATTEMPTS    0.00
FAILED-RDS LIMIT         0.00                                RAN REDUCED          0.00     PACK ALLOC-SUCCESS     0.00
FAILED-DM LIMIT          0.00                               FALL TO SEQUENTIAL    0.00     AUTOBIND ATTEMPTS      0.00
FAILED-PROCESS LIMIT     0.00                               ONE DB2 COORD P=NO    0.00     AUTOBIND SUCCESSFUL    0.00
                                                            ONE DB2 ISO LVL       0.00
                                                            MEMBER SKIPPED (%)     N/C
                                                            REFORM PARAL-CONFIG   0.00
                                                            REFORM PARAL-NO BUF   0.00

STORED PROCEDURES  QUANTITY   UDF        QUANTITY   TRIGGERS            QUANTITY
-----------------  --------   ---------  --------   ------------------  --------
CALL STATEMENTS       0.00    EXECUTED      0.00    STATEMENT TRIGGER      0.00
PROCEDURE ABENDED     0.00    ABENDED       0.00    ROW TRIGGER            0.00
CALL TIMED OUT        0.00    TIMED OUT     0.00    SQL ERROR OCCURRED     0.00
CALL REJECTED         0.00    REJECTED      0.00
```

Figure 193. Statistics Report — SHORT (Part 5 of 7)

```
           LOCATION: DSNDG0G               DB2 PERFORMANCE MONITOR (V6)                    PAGE: 2-2
              GROUP: DSNDG0G                 STATISTICS REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
             MEMBER: DG2G                                                                      TO: NOT SPECIFIED
          SUBSYSTEM: DG2G                                                          INTERVAL FROM: 04/03/99 18:35:00.88
        DB2 VERSION: V6                            SCOPE: MEMBER                               TO: 04/03/99 18:45:01.12

    ---- HIGHLIGHTS ---------------------------------------------------------------------------------------------------
    INTERVAL START: 04/03/99 18:35:00.88  INTERVAL ELAPSED: 10:00.24469  INCREMENTAL BINDS    :     0.00   DBAT QUEUED:     N/P
    INTERVAL END  : 04/03/99 18:45:01.12  OUTAGE ELAPSED  :   0.000000   AUTH SUCC.W/OUT CATALOG: 10554.00  DB2 COMMAND:   38.00
    SAMPLING START: 04/03/99 18:35:00.88  TOTAL THREADS   :      37.00   BUFF.UPDT/PAGES WRITTEN:    11.39  TOTAL API  :    0.00
    SAMPLING END  : 04/03/99 18:45:01.12  TOTAL COMMITS   :   27038.00   PAGES WRITTEN/WRITE I/O:    25.18  MEMBER     :     N/A

    SUBSYSTEM SERVICES           QUANTITY   LOG ACTIVITY                    QUANTITY   EDM POOL                      QUANTITY
    --------------------------   --------   ------------------------------  --------   --------------------------   --------
    IDENTIFY                         1.00   READS SATISFIED-OUTPUT BUFFER       0.00   PAGES IN EDM POOL             5000.00
    CREATE THREAD                   37.00   READS SATISFIED-ACTIVE LOG          0.00   FREE PAGES IN FREE CHAIN      4335.00
    SIGNON                       26996.00   READS SATISFIED-ARCHIVE LOG         0.00   FAILS DUE TO POOL FULL           0.00
    TERMINATE                       38.00   READ DELAYED-UNAVAILABLE RESOURCE   0.00   PAGES USED FOR CT              388.00
    ROLLBACK                         0.00   LOG RECORDS CREATED               446.3K   PAGES USED FOR PT               0.00
    COMMIT PHASE 1               26997.00   WRITE OUTPUT LOG BUFFERS        25857.00   PAGES USED FOR DBD              51.00
    COMMIT PHASE 2               12595.00   BSDS ACCESS REQUESTS               23.00   PAGES USED FOR SKCT            175.00
    READ ONLY COMMIT             14406.00   UNAVAILABLE OUTPUT LOG BUFFER       0.00   PAGES USED FOR SKPT             51.00
    UNITS OF RECOVERY GONE INDOUBT   0.00   CONTROL INTERVAL CREATED-ACTIVE 20132.00   REQUESTS FOR CT SECTIONS        0.00
    UNITS OF RECOVERY INDOUBT RESOLV 0.00   ARCHIVE LOG READ ALLOCATION         0.00   CT NOT IN EDM POOL              0.00
    SYNCHS (SINGLE PHASE COMMIT)    37.00   ARCHIVE LOG WRITE ALLOCAT.          0.00   REQUESTS FOR PT SECTIONS        0.00
    QUEUED AT CREATE THREAD          0.00                                              PT NOT IN EDM POOL              0.00
    SYSTEM EVENT CHECKPOINT          0.00                                              REQUESTS FOR DBD SECTIONS       0.00
                                                                                       DBD NOT IN EDM POOL             0.00
                                                                                       PREP_STMT_HIT_RATIO              N/C

           LOCATION: DSNDG0G               DB2 PERFORMANCE MONITOR (V6)                    PAGE: 2-3
              GROUP: DSNDG0G                 STATISTICS REPORT - SHORT              REQUESTED FROM: NOT SPECIFIED
             MEMBER: DG2G                                                                      TO: NOT SPECIFIED
          SUBSYSTEM: DG2G                                                          INTERVAL FROM: 04/03/99 18:35:00.88
        DB2 VERSION: V6                            SCOPE: MEMBER                               TO: 04/03/99 18:45:01.12

    ---- HIGHLIGHTS ---------------------------------------------------------------------------------------------------
    INTERVAL START: 04/03/99 18:35:00.88  INTERVAL ELAPSED: 10:00.24469  INCREMENTAL BINDS    :     0.00   DBAT QUEUED:     N/P
    INTERVAL END  : 04/03/99 18:45:01.12  OUTAGE ELAPSED  :   0.000000   AUTH SUCC.W/OUT CATALOG: 10554.00  DB2 COMMAND:   38.00
    SAMPLING START: 04/03/99 18:35:00.88  TOTAL THREADS   :      37.00   BUFF.UPDT/PAGES WRITTEN:    11.39  TOTAL API  :    0.00
    SAMPLING END  : 04/03/99 18:45:01.12  TOTAL COMMITS   :   27038.00   PAGES WRITTEN/WRITE I/O:    25.18  MEMBER     :     N/A

    BP0    GENERAL         QUANTITY   BP1    GENERAL         QUANTITY   BP2    GENERAL         QUANTITY   TOT4K  GENERAL         QUANTITY
    --------------------   --------   --------------------   --------   --------------------   --------   --------------------   --------
    BPOOL HIT RATIO (%)      99.86   BPOOL HIT RATIO (%)     100.00   BPOOL HIT RATIO (%)      17.38   BPOOL HIT RATIO (%)      59.53
    GETPAGES-SEQ&RANDOM   60723.00   GETPAGES-SEQ&RANDOM     545.8K   GETPAGES-SEQ&RANDOM     582.2K   GETPAGES-SEQ&RANDOM     1188.7K
    GETPAGES-SEQ.ONLY     22489.00   GETPAGES-SEQ.ONLY         0.00   GETPAGES-SEQ.ONLY         0.00   GETPAGES-SEQ.ONLY     22489.00
    SYNC.READ-SEQ&RANDOM      2.00   SYNC.READ-SEQ&RANDOM      0.00   SYNC.READ-SEQ&RANDOM  77801.00   SYNC.READ-SEQ&RANDOM  77803.00
    SYNC.READ-SEQ.ONLY        0.00   SYNC.READ-SEQ.ONLY        0.00   SYNC.READ-SEQ.ONLY        0.00   SYNC.READ-SEQ.ONLY        0.00
    SEQ.PREFETCH REQ       2217.00   SEQ.PREFETCH REQ          0.00   SEQ.PREFETCH REQ          0.00   SEQ.PREFETCH REQ       2217.00
    SEQ.PREFETCH READS        0.00   SEQ.PREFETCH READS        0.00   SEQ.PREFETCH READS        0.00   SEQ.PREFETCH READS        0.00
    PAGES READ-SEQ.PREF.      0.00   PAGES READ-SEQ.PREF.      0.00   PAGES READ-SEQ.PREF.      0.00   PAGES READ-SEQ.PREF.      0.00
    LST.PREFETCH REQUEST      0.00   LST.PREFETCH REQUEST      0.00   LST.PREFETCH REQUEST      0.00   LST.PREFETCH REQUEST      0.00
    LST.PREFETCH READS        0.00   LST.PREFETCH READS        0.00   LST.PREFETCH READS        0.00   LST.PREFETCH READS        0.00
    PAGES READ-LST.PREF.      0.00   PAGES READ-LST.PREF.      0.00   PAGES READ-LST.PREF.      0.00   PAGES READ-LST.PREF.      0.00
    DYN.PREFETCH REQUEST     29.00   DYN.PREFETCH REQUEST   3055.00   DYN.PREFETCH REQUEST  17909.00   DYN.PREFETCH REQUEST  20993.00
    DYN.PREFETCH READS       14.00   DYN.PREFETCH READS        1.00   DYN.PREFETCH READS    15023.00   DYN.PREFETCH READS    15038.00
    PAGES READ-DYN.PREF.     85.00   PAGES READ-DYN.PREF.      7.00   PAGES READ-DYN.PREF.    403.2K   PAGES READ-DYN.PREF.    403.3K
    BUFFER UPDATES        43852.00   BUFFER UPDATES         18111.00   BUFFER UPDATES            0.00   BUFFER UPDATES        61963.00
    SYNCHRONOUS WRITES        0.00   SYNCHRONOUS WRITES        0.00   SYNCHRONOUS WRITES        0.00   SYNCHRONOUS WRITES        0.00
    ASYNCHRONOUS WRITES      11.00   ASYNCHRONOUS WRITES     205.00   ASYNCHRONOUS WRITES       0.00   ASYNCHRONOUS WRITES     216.00
    DATA SET OPENS            0.00   DATA SET OPENS            0.00   DATA SET OPENS            0.00   DATA SET OPENS            0.00
    HDW THRESHOLD             0.00   HDW THRESHOLD             0.00   HDW THRESHOLD             0.00   HDW THRESHOLD             0.00
    VDW THRESHOLD             3.00   VDW THRESHOLD             0.00   VDW THRESHOLD             0.00   VDW THRESHOLD             3.00
    DM THRESHOLD              0.00   DM THRESHOLD              0.00   DM THRESHOLD              0.00   DM THRESHOLD              0.00

    GROUP BP0                 QUANTITY   GROUP BP1                 QUANTITY   GROUP TOT4K               QUANTITY
    --------------------------  --------  --------------------------  --------  --------------------------  --------
    SYN.READ(XI)-DATA RETURNED  3050.00   SYN.READ(XI)-DATA RETURNED 10352.00   SYN.READ(XI)-DATA RETURNED 13402.00
    SYN.READ(XI)-NO DATA RETURN    2.00   SYN.READ(XI)-NO DATA RETURN    0.00   SYN.READ(XI)-NO DATA RETURN    2.00
    SYN.READ(NF)-DATA RETURNED     0.00   SYN.READ(NF)-DATA RETURNED     0.00   SYN.READ(NF)-DATA RETURNED     0.00
    SYN.READ(NF)-NO DATA RETURN    0.00   SYN.READ(NF)-NO DATA RETURN    0.00   SYN.READ(NF)-NO DATA RETURN    0.00
    CLEAN PAGES SYN.WRTN           0.00   CLEAN PAGES SYN.WRTN           0.00   CLEAN PAGES SYN.WRTN           0.00
    CHANGED PGS SYN.WRTN        6092.00   CHANGED PGS SYN.WRTN       18106.00   CHANGED PGS SYN.WRTN       24198.00
    CLEAN PAGES ASYN.WRT           0.00   CLEAN PAGES ASYN.WRT           0.00   CLEAN PAGES ASYN.WRT           0.00
    CHANGED PGS ASYN.WRT           5.00   CHANGED PGS ASYN.WRT           2.00   CHANGED PGS ASYN.WRT           7.00
    REG.PG LIST (RPL) RQ          18.00   REG.PG LIST (RPL) RQ          38.00   REG.PG LIST (RPL) RQ          56.00
    CLEAN PGS READ RPL            23.00   CLEAN PGS READ RPL             0.00   CLEAN PGS READ RPL            23.00
    CHANGED PGS READ RPL           4.00   CHANGED PGS READ RPL         263.00   CHANGED PGS READ RPL         267.00
    PGS READ FRM DASD AFTER RPL   85.00   PGS READ FRM DASD AFTER RPL    7.00   PGS READ FRM DASD AFTER RPL   92.00
    ASYN.READ-DATA RETURNED        0.00   ASYN.READ-DATA RETURNED        0.00   ASYN.READ-DATA RETURNED        0.00
    PAGES CASTOUT                120.00   PAGES CASTOUT               5248.00   PAGES CASTOUT               5368.00
    EXPLICIT X-INVALIDATIONS       0.00   EXPLICIT X-INVALIDATIONS       0.00   EXPLICIT X-INVALIDATIONS       0.00
    CASTOUT CLASS THRESH           2.00   CASTOUT CLASS THRESH          63.00   CASTOUT CLASS THRESH          65.00
    GROUP BP CAST.THRESH           0.00   GROUP BP CAST.THRESH           0.00   GROUP BP CAST.THRESH           0.00
    CASTOUT ENG.UNAVAIL.           0.00   CASTOUT ENG.UNAVAIL.           0.00   CASTOUT ENG.UNAVAIL.           0.00
    WRITE ENG.UNAVAIL.             0.00   WRITE ENG.UNAVAIL.             0.00   WRITE ENG.UNAVAIL.             0.00
    READ FAILED-NO STOR.           0.00   READ FAILED-NO STOR.           0.00   READ FAILED-NO STOR.           0.00
    WRITE FAILED-NO STOR           0.00   WRITE FAILED-NO STOR           0.00   WRITE FAILED-NO STOR           0.00
```

Figure 193. Statistics Report — SHORT (Part 6 of 7)

```
LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                          PAGE: 2-4
   GROUP: DSNDG0G                     STATISTICS REPORT - SHORT             REQUESTED FROM: NOT SPECIFIED
  MEMBER: DG2G                                                                         TO: NOT SPECIFIED
SUBSYSTEM: DG2G                                                            INTERVAL FROM: 04/03/99 18:35:00.88
DB2 VERSION: V6                            SCOPE: MEMBER                               TO: 04/03/99 18:45:01.12
```

```
                TRN SENT  CON SENT  CON QUE  SQL SENT  COM SENT  RBK SENT  ROW SENT  MSG SENT  BYT SENT  LIM BLK  BLK SENT
REMOTE LOCATION TRN RECV  CON RECV  SYS BIND SQL RECV  COM RECV  RBK RECV  ROW RECV  MSG RECV  BYT RECV  MSG BUF  BLK RECV
--------------- --------  --------  -------- --------  --------  --------  --------  --------  --------  -------- --------
                1401.00   1401.00      0.00  4892.00   1401.00      0.00      0.00   7696.00   1260.3K      0.00     0.00
DRDA REMOTE LOCS   0.00      0.00      0.00     0.00      0.00      0.00   6291.00   6295.00    706.1K   1955.00   250.00

STATISTICS REPORT COMPLETE
```

Figure 193. Statistics Report — SHORT (Part 7 of 7)

Statistics Long Report

The SHORT layout presents selected data from all statistics categories using the following blocks of data:

- Highlights
- SQL DML activity
- SQL DCL activity
- SQL DDL activity
- Stored procedures
- EDM pool activity
- Subsystem services
- Open/close activity
- Log activity
- Plan/package processing
- DB2 commands
- RID list processing
- Authorization management
- Locking activity
- Data sharing locking
- Global DDF activity
- Query parallelism
- CPU times
- DB2 application programming interface
- Data capture
- IFC destination data
- IFC record counts
- Miscellaneous data
- Buffer pool activity general information
- Buffer pool activity read operations
- Buffer pool activity write operations
- Buffer pool activity sort/merge
- Group buffer pool activity
- DDF activity

The following report is an example of a member-scope statistics short report, produced with the command:

⋮

```
STATISTICS
      REPORT
          LAYOUT(LONG)
```

⋮

```
    LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-1
       GROUP: DSNDG0G                      STATISTICS REPORT - LONG               REQUESTED FROM: NOT SPECIFIED
      MEMBER: DG1G                                                                           TO: NOT SPECIFIED
   SUBSYSTEM: DG1G                                                               INTERVAL FROM: 04/03/99 18:35:00.80
 DB2 VERSION: V6                                    SCOPE: MEMBER                           TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS -----------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80    SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :    37.00
INTERVAL END    : 04/03/99 18:45:01.07    SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:       10:00.273742      OUTAGE ELAPSED:        0.000000         DATA SHARING MEMBER:   N/A

SQL DML                    QUANTITY  /MINUTE  /THREAD  /COMMIT   SQL DCL                   QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------  --------  -------  -------  -------   -------------------------  --------  -------  -------  -------
SELECT                      129.5K    12.9K  3499.62     4.82   LOCK TABLE                     0.00     0.00     0.00     0.00
INSERT                    76187.00  7615.23  2059.11     2.84   GRANT                          0.00     0.00     0.00     0.00
UPDATE                    93616.00  9357.33  2530.16     3.49   REVOKE                         0.00     0.00     0.00     0.00
DELETE                     3720.00   371.83   100.54     0.14   SET HOST VARIABLE              0.00     0.00     0.00     0.00
                                                                SET CURRENT SQLID             0.00     0.00     0.00     0.00
PREPARE                       0.00     0.00     0.00     0.00   SET CURRENT DEGREE            0.00     0.00     0.00     0.00
DESCRIBE                      0.00     0.00     0.00     0.00   SET CURRENT RULES             0.00     0.00     0.00     0.00
DESCRIBE TABLE                0.00     0.00     0.00     0.00   SET CURRENT PATH              0.00     0.00     0.00     0.00
OPEN                        118.8K    11.9K  3211.32     4.42
CLOSE                     65854.00  6582.40  1779.84     2.45   CONNECT TYPE 1                0.00     0.00     0.00     0.00
FETCH                       245.1K    24.5K  6623.43     9.12   CONNECT TYPE 2                0.00     0.00     0.00     0.00
                                                                RELEASE                       0.00     0.00     0.00     0.00
TOTAL                       732.7K    73.2K    19.8K    27.28   SET CONNECTION                0.00     0.00     0.00     0.00

                                                                ASSOCIATE LOCATORS            0.00     0.00     0.00     0.00
                                                                ALLOCATE CURSOR               0.00     0.00     0.00     0.00

                                                                HOLD LOCATOR                  0.00     0.00     0.00     0.00
                                                                FREE LOCATOR                  0.00     0.00     0.00     0.00

                                                                TOTAL                         0.00     0.00     0.00     0.00

STORED PROCEDURES          QUANTITY  /MINUTE  /THREAD  /COMMIT   TRIGGERS                   QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------  --------  -------  -------  -------   -------------------------  --------  -------  -------  -------
CALL STATEMENT EXECUTED        0.00     0.00     0.00     0.00   STATEMENT TRIGGER ACTIVATED    0.00     0.00     0.00     0.00
PROCEDURE ABENDED              0.00     0.00     0.00     0.00   ROW TRIGGER ACTIVATED          0.00     0.00     0.00     0.00
CALL STATEMENT TIMED OUT       0.00     0.00     0.00     0.00   SQL ERROR OCCURRED             0.00     0.00     0.00     0.00
CALL STATEMENT REJECTED        0.00     0.00     0.00     0.00


USER DEFINED FUNCTIONS     QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------  --------  -------  -------  -------
EXECUTED                       0.00     0.00     0.00     0.00
ABENDED                        0.00     0.00     0.00     0.00
TIMED OUT                      0.00     0.00     0.00     0.00
REJECTED                       0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 1 of 22)

```
         LOCATION: DSNDG0G                   DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-2
            GROUP: DSNDG0G                    STATISTICS REPORT - LONG             REQUESTED FROM: NOT SPECIFIED
           MEMBER: DG1G                                                                       TO: NOT SPECIFIED
        SUBSYSTEM: DG1G                                                           INTERVAL FROM: 04/03/99 18:35:00.80
      DB2 VERSION: V6                              SCOPE: MEMBER                              TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS -----------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :    37.00
INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:       10:00.273742     OUTAGE ELAPSED:          0.000000       DATA SHARING MEMBER:    N/A

SQL DDL                    QUANTITY  /MINUTE  /THREAD  /COMMIT   ROW ID                     QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------  --------  -------  -------  -------   -------------------------  --------  -------  -------  -------
CREATE TABLE                   0.00     0.00     0.00     0.00   DIRECT ACCESS                  0.00     0.00     0.00     0.00
CREATE TEMP TABLE              0.00     0.00     0.00     0.00   INDEX USED                     0.00     0.00     0.00     0.00
CREATE AUXILIARY TABLE         0.00     0.00     0.00     0.00   TABLE SPACE SCAN USED          0.00     0.00     0.00     0.00
CREATE INDEX                   0.00     0.00     0.00     0.00
CREATE VIEW                    0.00     0.00     0.00     0.00
CREATE SYNONYM                 0.00     0.00     0.00     0.00
CREATE TABLESPACE              0.00     0.00     0.00     0.00
CREATE DATABASE                0.00     0.00     0.00     0.00
CREATE STOGROUP                0.00     0.00     0.00     0.00
CREATE ALIAS                   0.00     0.00     0.00     0.00
CREATE DISTINCT TYPE           0.00     0.00     0.00     0.00
CREATE FUNCTION                0.00     0.00     0.00     0.00
CREATE PROCEDURE               0.00     0.00     0.00     0.00
CREATE TRIGGER                 0.00     0.00     0.00     0.00

ALTER  TABLE                   0.00     0.00     0.00     0.00
ALTER  INDEX                   0.00     0.00     0.00     0.00
ALTER  TABLESPACE              0.00     0.00     0.00     0.00
ALTER  DATABASE                0.00     0.00     0.00     0.00
ALTER  STOGROUP                0.00     0.00     0.00     0.00
ALTER  FUNCTION                0.00     0.00     0.00     0.00
ALTER  PROCEDURE               0.00     0.00     0.00     0.00

DROP   TABLE                   0.00     0.00     0.00     0.00
DROP   INDEX                   0.00     0.00     0.00     0.00
DROP   VIEW                    0.00     0.00     0.00     0.00
DROP   SYNONYM                 0.00     0.00     0.00     0.00
DROP   TABLESPACE              0.00     0.00     0.00     0.00
DROP   DATABASE                0.00     0.00     0.00     0.00
DROP   STOGROUP                0.00     0.00     0.00     0.00
DROP   ALIAS                   0.00     0.00     0.00     0.00
DROP   PACKAGE                 0.00     0.00     0.00     0.00
DROP   DISTINCT TYPE           0.00     0.00     0.00     0.00
DROP   FUNCTION                0.00     0.00     0.00     0.00
DROP   PROCEDURE               0.00     0.00     0.00     0.00
DROP   TRIGGER                 0.00     0.00     0.00     0.00

RENAME TABLE                   0.00     0.00     0.00     0.00

COMMENT ON                     0.00     0.00     0.00     0.00
LABEL ON                       0.00     0.00     0.00     0.00

TOTAL                          0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 2 of 22)

```
      LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                      PAGE: 1-3
         GROUP: DSNDG0G                      STATISTICS REPORT - LONG          REQUESTED FROM: NOT SPECIFIED
        MEMBER: DG1G                                                                       TO: NOT SPECIFIED
     SUBSYSTEM: DG1G                                                          INTERVAL FROM: 04/03/99 18:35:00.80
   DB2 VERSION: V6                                 SCOPE: MEMBER                          TO: 04/03/99 18:45:01.07

   ---- HIGHLIGHTS ----------------------------------------------------------------------------------------------
   INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :     37.00
   INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :  26862.00
   INTERVAL ELAPSED:    10:00.273742        OUTAGE ELAPSED:          0.000000       DATA SHARING MEMBER:    N/A

   EDM POOL                   QUANTITY  /MINUTE  /THREAD  /COMMIT  SUBSYSTEM SERVICES         QUANTITY  /MINUTE  /THREAD  /COMMIT
   ------------------------   --------  -------  -------  -------  ------------------------   --------  -------  -------  -------
   PAGES IN EDM POOL           5000.00     N/A      N/A      N/A   IDENTIFY                       1.00     0.10     0.03     0.00
   % PAGES IN USE                13.68                            CREATE THREAD                 37.00     3.70     1.00     0.00
   FREE PAGES IN FREE CHAIN     4316.00    N/A      N/A      N/A   SIGNON                     26824.00  2681.18   724.97     1.00
   PAGES USED FOR CT            399.00     N/A      N/A      N/A   TERMINATE                     38.00     3.80     1.03     0.00
   PAGES USED FOR DBD            51.00     N/A      N/A      N/A   ROLLBACK                       0.00     0.00     0.00     0.00
   PAGES USED FOR SKCT          174.00     N/A      N/A      N/A
   PAGES USED FOR PT              0.00     N/A      N/A      N/A   COMMIT PHASE 1             26828.00  2681.58   725.08     1.00
   PAGES USED FOR SKPT           60.00     N/A      N/A      N/A   COMMIT PHASE 2             12399.00  1239.33   335.11     0.46
                                                                  READ ONLY COMMIT          14426.00  1441.94   389.89     0.54
   FAILS DUE TO POOL FULL         0.00     0.00     0.00     0.00
                                                                  UNITS OF RECOVERY INDOUBT      0.00     0.00     0.00     0.00
   REQUESTS FOR CT SECTIONS       0.00     0.00     0.00     0.00  UNITS OF REC.INDBT RESOLVED    0.00     0.00     0.00     0.00
   CT NOT IN EDM POOL             0.00     0.00     0.00     0.00
   CT REQUESTS/CT NOT IN EDM      N/C                              SYNCHS(SINGLE PHASE COMMIT)   37.00     3.70     1.00     0.00
   REQUESTS FOR PT SECTIONS       0.00     0.00     0.00     0.00  QUEUED AT CREATE THREAD        0.00     0.00     0.00     0.00
   PT NOT IN EDM POOL             0.00     0.00     0.00     0.00  SUBSYSTEM ALLIED MEMORY EOT    0.00     0.00     0.00     0.00
   PT REQUESTS/PT NOT IN EDM      N/C                              SUBSYSTEM ALLIED MEMORY EOM    0.00     0.00     0.00     0.00
   REQUESTS FOR DBD SECTIONS      0.00     0.00     0.00     0.00  SYSTEM EVENT CHECKPOINT        0.00     0.00     0.00     0.00
   DBD NOT IN EDM POOL            0.00     0.00     0.00     0.00
   DBD REQUESTS/DBD NOT IN EDM    N/C

   PREP_STMT_CACHE_INSERTS        0.00     0.00     0.00     0.00
   PREP_STMT_CACHE_REQUESTS       0.00     0.00     0.00     0.00
   PREP_STMT_CACHE_PAGES_USED     0.00     N/A      N/A      N/A
   PREP_STMT_HIT_RATIO            N/C
```

Figure 194. Statistics Report — LONG (Part 3 of 22)

```
      LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                      PAGE: 1-4
         GROUP: DSNDG0G                      STATISTICS REPORT - LONG          REQUESTED FROM: NOT SPECIFIED
        MEMBER: DG1G                                                                       TO: NOT SPECIFIED
     SUBSYSTEM: DG1G                                                          INTERVAL FROM: 04/03/99 18:35:00.80
   DB2 VERSION: V6                                 SCOPE: MEMBER                          TO: 04/03/99 18:45:01.07

   ---- HIGHLIGHTS ----------------------------------------------------------------------------------------------
   INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :     37.00
   INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :  26862.00
   INTERVAL ELAPSED:    10:00.273742        OUTAGE ELAPSED:          0.000000       DATA SHARING MEMBER:    N/A

   OPEN/CLOSE ACTIVITY        QUANTITY  /MINUTE  /THREAD  /COMMIT  LOG ACTIVITY              QUANTITY  /MINUTE  /THREAD  /COMMIT
   ------------------------   --------  -------  -------  -------  ------------------------  --------  -------  -------  -------
   OPEN DATASETS - HWM         1007.00     N/A      N/A      N/A   READS SATISFIED-OUTPUT BUFF    0.00     0.00     0.00     0.00
   OPEN DATASETS               1007.00     N/A      N/A      N/A   READS SATISFIED-OUTP.BUF(%)    N/C
   DS NOT IN USE,NOT CLOSE-HWM 1006.00     N/A      N/A      N/A   READS SATISFIED-ACTIVE LOG     0.00     0.00     0.00     0.00
   DS NOT IN USE,NOT CLOSED     851.00     N/A      N/A      N/A   READS SATISFIED-ACTV.LOG(%)    N/C
   IN USE DATA SETS             156.00     N/A      N/A      N/A   READS SATISFIED-ARCHIVE LOG    0.00     0.00     0.00     0.00
                                                                  READS SATISFIED-ARCH.LOG(%)    N/C
   DSETS CLOSED-THRESH.REACHED    0.00     0.00     0.00     0.00  TAPE VOLUME CONTENTION WAIT    0.00     0.00     0.00     0.00

   DSETS CONVERTED R/W -> R/O     0.00     0.00     0.00     0.00  LOG RECORDS CREATED          420.3K    42.0K    11.4K    15.65
                                                                  WRITE OUTPUT LOG BUFFERS   25520.00  2550.84   689.73     0.95

                                                                  BSDS ACCESS REQUESTS          21.00     2.10     0.57     0.00
                                                                  UNAVAILABLE OUTPUT LOG BUFF    0.00     0.00     0.00     0.00

                                                                  CONTR.INTERV.CREATED-ACTIVE 19225.00 1921.62   519.59     0.72
                                                                  ARCHIVE LOG READ ALLOCATION    0.00     0.00     0.00     0.00
                                                                  ARCHIVE LOG WRITE ALLOCAT.     0.00     0.00     0.00     0.00
                                                                  CONTR.INTERV.OFFLOADED-ARCH    0.00     0.00     0.00     0.00

                                                                  READ DELAYED-UNAVAIL.RESOUR    0.00     0.00     0.00     0.00
                                                                  LOOK-AHEAD MOUNT ATTEMPTED     0.00     0.00     0.00     0.00
                                                                  LOOK-AHEAD MOUNT SUCCESSFUL    0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 4 of 22)

```
        LOCATION: DSNDG0G                       DB2 PERFORMANCE MONITOR (V6)                              PAGE: 1-5
           GROUP: DSNDG0G                        STATISTICS REPORT - LONG                   REQUESTED FROM: NOT SPECIFIED
          MEMBER: DG1G                                                                                  TO: NOT SPECIFIED
       SUBSYSTEM: DG1G                                                                       INTERVAL FROM: 04/03/99 18:35:00.80
     DB2 VERSION: V6                                 SCOPE: MEMBER                                       TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS ---------------------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :    37.00
INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:       10:00.273742     OUTAGE ELAPSED:        0.000000    DATA SHARING MEMBER:     N/A

PLAN/PACKAGE PROCESSING     QUANTITY  /MINUTE  /THREAD  /COMMIT   DB2 COMMANDS                 QUANTITY  /MINUTE
-------------------------   --------  -------  -------  -------   --------------------------   --------  -------
INCREMENTAL BINDS               0.00     0.00     0.00     0.00   DISPLAY DATABASE                 0.00     0.00
                                                                  DISPLAY THREAD                   0.00     0.00
PLAN ALLOCATION ATTEMPTS        0.00     0.00     0.00     0.00   DISPLAY UTILITY                  0.00     0.00
PLAN ALLOCATION SUCCESSFUL      0.00     0.00     0.00     0.00   DISPLAY TRACE                    0.00     0.00
PACKAGE ALLOCATION ATTEMPT      0.00     0.00     0.00     0.00   DISPLAY RLIMIT                   0.00     0.00
PACKAGE ALLOCATION SUCCESS      0.00     0.00     0.00     0.00   DISPLAY LOCATION                 0.00     0.00
                                                                  DISPLAY ARCHIVE                  0.00     0.00
PLANS BOUND                     0.00     0.00     0.00     0.00   DISPLAY BUFFERPOOL               0.00     0.00
BIND ADD SUBCOMMANDS            0.00     0.00     0.00     0.00   DISPLAY GROUPBUFFERPOOL         36.00     3.60
BIND REPLACE SUBCOMMANDS        0.00     0.00     0.00     0.00   DISPLAY GROUP                    1.00     0.10
TEST BINDS NO PLAN-ID           0.00     0.00     0.00     0.00   DISPLAY PROCEDURE                0.00     0.00
PACKAGES BOUND                  0.00     0.00     0.00     0.00   ALTER BUFFERPOOL                 0.00     0.00
BIND ADD PACKAGE SUBCOMMAND     0.00     0.00     0.00     0.00   ALTER GROUPBUFFERPOOL           0.00     0.00
BIND REPLACE PACKAGE SUBCOM     0.00     0.00     0.00     0.00   START DATABASE                  0.00     0.00
                                                                  START TRACE                     0.00     0.00
AUTOMATIC BIND ATTEMPTS         0.00     0.00     0.00     0.00   START DB2                       0.00     0.00
AUTOMATIC BINDS SUCCESSFUL      0.00     0.00     0.00     0.00   START RLIMIT                    0.00     0.00
AUTO.BIND INVALID RES. IDS      0.00     0.00     0.00     0.00   START DDF                       0.00     0.00
AUTO.BIND PACKAGE ATTEMPTS      0.00     0.00     0.00     0.00   START PROCEDURE                 0.00     0.00
AUTO.BIND PACKAGES SUCCESS      0.00     0.00     0.00     0.00   STOP DATABASE                   0.00     0.00
                                                                  STOP TRACE                      0.00     0.00
REBIND SUBCOMMANDS              0.00     0.00     0.00     0.00   STOP DB2                        0.00     0.00
ATTEMPTS TO REBIND A PLAN       0.00     0.00     0.00     0.00   STOP RLIMIT                     0.00     0.00
PLANS REBOUND                   0.00     0.00     0.00     0.00   STOP DDF                        0.00     0.00
REBIND PACKAGE SUBCOMMANDS      0.00     0.00     0.00     0.00   STOP PROCEDURE                  0.00     0.00
ATTEMPTS TO REBIND PACKAGE      0.00     0.00     0.00     0.00   MODIFY TRACE                    1.00     0.10
PACKAGES REBOUND                0.00     0.00     0.00     0.00   CANCEL THREAD                   0.00     0.00
                                                                  TERM UTILITY                    0.00     0.00
FREE PLAN SUBCOMMANDS           0.00     0.00     0.00     0.00   RECOVER BSDS                    0.00     0.00
ATTEMPTS TO FREE A PLAN         0.00     0.00     0.00     0.00   RECOVER INDOUBT                 0.00     0.00
PLANS FREED                     0.00     0.00     0.00     0.00   RESET INDOUBT                   0.00     0.00
FREE PACKAGE SUBCOMMANDS        0.00     0.00     0.00     0.00   RESET GENERICLU                 0.00     0.00
ATTEMPTS TO FREE A PACKAGE      0.00     0.00     0.00     0.00   ARCHIVE LOG                     0.00     0.00
PACKAGES FREED                  0.00     0.00     0.00     0.00   SET ARCHIVE                     0.00     0.00
                                                                  UNRECOGNIZED COMMANDS           0.00     0.00

                                                                  TOTAL                          38.00     3.80
```

Figure 194. Statistics Report — LONG (Part 5 of 22)

```
        LOCATION: DSNDG0G                      DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-6
           GROUP: DSNDG0G                       STATISTICS REPORT - LONG         REQUESTED FROM: NOT SPECIFIED
          MEMBER: DG1G                                                                       TO: NOT SPECIFIED
       SUBSYSTEM: DG1G                                                          INTERVAL FROM: 04/03/99 18:35:00.80
      DB2 VERSION: V6                              SCOPE: MEMBER                            TO: 04/03/99 18:45:01.07

    ---- HIGHLIGHTS ----------------------------------------------------------------------------------------------
    INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS     :     37.00
    INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS     : 26862.00
    INTERVAL ELAPSED:       10:00.273742     OUTAGE ELAPSED:          0.000000   DATA SHARING MEMBER:      N/A

    RID LIST PROCESSING        QUANTITY   /MINUTE  /THREAD  /COMMIT   AUTHORIZATION MANAGEMENT    QUANTITY   /MINUTE  /THREAD  /COMMIT
    -------------------------  --------   -------  -------  -------   -------------------------   --------   -------  -------  -------
    MAX RID BLOCKS ALLOCATED      22.00       N/A      N/A      N/A   PLAN-AUTH ATTEMPTS           6946.00    694.28   187.73     0.26
    CURRENT RID BLOCKS ALLOCAT.   12.00       N/A      N/A      N/A   PLAN-AUTH SUCC               6946.00    694.28   187.73     0.26
    TERMINATED-NO STORAGE          0.00      0.00     0.00     0.00   PLAN-AUTH SUCC-W/O CATALOG   6946.00    694.28   187.73     0.26
    TERMINATED-EXCEED RDS LIMIT    0.00      0.00     0.00     0.00   PLAN-AUTH SUCC-PUB-W/O CAT   6946.00    694.28   187.73     0.26
    TERMINATED-EXCEED DM LIMIT     0.00      0.00     0.00     0.00
    TERMINATED-EXCEED PROC.LIM.    0.00      0.00     0.00     0.00   PKG-AUTH SUCC-W/O CATALOG       0.00      0.00     0.00     0.00
                                                                     PKG-AUTH SUCC-PUB-W/O CAT       0.00      0.00     0.00     0.00
                                                                     PKG-AUTH UNSUCC-CACHE           0.00      0.00     0.00     0.00
                                                                     PKG CACHE OVERWRT - AUTH ID     0.00      0.00     0.00     0.00
                                                                     PKG CACHE OVERWRT - ENTRY       0.00      0.00     0.00     0.00

                                                                     RTN-AUTH SUCC-W/O CATALOG       0.00      0.00     0.00     0.00
                                                                     RTN-AUTH SUCC-PUB-W/O CAT       0.00      0.00     0.00     0.00
                                                                     RTN-AUTH UNSUCC-CACHE           0.00      0.00     0.00     0.00
                                                                     RTN CACHE OVERWRT - AUTH ID     0.00      0.00     0.00     0.00
                                                                     RTN CACHE OVERWRT - ENTRY       0.00      0.00     0.00     0.00
                                                                     RTN CACHE - ENTRY NOT ADDED     0.00      0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 6 of 22)

```
        LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-7
           GROUP: DSNDG0G                    STATISTICS REPORT - LONG              REQUESTED FROM: NOT SPECIFIED
          MEMBER: DG1G                                                                        TO: NOT SPECIFIED
       SUBSYSTEM: DG1G                                                            INTERVAL FROM: 04/03/99 18:35:00.80
     DB2 VERSION: V6                             SCOPE: MEMBER                                 TO: 04/03/99 18:45:01.07

  ---- HIGHLIGHTS -------------------------------------------------------------------------------------------------
  INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :     37.00
  INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :  26862.00
  INTERVAL ELAPSED:         10:00.273742   OUTAGE ELAPSED:         0.000000   DATA SHARING MEMBER:     N/A

  LOCKING ACTIVITY            QUANTITY  /MINUTE  /THREAD  /COMMIT   DATA SHARING LOCKING          QUANTITY  /MINUTE  /THREAD  /COMMIT
  --------------------------  --------  -------  -------  -------   --------------------------    --------  -------  -------  -------
  SUSPENSIONS (ALL)             453.00    45.28    12.24     0.02   GLOBAL CONTENTION RATE (%)        0.14
  SUSPENSIONS (LOCK ONLY)        79.00     7.90     2.14     0.00   FALSE CONTENTION RATE (%)         0.02
  SUSPENSIONS (IRLM LATCH)      366.00    36.58     9.89     0.01
  SUSPENSIONS (OTHER)             8.00     0.80     0.22     0.00   LOCK REQUESTS (P-LOCKS)       38383.00  3836.55  1037.38     1.43
                                                                   UNLOCK REQUESTS (P-LOCKS)     38358.00  3834.05  1036.70     1.43
  TIMEOUTS                        0.00     0.00     0.00     0.00   CHANGE REQUESTS (P-LOCKS)         0.00     0.00     0.00     0.00
  DEADLOCKS                       0.00     0.00     0.00     0.00
                                                                   SYNCH.XES - LOCK REQUESTS      166.3K    16.6K  4494.22     6.19
  LOCK REQUESTS                 189.9K    19.0K  5132.41     7.07   SYNCH.XES - CHANGE REQUESTS   94297.00  9425.40  2548.57     3.51
  UNLOCK REQUESTS             71254.00  7122.15  1925.78     2.65   SYNCH.XES - UNLOCK REQUESTS    163.5K    16.3K  4419.22     6.09
  QUERY REQUESTS                  0.00     0.00     0.00     0.00   ASYNCH.XES - RESOURCES            0.00     0.00     0.00     0.00
  CHANGE REQUESTS             94621.00  9457.79  2557.32     3.52
  OTHER REQUESTS                  0.00     0.00     0.00     0.00   SUSPENDS - IRLM GLOBAL CONT     512.00    51.18    13.84     0.02
                                                                   SUSPENDS - XES GLOBAL CONT.       1.00     0.10     0.03     0.00
  LOCK ESCALATION (SHARED)        0.00     0.00     0.00     0.00   SUSPENDS - FALSE CONTENTION      87.00     8.70     2.35     0.00
  LOCK ESCALATION (EXCLUSIVE)     0.00     0.00     0.00     0.00   INCOMPATIBLE RETAINED LOCK        0.00     0.00     0.00     0.00

  DRAIN REQUESTS                  0.00     0.00     0.00     0.00   NOTIFY MESSAGES SENT            992.00    99.15    26.81     0.04
  DRAIN REQUESTS FAILED           0.00     0.00     0.00     0.00   NOTIFY MESSAGES RECEIVED         85.00     8.50     2.30     0.00
  CLAIM REQUESTS                254.4K    25.4K  6876.70     9.47   P-LOCK/NOTIFY EXITS ENGINES     500.00      N/A      N/A      N/A
  CLAIM REQUESTS FAILED        9965.00   996.05   269.32     0.37   P-LCK/NFY EX.ENGINE UNAVAIL       0.00     0.00     0.00     0.00

                                                                   PSET/PART P-LCK NEGOTIATION       0.00     0.00     0.00     0.00
                                                                   PAGE P-LOCK NEGOTIATION         425.00    42.48    11.49     0.02
                                                                   OTHER P-LOCK NEGOTIATION          0.00     0.00     0.00     0.00
                                                                   P-LOCK CHANGE DURING NEG.       425.00    42.48    11.49     0.02


  GLOBAL DDF ACTIVITY         QUANTITY  /MINUTE  /THREAD  /COMMIT   QUERY PARALLELISM             QUANTITY  /MINUTE  /THREAD  /COMMIT
  --------------------------  --------  -------  -------  -------   --------------------------    --------  -------  -------  -------
  DBAT QUEUED-MAXIMUM ACTIVE      0.00     0.00     0.00      N/A   MAX.DEGREE OF PARALLELISM         0.00      N/A      N/A      N/A
  CONV.DEALLOC-MAX.CONNECTED      0.00     0.00     0.00      N/A   PARALLEL GROUPS EXECUTED          0.00     0.00     0.00     0.00
  INACTIVE DBATS - CURRENTLY      0.00      N/A      N/A      N/A    RAN AS PLANNED                   0.00     0.00     0.00     0.00
  INACTIVE DBATS - HWM            0.00      N/A      N/A      N/A    RAN REDUCED                      0.00     0.00     0.00     0.00
  ACTIVE   DBATS - CURRENTLY      0.00      N/A      N/A      N/A    SEQUENTIAL-CURSOR                0.00     0.00     0.00     0.00
  ACTIVE   DBATS - HWM            0.00      N/A      N/A      N/A    SEQUENTIAL-NO ESA                0.00     0.00     0.00     0.00
  TOTAL    DBATS - HWM            0.00      N/A      N/A      N/A    SEQUENTIAL-NO BUFFER             0.00     0.00     0.00     0.00
  COLD START CONNECTIONS          0.00     0.00     0.00     0.00    SEQUENTIAL-ENCLAVE SER.          0.00     0.00     0.00     0.00
  WARM START CONNECTIONS          1.00     0.01     0.00     0.00    ONE DB2 - COORDINATOR = NO       0.00     0.00     0.00     0.00
  RESYNCHRONIZATION ATTEMPTED     0.00     0.00     0.00     0.00    ONE DB2 - ISOLATION LEVEL        0.00     0.00     0.00     0.00
  RESYNCHRONIZATION SUCCEEDED     0.00     0.00     0.00     0.00   MEMBER SKIPPED (%)                 N/C
                                                                   REFORM PARAL-CONFIG CHANGED       0.00     0.00     0.00     0.00
                                                                   REFORM PARAL-NO BUFFER            0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 7 of 22)

```
     LOCATION: DSNDG0G                      DB2 PERFORMANCE MONITOR (V6)                              PAGE: 1-8
        GROUP: DSNDG0G                       STATISTICS REPORT - LONG                    REQUESTED FROM: NOT SPECIFIED
       MEMBER: DG1G                                                                                 TO: NOT SPECIFIED
    SUBSYSTEM: DG1G                                                                    INTERVAL FROM: 04/03/99 18:35:00.80
  DB2 VERSION: V6                               SCOPE: MEMBER                                       TO: 04/03/99 18:45:01.07

 ---- HIGHLIGHTS ---------------------------------------------------------------------------------------------------------
 INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :      37.00
 INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    : 26862.00
 INTERVAL ELAPSED:        10:00.273742    OUTAGE ELAPSED:           0.000000      DATA SHARING MEMBER:    N/A

 CPU TIMES                                  TCB TIME        SRB TIME        TOTAL TIME        /THREAD          /COMMIT
 ------------------------------------     --------------  --------------  --------------  --------------   --------------
 SYSTEM SERVICES ADDRESS SPACE              0.869050        57.600096       58.469147        1.580247         0.002177
 DATABASE SERVICES ADDRESS SPACE            0.230720      1:32.047157     1:32.277877        2.493997         0.003435
 IRLM                                       0.000184         2.604072        2.604255        0.070385         0.000097
 DDF ADDRESS SPACE                               N/P             N/P             N/P              N/P              N/P

 TOTAL                                      1.099954      2:32.251325     2:33.351279        4.144629         0.005709

 DB2 APPL.PROGR.INTERFACE  QUANTITY  /MINUTE  /THREAD  /COMMIT   DATA CAPTURE                   QUANTITY  /MINUTE  /THREAD  /COMMIT
 ------------------------  --------  -------  -------  -------   --------------------------     --------  -------  -------  -------
 ABENDS                        0.00     0.00     0.00     0.00   LOG RECORDS CAPTURED               0.00     0.00     0.00     0.00
 UNRECOGNIZED                  0.00     0.00     0.00     0.00   LOG READS PERFORMED                0.00     0.00     0.00     0.00
 COMMAND REQUESTS              0.00     0.00     0.00     0.00   LOG RECORDS RETURNED               0.00     0.00     0.00     0.00
 READA REQUESTS                0.00     0.00     0.00     0.00   DATA ROWS RETURNED                 0.00     0.00     0.00     0.00
 READS REQUESTS                0.00     0.00     0.00     0.00   DESCRIBES PERFORMED                0.00     0.00     0.00     0.00
 WRITE REQUESTS                0.00     0.00     0.00     0.00   DATA DESCRIPTIONS RETURNED         0.00     0.00     0.00     0.00
                                                                TABLES RETURNED                    0.00     0.00     0.00     0.00
 TOTAL                         0.00     0.00     0.00     0.00

 OPTIMIZATION              QUANTITY  /MINUTE  /THREAD  /COMMIT   IFC DEST.    WRITTEN   NOT WRTN  BUF.OVER   NOT ACCP  WRT.FAIL
 ------------------------  --------  -------  -------  -------   ---------   --------  --------  --------   --------  --------
 PREP_STMT_MATCH               0.00     0.00     0.00     0.00   SMF             0.00      0.00      0.00       0.00      0.00
 PREP_STMT_NO_MATCH            0.00     0.00     0.00     0.00   GTF         26946.00      0.00       N/A       0.00      0.00
 IMPLICIT_PREPARES             0.00     0.00     0.00     0.00   OP1             0.00      0.00       N/A       0.00       N/A
 PREP_FROM_CACHE               0.00     0.00     0.00     0.00   OP2             0.00      0.00       N/A       0.00       N/A
 CACHE_LIMIT_EXCEED            0.00     0.00     0.00     0.00   OP3             0.00      0.00       N/A       0.00       N/A
 PREP_STMT_PURGED              0.00     0.00     0.00     0.00   OP4             0.00      0.00       N/A       0.00       N/A
                                                                OP5             0.00      0.00       N/A       0.00       N/A
                                                                OP6             0.00      0.00       N/A       0.00       N/A
                                                                OP7             0.00      0.00       N/A       0.00       N/A
                                                                OP8             0.00      0.00       N/A       0.00       N/A
                                                                RES             0.00       N/A       N/A        N/A       N/A

                                                                TOTAL       26946.00      0.00                 0.00      0.00

 IFC RECORD COUNTS  WRITTEN  NOT WRTN   LATCH CNT  QUANTITY  QUANTITY  QUANTITY  QUANTITY   MISCELLANEOUS
 -----------------  -------  --------   ---------  --------  --------  --------  --------   ------------------------------
 SYSTEM RELATED        1.00      0.00   LC01-LC04      0.00      0.00      0.00      0.00    BYPASS COL          :      0.00
 DATABASE RELATED      1.00      0.00   LC05-LC08      0.00      0.00      0.00      0.00    MAX SQL CASCAD LEVEL:      0.00
 ACCOUNTING        26863.00      0.00   LC09-LC12      0.00    160.00      0.00      0.00    MAX STOR LOB VALUES :      0.00
 START TRACE           1.00      0.00   LC13-LC16      0.00    117.00      0.00      0.00
 STOP TRACE            1.00      0.00   LC17-LC20      0.00      0.00    145.00      0.00
 SYSTEM PARAMETERS     1.00      0.00   LC21-LC24      0.00      0.00    145.00     22.00
 SYS.PARMS-BPOOLS      1.00      0.00   LC25-LC28     77.00      0.00      0.00      0.00
 AUDIT                 0.00      0.00   LC29-LC32      0.00     10.00      0.00     73.00

 TOTAL             26869.00      0.00
```

Figure 194. Statistics Report — LONG (Part 8 of 22)

```
      LOCATION: DSNDG0G                        DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-9
         GROUP: DSNDG0G                          STATISTICS REPORT - LONG           REQUESTED FROM: NOT SPECIFIED
        MEMBER: DG1G                                                                            TO: NOT SPECIFIED
     SUBSYSTEM: DG1G                                                                 INTERVAL FROM: 04/03/99 18:35:00.80
   DB2 VERSION: V6                                    SCOPE: MEMBER                              TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS -------------------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :      37.00
INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :   26862.00
INTERVAL ELAPSED:       10:00.273742     OUTAGE ELAPSED:          0.000000       DATA SHARING MEMBER:     N/A

BP0      GENERAL               QUANTITY  /MINUTE  /THREAD  /COMMIT   BP0     READ OPERATIONS          QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------      --------  -------  -------  -------   -------------------------      --------  -------  -------  -------
CURRENT ACTIVE BUFFERS            33.00     N/A      N/A      N/A    BPOOL HIT RATIO (%)               99.90
UNAVAIL.BUFFER-VPOOL FULL          0.00    0.00     0.00     0.00
                                                                    GETPAGE REQUEST                60690.00  6066.23  1640.27     2.26
NUMBER OF DATASET OPENS            0.00    0.00     0.00     0.00    GETPAGE REQUEST-SEQUENTIAL     22446.00  2243.58   606.65     0.84
                                                                    GETPAGE REQUEST-RANDOM         38244.00  3822.66  1033.62     1.42
BUFFERS ALLOCATED - VPOOL       1000.00     N/A      N/A      N/A
BUFFERS ALLOCATED - HPOOL           0.00     N/A      N/A      N/A   SYNCHRONOUS READS                  0.00    0.00     0.00     0.00
HPOOL BUFFERS BACKED               0.00     N/A      N/A      N/A    SYNCHRON. READS-SEQUENTIAL         0.00    0.00     0.00     0.00
                                                                    SYNCHRON. READS-RANDOM            0.00    0.00     0.00     0.00
DFHSM MIGRATED DATASET             0.00    0.00     0.00     0.00
DFHSM RECALL TIMEOUTS              0.00    0.00     0.00     0.00    GETPAGE PER SYN.READ-RANDOM        N/C

HPOOL EXPANS. OR CONTRACT.         0.00    0.00     0.00     0.00    SEQUENTIAL PREFETCH REQUEST     2243.00   224.20    60.62     0.08
VPOOL EXPANS. OR CONTRACT.         0.00    0.00     0.00     0.00    SEQUENTIAL PREFETCH READS          0.00    0.00     0.00     0.00
VPOOL OR HPOOL EXP.FAILURE         0.00    0.00     0.00     0.00    PAGES READ VIA SEQ.PREFETCH        0.00    0.00     0.00     0.00
                                                                    S.PRF.PAGES READ/S.PRF.READ        N/C
CONCUR.PREF.I/O STREAMS-HWM        0.00     N/A      N/A      N/A
PREF.I/O STREAMS REDUCTION         0.00    0.00     0.00     0.00    LIST PREFETCH REQUESTS             0.00    0.00     0.00     0.00
PARALLEL QUERY REQUESTS            0.00    0.00     0.00     0.00    LIST PREFETCH READS                0.00    0.00     0.00     0.00
PARALL.QUERY REQ.REDUCTION         0.00    0.00     0.00     0.00    PAGES READ VIA LIST PREFTCH        0.00    0.00     0.00     0.00
PREF.QUANT.REDUCED TO 1/2          0.00    0.00     0.00     0.00    L.PRF.PAGES READ/L.PRF.READ        N/C
PREF.QUANT.REDUCED TO 1/4          0.00    0.00     0.00     0.00
                                                                    DYNAMIC PREFETCH REQUESTED        34.00    3.40     0.92     0.00
                                                                    DYNAMIC PREFETCH READS            15.00    1.50     0.41     0.00
                                                                    PAGES READ VIA DYN.PREFETCH       63.00    6.30     1.70     0.00
                                                                    D.PRF.PAGES READ/D.PRF.READ        4.20

                                                                    PREF.DISABLED-NO BUFFER            0.00    0.00     0.00     0.00
                                                                    PREF.DISABLED-NO READ ENG          0.00    0.00     0.00     0.00

                                                                    SYNC.HPOOL READ                    0.00    0.00     0.00     0.00
                                                                    ASYNC.HPOOL READ                   0.00    0.00     0.00     0.00
                                                                    HPOOL READ FAILED                  0.00    0.00     0.00     0.00
                                                                    ASYN.DA.MOVER HPOOL READ-S         0.00    0.00     0.00     0.00
                                                                    ASYN.DA.MOVER HPOOL READ-F         0.00    0.00     0.00     0.00

                                                                    PAGE-INS REQUIRED FOR READ         0.00    0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 9 of 22)

```
        LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                       PAGE: 1-10
           GROUP: DSNDG0G                      STATISTICS REPORT - LONG         REQUESTED FROM: NOT SPECIFIED
          MEMBER: DG1G                                                                      TO: NOT SPECIFIED
       SUBSYSTEM: DG1G                                                         INTERVAL FROM: 04/03/99 18:35:00.80
      DB2 VERSION: V6                              SCOPE: MEMBER                           TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS ------------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :      37.00
INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :   26862.00
INTERVAL ELAPSED:       10:00.273742     OUTAGE ELAPSED:         0.000000       DATA SHARING MEMBER:    N/A

BP0    WRITE OPERATIONS    QUANTITY  /MINUTE  /THREAD  /COMMIT   BP0     SORT/MERGE             QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------  --------  -------  -------  -------   --------------------------  --------  -------  -------  -------
BUFFER UPDATES             43803.00  4378.30  1183.86     1.63   MAX WORKFILES CONCURR. USED      0.00      N/A      N/A      N/A
PAGES WRITTEN                131.00    13.09     3.54     0.00   MERGE PASSES REQUESTED           0.00     0.00     0.00     0.00
BUFF.UPDATES/PAGES WRITTEN   334.37                             MERGE PASS DEGRADED-LOW BUF      0.00     0.00     0.00     0.00
                                                               WORKFILE REQ.REJCTD-LOW BUF      0.00     0.00     0.00     0.00
SYNCHRONOUS WRITES             0.00     0.00     0.00     0.00   WORKFILE REQ-ALL MERGE PASS      0.00     0.00     0.00     0.00
ASYNCHRONOUS WRITES            9.00     0.90     0.24     0.00   WORKFILE NOT CREATED-NO BUF      0.00     0.00     0.00     0.00
                                                               WORKFILE PRF NOT SCHEDULED       0.00     0.00     0.00     0.00
PAGES WRITTEN PER WRITE I/O   14.56

HORIZ.DEF.WRITE THRESHOLD      0.00     0.00     0.00     0.00
VERTI.DEF.WRITE THRESHOLD      3.00     0.30     0.08     0.00
DM THRESHOLD                   0.00     0.00     0.00     0.00
WRITE ENGINE NOT AVAILABLE     0.00     0.00     0.00     0.00

SYNC.HPOOL WRITE               0.00     0.00     0.00     0.00
ASYNC.HPOOL WRITE              0.00     0.00     0.00     0.00
HPOOL WRITE FAILED             0.00     0.00     0.00     0.00
ASYN.DA.MOVER HPOOL WRITE-S    0.00     0.00     0.00     0.00
ASYN.DA.MOVER HPOOL WRITE-F    0.00     0.00     0.00     0.00

PAGE-INS REQUIRED FOR WRITE    0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 10 of 22)

```
      LOCATION: DSNDG0G                       DB2 PERFORMANCE MONITOR (V6)                    PAGE: 1-11
         GROUP: DSNDG0G                        STATISTICS REPORT - LONG          REQUESTED FROM: NOT SPECIFIED
        MEMBER: DG1G                                                                        TO: NOT SPECIFIED
     SUBSYSTEM: DG1G                                                             INTERVAL FROM: 04/03/99 18:35:00.80
   DB2 VERSION: V6                                    SCOPE: MEMBER                         TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS ---------------------------------------------------------------------------------------------------
INTERVAL START : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :      37.00
INTERVAL END   : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :   26862.00
INTERVAL ELAPSED:        10:00.273742   OUTAGE ELAPSED:          0.000000      DATA SHARING MEMBER:    N/A

BP1     GENERAL                QUANTITY  /MINUTE  /THREAD  /COMMIT   BP1      READ OPERATIONS       QUANTITY  /MINUTE  /THREAD  /COMMIT
---------------------------    --------  -------  -------  -------   -------------------------    --------  -------  -------  -------
CURRENT ACTIVE BUFFERS            69.00     N/A      N/A      N/A    BPOOL HIT RATIO (%)            100.00
UNAVAIL.BUFFER-VPOOL FULL          0.00    0.00     0.00     0.00
                                                                    GETPAGE REQUEST                544.1K    54.4K    14.7K    20.25
NUMBER OF DATASET OPENS            0.00    0.00     0.00     0.00    GETPAGE REQUEST-SEQUENTIAL       0.00     0.00     0.00     0.00
                                                                    GETPAGE REQUEST-RANDOM         544.1K    54.4K    14.7K    20.25
BUFFERS ALLOCATED - VPOOL       5500.00     N/A      N/A      N/A
BUFFERS ALLOCATED - HPOOL          0.00     N/A      N/A      N/A    SYNCHRONOUS READS                0.00     0.00     0.00     0.00
HPOOL BUFFERS BACKED               0.00     N/A      N/A      N/A    SYNCHRON. READS-SEQUENTIAL       0.00     0.00     0.00     0.00
                                                                    SYNCHRON. READS-RANDOM           0.00     0.00     0.00     0.00
DFHSM MIGRATED DATASET             0.00    0.00     0.00     0.00
DFHSM RECALL TIMEOUTS              0.00    0.00     0.00     0.00    GETPAGE PER SYN.READ-RANDOM      N/C

HPOOL EXPANS. OR CONTRACT.         0.00    0.00     0.00     0.00    SEQUENTIAL PREFETCH REQUEST      0.00     0.00     0.00     0.00
VPOOL EXPANS. OR CONTRACT.         0.00    0.00     0.00     0.00    SEQUENTIAL PREFETCH READS        0.00     0.00     0.00     0.00
VPOOL OR HPOOL EXP.FAILURE         0.00    0.00     0.00     0.00    PAGES READ VIA SEQ.PREFETCH      0.00     0.00     0.00     0.00
                                                                    S.PRF.PAGES READ/S.PRF.READ     N/C
CONCUR.PREF.I/O STREAMS-HWM        0.00     N/A      N/A      N/A
PREF.I/O STREAMS REDUCTION         0.00    0.00     0.00     0.00    LIST PREFETCH REQUESTS           0.00     0.00     0.00     0.00
PARALLEL QUERY REQUESTS            0.00    0.00     0.00     0.00    LIST PREFETCH READS              0.00     0.00     0.00     0.00
PARALL.QUERY REQ.REDUCTION         0.00    0.00     0.00     0.00    PAGES READ VIA LIST PREFTCH      0.00     0.00     0.00     0.00
PREF.QUANT.REDUCED TO 1/2          0.00    0.00     0.00     0.00    L.PRF.PAGES READ/L.PRF.READ     N/C
PREF.QUANT.REDUCED TO 1/4          0.00    0.00     0.00     0.00
                                                                    DYNAMIC PREFETCH REQUESTED     2954.00   295.27    79.84     0.11
                                                                    DYNAMIC PREFETCH READS           1.00     0.10     0.03     0.00
                                                                    PAGES READ VIA DYN.PREFETCH      4.00     0.40     0.11     0.00
                                                                    D.PRF.PAGES READ/D.PRF.READ      4.00

                                                                    PREF.DISABLED-NO BUFFER          0.00     0.00     0.00     0.00
                                                                    PREF.DISABLED-NO READ ENG        0.00     0.00     0.00     0.00

                                                                    SYNC.HPOOL READ                  0.00     0.00     0.00     0.00
                                                                    ASYNC.HPOOL READ                 0.00     0.00     0.00     0.00
                                                                    HPOOL READ FAILED                0.00     0.00     0.00     0.00
                                                                    ASYN.DA.MOVER HPOOL READ-S       0.00     0.00     0.00     0.00
                                                                    ASYN.DA.MOVER HPOOL READ-F       0.00     0.00     0.00     0.00

                                                                    PAGE-INS REQUIRED FOR READ       4.00     0.40     0.11     0.00
```

Figure 194. Statistics Report — LONG (Part 11 of 22)

```
     LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-12
        GROUP: DSNDG0G                     STATISTICS REPORT - LONG          REQUESTED FROM: NOT SPECIFIED
       MEMBER: DG1G                                                                      TO: NOT SPECIFIED
    SUBSYSTEM: DG1G                                                        INTERVAL FROM: 04/03/99 18:35:00.80
  DB2 VERSION: V6                             SCOPE: MEMBER                            TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS --------------------------------------------------------------------------------------------
INTERVAL START : 04/03/99 18:35:00.80  SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS    :    37.00
INTERVAL END   : 04/03/99 18:45:01.07  SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:      10:00.273742     OUTAGE ELAPSED:         0.000000     DATA SHARING MEMBER:    N/A

BP1    WRITE OPERATIONS     QUANTITY  /MINUTE  /THREAD  /COMMIT   BP1    SORT/MERGE           QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------- -------- -------- -------- -------   --------------------------- -------- -------- -------- -------
BUFFER UPDATES              18110.00  1810.17   489.46    0.67   MAX WORKFILES CONCURR. USED     0.00      N/A      N/A      N/A
PAGES WRITTEN               10624.00  1061.92   287.14    0.40   MERGE PASSES REQUESTED          0.00     0.00     0.00     0.00
BUFF.UPDATES/PAGES WRITTEN      1.70                             MERGE PASS DEGRADED-LOW BUF     0.00     0.00     0.00     0.00
                                                                WORKFILE REQ.REJCTD-LOW BUF     0.00     0.00     0.00     0.00
SYNCHRONOUS WRITES              0.00     0.00     0.00    0.00   WORKFILE REQ-ALL MERGE PASS     0.00     0.00     0.00     0.00
ASYNCHRONOUS WRITES           428.00    42.78    11.57    0.02   WORKFILE NOT CREATED-NO BUF     0.00     0.00     0.00     0.00
                                                                WORKFILE PRF NOT SCHEDULED      0.00     0.00     0.00     0.00
PAGES WRITTEN PER WRITE I/O    24.82

HORIZ.DEF.WRITE THRESHOLD       0.00     0.00     0.00    0.00
VERTI.DEF.WRITE THRESHOLD       0.00     0.00     0.00    0.00
DM THRESHOLD                    0.00     0.00     0.00    0.00
WRITE ENGINE NOT AVAILABLE      0.00     0.00     0.00    0.00

SYNC.HPOOL WRITE                0.00     0.00     0.00    0.00
ASYNC.HPOOL WRITE               0.00     0.00     0.00    0.00
HPOOL WRITE FAILED              0.00     0.00     0.00    0.00
ASYN.DA.MOVER HPOOL WRITE-S     0.00     0.00     0.00    0.00
ASYN.DA.MOVER HPOOL WRITE-F     0.00     0.00     0.00    0.00

PAGE-INS REQUIRED FOR WRITE     0.00     0.00     0.00    0.00
```

Figure 194. Statistics Report — LONG (Part 12 of 22)

```
     LOCATION: DSNDG0G                     DB2 PERFORMANCE MONITOR (V6)                         PAGE: 1-13
        GROUP: DSNDG0G                      STATISTICS REPORT - LONG              REQUESTED FROM: NOT SPECIFIED
       MEMBER: DG1G                                                                          TO: NOT SPECIFIED
    SUBSYSTEM: DG1G                                                              INTERVAL FROM: 04/03/99 18:35:00.80
  DB2 VERSION: V6                                SCOPE: MEMBER                               TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS --------------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80  SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS    :     37.00
INTERVAL END    : 04/03/99 18:45:01.07  SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS    :  26862.00
INTERVAL ELAPSED:        10:00.273742    OUTAGE ELAPSED:          0.000000     DATA SHARING MEMBER:    N/A

BP2     GENERAL             QUANTITY   /MINUTE  /THREAD  /COMMIT   BP2    READ OPERATIONS       QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------- --------   -------  -------  -------   --------------------------- --------  -------  -------  -------
CURRENT ACTIVE BUFFERS        137.00      N/A      N/A      N/A    BPOOL HIT RATIO (%)            18.91
UNAVAIL.BUFFER-VPOOL FULL       0.00     0.00     0.00     0.00
                                                                  GETPAGE REQUEST               576.9K    57.7K    15.6K    21.48
NUMBER OF DATASET OPENS         0.00     0.00     0.00     0.00    GETPAGE REQUEST-SEQUENTIAL      0.00     0.00     0.00     0.00
                                                                  GETPAGE REQUEST-RANDOM        576.9K    57.7K    15.6K    21.48
BUFFERS ALLOCATED - VPOOL   31250.00      N/A      N/A      N/A
BUFFERS ALLOCATED - HPOOL       0.00      N/A      N/A      N/A    SYNCHRONOUS READS           76353.00  7631.82  2063.59     2.84
HPOOL BUFFERS BACKED            0.00      N/A      N/A      N/A    SYNCHRON. READS-SEQUENTIAL      0.00     0.00     0.00     0.00
                                                                  SYNCHRON. READS-RANDOM      76353.00  7631.82  2063.59     2.84
DFHSM MIGRATED DATASET          0.00     0.00     0.00     0.00
DFHSM RECALL TIMEOUTS           0.00     0.00     0.00     0.00    GETPAGE PER SYN.READ-RANDOM     7.56

HPOOL EXPANS. OR CONTRACT.      0.00     0.00     0.00     0.00    SEQUENTIAL PREFETCH REQUEST     0.00     0.00     0.00     0.00
VPOOL EXPANS. OR CONTRACT.      0.00     0.00     0.00     0.00    SEQUENTIAL PREFETCH READS       0.00     0.00     0.00     0.00
VPOOL OR HPOOL EXP.FAILURE      0.00     0.00     0.00     0.00    PAGES READ VIA SEQ.PREFETCH     0.00     0.00     0.00     0.00
                                                                  S.PRF.PAGES READ/S.PRF.READ     N/C
CONCUR.PREF.I/O STREAMS-HWM     0.00      N/A      N/A      N/A
PREF.I/O STREAMS REDUCTION      0.00     0.00     0.00     0.00    LIST PREFETCH REQUESTS          0.00     0.00     0.00     0.00
PARALLEL QUERY REQUESTS         0.00     0.00     0.00     0.00    LIST PREFETCH READS             0.00     0.00     0.00     0.00
PARALL.QUERY REQ.REDUCTION      0.00     0.00     0.00     0.00    PAGES READ VIA LIST PREFTCH     0.00     0.00     0.00     0.00
PREF.QUANT.REDUCED TO 1/2       0.00     0.00     0.00     0.00    L.PRF.PAGES READ/L.PRF.READ     N/C
PREF.QUANT.REDUCED TO 1/4       0.00     0.00     0.00     0.00
                                                                  DYNAMIC PREFETCH REQUESTED  17237.00  1722.91   465.86     0.64
                                                                  DYNAMIC PREFETCH READS      14582.00  1457.54   394.11     0.54
                                                                  PAGES READ VIA DYN.PREFETCH   391.4K    39.1K    10.6K    14.57
                                                                  D.PRF.PAGES READ/D.PRF.READ    26.84

                                                                  PREF.DISABLED-NO BUFFER         0.00     0.00     0.00     0.00
                                                                  PREF.DISABLED-NO READ ENG       0.00     0.00     0.00     0.00

                                                                  SYNC.HPOOL READ                 0.00     0.00     0.00     0.00
                                                                  ASYNC.HPOOL READ                0.00     0.00     0.00     0.00
                                                                  HPOOL READ FAILED               0.00     0.00     0.00     0.00
                                                                  ASYN.DA.MOVER HPOOL READ-S      0.00     0.00     0.00     0.00
                                                                  ASYN.DA.MOVER HPOOL READ-F      0.00     0.00     0.00     0.00

                                                                  PAGE-INS REQUIRED FOR READ      0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 13 of 22)

```
          LOCATION: DSNDG0G                     DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-14
             GROUP: DSNDG0G                      STATISTICS REPORT - LONG                  REQUESTED FROM: NOT SPECIFIED
            MEMBER: DG1G                                                                              TO: NOT SPECIFIED
         SUBSYSTEM: DG1G                                                                 INTERVAL FROM: 04/03/99 18:35:00.80
       DB2 VERSION: V6                               SCOPE: MEMBER                                   TO: 04/03/99 18:45:01.07

       ---- HIGHLIGHTS --------------------------------------------------------------------------------------------------
       INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :     37.00
       INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :  26862.00
       INTERVAL ELAPSED:       10:00.273742     OUTAGE ELAPSED:        0.000000         DATA SHARING MEMBER:    N/A

       BP2     WRITE OPERATIONS      QUANTITY  /MINUTE  /THREAD  /COMMIT  BP2     SORT/MERGE            QUANTITY  /MINUTE  /THREAD  /COMMIT
       --------------------------    --------  -------  -------  -------  --------------------------    --------  -------  -------  -------
       BUFFER UPDATES                    0.00     0.00     0.00     0.00  MAX WORKFILES CONCURR. USED       0.00      N/A      N/A      N/A
       PAGES WRITTEN                     0.00     0.00     0.00     0.00  MERGE PASSES REQUESTED            0.00     0.00     0.00     0.00
       BUFF.UPDATES/PAGES WRITTEN        N/C                             MERGE PASS DEGRADED-LOW BUF       0.00     0.00     0.00     0.00
                                                                         WORKFILE REQ.REJCTD-LOW BUF       0.00     0.00     0.00     0.00
       SYNCHRONOUS WRITES                0.00     0.00     0.00     0.00  WORKFILE REQ-ALL MERGE PASS       0.00     0.00     0.00     0.00
       ASYNCHRONOUS WRITES               0.00     0.00     0.00     0.00  WORKFILE NOT CREATED-NO BUF       0.00     0.00     0.00     0.00
                                                                         WORKFILE PRF NOT SCHEDULED        0.00     0.00     0.00     0.00
       PAGES WRITTEN PER WRITE I/O       N/C

       HORIZ.DEF.WRITE THRESHOLD         0.00     0.00     0.00     0.00
       VERTI.DEF.WRITE THRESHOLD         0.00     0.00     0.00     0.00
       DM THRESHOLD                      0.00     0.00     0.00     0.00
       WRITE ENGINE NOT AVAILABLE        0.00     0.00     0.00     0.00

       SYNC.HPOOL WRITE                  0.00     0.00     0.00     0.00
       ASYNC.HPOOL WRITE                 0.00     0.00     0.00     0.00
       HPOOL WRITE FAILED                0.00     0.00     0.00     0.00
       ASYN.DA.MOVER HPOOL WRITE-S       0.00     0.00     0.00     0.00
       ASYN.DA.MOVER HPOOL WRITE-F       0.00     0.00     0.00     0.00

       PAGE-INS REQUIRED FOR WRITE       0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 14 of 22)

```
   LOCATION: DSNDG0G                     DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-15
      GROUP: DSNDG0G                      STATISTICS REPORT - LONG            REQUESTED FROM: NOT SPECIFIED
     MEMBER: DG1G                                                                        TO: NOT SPECIFIED
  SUBSYSTEM: DG1G                                                            INTERVAL FROM: 04/03/99 18:35:00.80
 DB2 VERSION: V6                             SCOPE: MEMBER                                TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS --------------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80  SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS    :    37.00
INTERVAL END    : 04/03/99 18:45:01.07  SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:       10:00.273742    OUTAGE ELAPSED:          0.000000    DATA SHARING MEMBER:   N/A

BP8K    GENERAL               QUANTITY  /MINUTE  /THREAD  /COMMIT   BP8K    READ OPERATIONS        QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------   --------  -------  -------  -------   --------------------------   --------  -------  -------  -------
CURRENT ACTIVE BUFFERS         354.00     N/A      N/A      N/A    BPOOL HIT RATIO (%)            25.46
UNAVAIL.BUFFER-VPOOL FULL         0.00    0.00     0.00     0.00
                                                                  GETPAGE REQUEST               293.7K    29.4K  7937.16    10.93
NUMBER OF DATASET OPENS           0.00    0.00     0.00     0.00   GETPAGE REQUEST-SEQUENTIAL       0.00    0.00     0.00     0.00
                                                                  GETPAGE REQUEST-RANDOM        293.7K    29.4K  7937.16    10.93
BUFFERS ALLOCATED - VPOOL     25000.00     N/A      N/A      N/A
BUFFERS ALLOCATED - HPOOL         0.00     N/A      N/A      N/A   SYNCHRONOUS READS           50462.00  5043.90  1363.84     1.88
HPOOL BUFFERS BACKED              0.00     N/A      N/A      N/A   SYNCHRON. READS-SEQUENTIAL      0.00    0.00     0.00     0.00
                                                                  SYNCHRON. READS-RANDOM      50462.00  5043.90  1363.84     1.88
DFHSM MIGRATED DATASET            0.00    0.00     0.00     0.00
DFHSM RECALL TIMEOUTS             0.00    0.00     0.00     0.00   GETPAGE PER SYN.READ-RANDOM     5.82

HPOOL EXPANS. OR CONTRACT.        0.00    0.00     0.00     0.00   SEQUENTIAL PREFETCH REQUEST      0.00    0.00     0.00     0.00
VPOOL EXPANS. OR CONTRACT.        0.00    0.00     0.00     0.00   SEQUENTIAL PREFETCH READS        0.00    0.00     0.00     0.00
VPOOL OR HPOOL EXP.FAILURE        0.00    0.00     0.00     0.00   PAGES READ VIA SEQ.PREFETCH      0.00    0.00     0.00     0.00
                                                                  S.PRF.PAGES READ/S.PRF.READ     N/C
CONCUR.PREF.I/O STREAMS-HWM       0.00     N/A      N/A      N/A
PREF.I/O STREAMS REDUCTION        0.00    0.00     0.00     0.00   LIST PREFETCH REQUESTS        6900.00   689.69   186.49     0.26
PARALLEL QUERY REQUESTS           0.00    0.00     0.00     0.00   LIST PREFETCH READS         43941.00  4392.10  1187.59     1.64
PARALL.QUERY REQ.REDUCTION        0.00    0.00     0.00     0.00   PAGES READ VIA LIST PREFTCH   168.4K    16.8K  4552.32     6.27
PREF.QUANT.REDUCED TO 1/2         0.00    0.00     0.00     0.00   L.PRF.PAGES READ/L.PRF.READ     3.83
PREF.QUANT.REDUCED TO 1/4         0.00    0.00     0.00     0.00
                                                                  DYNAMIC PREFETCH REQUESTED       0.00    0.00     0.00     0.00
                                                                  DYNAMIC PREFETCH READS           0.00    0.00     0.00     0.00
                                                                  PAGES READ VIA DYN.PREFETCH      0.00    0.00     0.00     0.00
                                                                  D.PRF.PAGES READ/D.PRF.READ     N/C

                                                                  PREF.DISABLED-NO BUFFER          0.00    0.00     0.00     0.00
                                                                  PREF.DISABLED-NO READ ENG        0.00    0.00     0.00     0.00

                                                                  SYNC.HPOOL READ                  0.00    0.00     0.00     0.00
                                                                  ASYNC.HPOOL READ                 0.00    0.00     0.00     0.00
                                                                  HPOOL READ FAILED                0.00    0.00     0.00     0.00
                                                                  ASYN.DA.MOVER HPOOL READ-S       0.00    0.00     0.00     0.00
                                                                  ASYN.DA.MOVER HPOOL READ-F       0.00    0.00     0.00     0.00

                                                                  PAGE-INS REQUIRED FOR READ       0.00    0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 15 of 22)

```
    LOCATION: DSNDG0G                       DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-16
       GROUP: DSNDG0G                        STATISTICS REPORT - LONG              REQUESTED FROM: NOT SPECIFIED
      MEMBER: DG1G                                                                            TO: NOT SPECIFIED
   SUBSYSTEM: DG1G                                                                 INTERVAL FROM: 04/03/99 18:35:00.80
  DB2 VERSION: V6                                 SCOPE: MEMBER                               TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS --------------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :    37.00
INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:      10:00.273742       OUTAGE ELAPSED:        0.000000        DATA SHARING MEMBER:    N/A

BP8K    WRITE OPERATIONS     QUANTITY  /MINUTE  /THREAD  /COMMIT   BP8K    SORT/MERGE            QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------    --------  -------  -------  -------   ---------------------------   --------  -------  -------  -------
BUFFER UPDATES               89346.00  8930.53  2414.76     3.33   MAX WORKFILES CONCURR. USED       0.00      N/A      N/A      N/A
PAGES WRITTEN                67484.00  6745.32  1823.89     2.51   MERGE PASSES REQUESTED            0.00     0.00     0.00     0.00
BUFF.UPDATES/PAGES WRITTEN       1.32                             MERGE PASS DEGRADED-LOW BUF       0.00     0.00     0.00     0.00
                                                                  WORKFILE REQ.REJCTD-LOW BUF       0.00     0.00     0.00     0.00
SYNCHRONOUS WRITES               0.00     0.00     0.00     0.00   WORKFILE REQ-ALL MERGE PASS       0.00     0.00     0.00     0.00
ASYNCHRONOUS WRITES          25119.00  2510.75   678.89     0.94   WORKFILE NOT CREATED-NO BUF       0.00     0.00     0.00     0.00
                                                                  WORKFILE PRF NOT SCHEDULED        0.00     0.00     0.00     0.00
PAGES WRITTEN PER WRITE I/O      2.69

HORIZ.DEF.WRITE THRESHOLD        0.00     0.00     0.00     0.00
VERTI.DEF.WRITE THRESHOLD        0.00     0.00     0.00     0.00
DM THRESHOLD                     0.00     0.00     0.00     0.00
WRITE ENGINE NOT AVAILABLE       0.00     0.00     0.00     0.00

SYNC.HPOOL WRITE                 0.00     0.00     0.00     0.00
ASYNC.HPOOL WRITE                0.00     0.00     0.00     0.00
HPOOL WRITE FAILED               0.00     0.00     0.00     0.00
ASYN.DA.MOVER HPOOL WRITE-S      0.00     0.00     0.00     0.00
ASYN.DA.MOVER HPOOL WRITE-F      0.00     0.00     0.00     0.00

PAGE-INS REQUIRED FOR WRITE      0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 16 of 22)

```
      LOCATION: DSNDG0G                        DB2 PERFORMANCE MONITOR (V6)                            PAGE: 1-17
         GROUP: DSNDG0G                          STATISTICS REPORT - LONG                REQUESTED FROM: NOT SPECIFIED
        MEMBER: DG1G                                                                                 TO: NOT SPECIFIED
     SUBSYSTEM: DG1G                                                                  INTERVAL FROM: 04/03/99 18:35:00.80
    DB2 VERSION: V6                                      SCOPE: MEMBER                              TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS -----------------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS    :    37.00
INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:        10:00.273742    OUTAGE ELAPSED:          0.000000      DATA SHARING MEMBER:    N/A

TOT4K  GENERAL              QUANTITY  /MINUTE  /THREAD  /COMMIT    TOT4K  READ OPERATIONS     QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------   --------  -------  -------  -------    -------------------------  --------  -------  -------  -------
CURRENT ACTIVE BUFFERS        239.00      N/A      N/A      N/A    BPOOL HIT RATIO (%)           60.41
UNAVAIL.BUFFER-VPOOL FULL       0.00     0.00     0.00     0.00
                                                                  GETPAGE REQUEST             1181.6K   118.1K    31.9K    43.99
NUMBER OF DATASET OPENS         0.00     0.00     0.00     0.00    GETPAGE REQUEST-SEQUENTIAL  22446.00  2243.58   606.65     0.84
                                                                  GETPAGE REQUEST-RANDOM      1159.2K   115.9K    31.3K    43.15
BUFFERS ALLOCATED - VPOOL   37750.00      N/A      N/A      N/A
BUFFERS ALLOCATED - HPOOL       0.00      N/A      N/A      N/A    SYNCHRONOUS READS          76353.00  7631.82  2063.59     2.84
HPOOL BUFFERS BACKED            0.00      N/A      N/A      N/A    SYNCHRON. READS-SEQUENTIAL     0.00     0.00     0.00     0.00
                                                                  SYNCHRON. READS-RANDOM     76353.00  7631.82  2063.59     2.84
DFHSM MIGRATED DATASET          0.00     0.00     0.00     0.00
DFHSM RECALL TIMEOUTS           0.00     0.00     0.00     0.00    GETPAGE PER SYN.READ-RANDOM   15.18

HPOOL EXPANS. OR CONTRACT.      0.00     0.00     0.00     0.00    SEQUENTIAL PREFETCH REQUEST  2243.00   224.20    60.62     0.08
VPOOL EXPANS. OR CONTRACT.      0.00     0.00     0.00     0.00    SEQUENTIAL PREFETCH READS      0.00     0.00     0.00     0.00
VPOOL OR HPOOL EXP.FAILURE      0.00     0.00     0.00     0.00    PAGES READ VIA SEQ.PREFETCH    0.00     0.00     0.00     0.00
                                                                  S.PRF.PAGES READ/S.PRF.READ    N/C
CONCUR.PREF.I/O STREAMS-HWM     0.00      N/A      N/A      N/A
PREF.I/O STREAMS REDUCTION      0.00     0.00     0.00     0.00    LIST PREFETCH REQUESTS         0.00     0.00     0.00     0.00
PARALLEL QUERY REQUESTS         0.00     0.00     0.00     0.00    LIST PREFETCH READS            0.00     0.00     0.00     0.00
PARALL.QUERY REQ.REDUCTION      0.00     0.00     0.00     0.00    PAGES READ VIA LIST PREFTCH    0.00     0.00     0.00     0.00
PREF.QUANT.REDUCED TO 1/2       0.00     0.00     0.00     0.00    L.PRF.PAGES READ/L.PRF.READ    N/C
PREF.QUANT.REDUCED TO 1/4       0.00     0.00     0.00     0.00
                                                                  DYNAMIC PREFETCH REQUESTED 20225.00  2021.58   546.62     0.75
                                                                  DYNAMIC PREFETCH READS     14598.00  1459.13   394.54     0.54
                                                                  PAGES READ VIA DYN.PREFETCH  391.5K    39.1K    10.6K    14.57
                                                                  D.PRF.PAGES READ/D.PRF.READ   26.82

                                                                  PREF.DISABLED-NO BUFFER        0.00     0.00     0.00     0.00
                                                                  PREF.DISABLED-NO READ ENG      0.00     0.00     0.00     0.00

                                                                  SYNC.HPOOL READ                0.00     0.00     0.00     0.00
                                                                  ASYNC.HPOOL READ               0.00     0.00     0.00     0.00
                                                                  HPOOL READ FAILED              0.00     0.00     0.00     0.00
                                                                  ASYN.DA.MOVER HPOOL READ-S     0.00     0.00     0.00     0.00
                                                                  ASYN.DA.MOVER HPOOL READ-F     0.00     0.00     0.00     0.00

                                                                  PAGE-INS REQUIRED FOR READ     4.00     0.40     0.11     0.00
```

Figure 194. Statistics Report — LONG (Part 17 of 22)

```
       LOCATION: DSNDG0G                        DB2 PERFORMANCE MONITOR (V6)                             PAGE: 1-18
          GROUP: DSNDG0G                          STATISTICS REPORT - LONG               REQUESTED FROM: NOT SPECIFIED
         MEMBER: DG1G                                                                                TO: NOT SPECIFIED
      SUBSYSTEM: DG1G                                                                 INTERVAL FROM: 04/03/99 18:35:00.80
     DB2 VERSION: V6                                    SCOPE: MEMBER                             TO: 04/03/99 18:45:01.07

   ---- HIGHLIGHTS -----------------------------------------------------------------------------------------------------
   INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :      37.00
   INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :   26862.00
   INTERVAL ELAPSED:       10:00.273742     OUTAGE ELAPSED:          0.000000       DATA SHARING MEMBER:    N/A

   TOT4K   WRITE OPERATIONS    QUANTITY  /MINUTE  /THREAD  /COMMIT   TOT4K   SORT/MERGE             QUANTITY  /MINUTE  /THREAD  /COMMIT
   -------------------------   --------  -------  -------  -------   --------------------------     --------  -------  -------  -------
   BUFFER UPDATES              61913.00  6188.48  1673.32     2.30   MAX WORKFILES CONCURR. USED        0.00      N/A      N/A      N/A
   PAGES WRITTEN               10755.00  1075.01   290.68     0.40   MERGE PASSES REQUESTED             0.00     0.00     0.00     0.00
   BUFF.UPDATES/PAGES WRITTEN      5.76                              MERGE PASS DEGRADED-LOW BUF        0.00     0.00     0.00     0.00
                                                                    WORKFILE REQ.REJCTD-LOW BUF        0.00     0.00     0.00     0.00
   SYNCHRONOUS WRITES              0.00     0.00     0.00     0.00   WORKFILE REQ-ALL MERGE PASS        0.00     0.00     0.00     0.00
   ASYNCHRONOUS WRITES           437.00    43.68    11.81     0.02   WORKFILE NOT CREATED-NO BUF        0.00     0.00     0.00     0.00
                                                                    WORKFILE PRF NOT SCHEDULED         0.00     0.00     0.00     0.00
   PAGES WRITTEN PER WRITE I/O     24.61

   HORIZ.DEF.WRITE THRESHOLD       0.00     0.00     0.00     0.00
   VERTI.DEF.WRITE THRESHOLD       3.00     0.30     0.08     0.00
   DM THRESHOLD                    0.00     0.00     0.00     0.00
   WRITE ENGINE NOT AVAILABLE      0.00     0.00     0.00     0.00

   SYNC.HPOOL WRITE                0.00     0.00     0.00     0.00
   ASYNC.HPOOL WRITE               0.00     0.00     0.00     0.00
   HPOOL WRITE FAILED              0.00     0.00     0.00     0.00
   ASYN.DA.MOVER HPOOL WRITE-S     0.00     0.00     0.00     0.00
   ASYN.DA.MOVER HPOOL WRITE-F     0.00     0.00     0.00     0.00

   PAGE-INS REQUIRED FOR WRITE     0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 18 of 22)

```
     LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                         PAGE: 1-19
        GROUP: DSNDG0G                     STATISTICS REPORT - LONG              REQUESTED FROM: NOT SPECIFIED
       MEMBER: DG1G                                                                         TO: NOT SPECIFIED
    SUBSYSTEM: DG1G                                                            INTERVAL FROM: 04/03/99 18:35:00.80
  DB2 VERSION: V6                              SCOPE: MEMBER                                TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS ---------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :     37.00
INTERVAL END    : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :  26862.00
INTERVAL ELAPSED:       10:00.273742     OUTAGE ELAPSED:        0.000000        DATA SHARING MEMBER:    N/A

TOTAL  GENERAL             QUANTITY  /MINUTE  /THREAD  /COMMIT    TOTAL  READ OPERATIONS       QUANTITY  /MINUTE  /THREAD  /COMMIT
------------------------   --------  -------  -------  -------    ------------------------     --------  -------  -------  -------
CURRENT ACTIVE BUFFERS       593.00      N/A      N/A      N/A    BPOOL HIT RATIO (%)             53.45
UNAVAIL.BUFFER-VPOOL FULL      0.00     0.00     0.00     0.00
                                                                 GETPAGE REQUEST               1475.3K   147.5K    39.9K    54.92
NUMBER OF DATASET OPENS        0.00     0.00     0.00     0.00    GETPAGE REQUEST-SEQUENTIAL   22446.00  2243.58   606.65     0.84
                                                                 GETPAGE REQUEST-RANDOM        1452.9K   145.2K    39.3K    54.09
BUFFERS ALLOCATED - VPOOL  62750.00      N/A      N/A      N/A
BUFFERS ALLOCATED - HPOOL      0.00      N/A      N/A      N/A    SYNCHRONOUS READS             126.8K    12.7K  3427.43     4.72
HPOOL BUFFERS BACKED           0.00      N/A      N/A      N/A    SYNCHRON. READS-SEQUENTIAL      0.00     0.00     0.00     0.00
                                                                 SYNCHRON. READS-RANDOM        126.8K    12.7K  3427.43     4.72
DFHSM MIGRATED DATASET         0.00     0.00     0.00     0.00
DFHSM RECALL TIMEOUTS          0.00     0.00     0.00     0.00    GETPAGE PER SYN.READ-RANDOM    11.46

HPOOL EXPANS. OR CONTRACT.     0.00     0.00     0.00     0.00    SEQUENTIAL PREFETCH REQUEST  2243.00   224.20    60.62     0.08
VPOOL EXPANS. OR CONTRACT.     0.00     0.00     0.00     0.00    SEQUENTIAL PREFETCH READS      0.00     0.00     0.00     0.00
VPOOL OR HPOOL EXP.FAILURE     0.00     0.00     0.00     0.00    PAGES READ VIA SEQ.PREFETCH    0.00     0.00     0.00     0.00
                                                                 S.PRF.PAGES READ/S.PRF.READ     N/C
CONCUR.PREF.I/O STREAMS-HWM    0.00      N/A      N/A      N/A
PREF.I/O STREAMS REDUCTION     0.00     0.00     0.00     0.00    LIST PREFETCH REQUESTS       6900.00   689.69   186.49     0.26
PARALLEL QUERY REQUESTS        0.00     0.00     0.00     0.00    LIST PREFETCH READS         43941.00  4392.10  1187.59     1.64
PARALL.QUERY REQ.REDUCTION     0.00     0.00     0.00     0.00    PAGES READ VIA LIST PREFTCH   168.4K    16.8K  4552.32     6.27
PREF.QUANT.REDUCED TO 1/2      0.00     0.00     0.00     0.00    L.PRF.PAGES READ/L.PRF.READ    3.83
PREF.QUANT.REDUCED TO 1/4      0.00     0.00     0.00     0.00
                                                                 DYNAMIC PREFETCH REQUESTED  20225.00  2021.58   546.62     0.75
                                                                 DYNAMIC PREFETCH READS      14598.00  1459.13   394.54     0.54
                                                                 PAGES READ VIA DYN.PREFETCH   391.5K    39.1K    10.6K    14.57
                                                                 D.PRF.PAGES READ/D.PRF.READ   26.82

                                                                 PREF.DISABLED-NO BUFFER        0.00     0.00     0.00     0.00
                                                                 PREF.DISABLED-NO READ ENG      0.00     0.00     0.00     0.00

                                                                 SYNC.HPOOL READ                0.00     0.00     0.00     0.00
                                                                 ASYNC.HPOOL READ               0.00     0.00     0.00     0.00
                                                                 HPOOL READ FAILED              0.00     0.00     0.00     0.00
                                                                 ASYN.DA.MOVER HPOOL READ-S     0.00     0.00     0.00     0.00
                                                                 ASYN.DA.MOVER HPOOL READ-F     0.00     0.00     0.00     0.00

                                                                 PAGE-INS REQUIRED FOR READ     4.00     0.40     0.11     0.00
```

Figure 194. Statistics Report — LONG (Part 19 of 22)

```
           LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                         PAGE: 1-20
              GROUP: DSNDG0G                     STATISTICS REPORT - LONG              REQUESTED FROM: NOT SPECIFIED
             MEMBER: DG1G                                                                          TO: NOT SPECIFIED
          SUBSYSTEM: DG1G                                                             INTERVAL FROM: 04/03/99 18:35:00.80
        DB2 VERSION: V6                              SCOPE: MEMBER                                   TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS -------------------------------------------------------------------------------------------------
INTERVAL START  : 04/03/99 18:35:00.80  SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS    :     37.00
INTERVAL END    : 04/03/99 18:45:01.07  SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:       10:00.273742    OUTAGE ELAPSED:        0.000000       DATA SHARING MEMBER:     N/A

TOTAL  WRITE OPERATIONS       QUANTITY  /MINUTE  /THREAD  /COMMIT   TOTAL   SORT/MERGE            QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------    --------  -------  -------  -------   --------------------------    --------  -------  -------  -------
BUFFER UPDATES                  151.3K    15.1K  4088.08     5.63   MAX WORKFILES CONCURR. USED       0.00      N/A      N/A      N/A
PAGES WRITTEN                 78239.00  7820.33  2114.57     2.91   MERGE PASSES REQUESTED            0.00     0.00     0.00     0.00
BUFF.UPDATES/PAGES WRITTEN        1.93                             MERGE PASS DEGRADED-LOW BUF       0.00     0.00     0.00     0.00
                                                                   WORKFILE REQ.REJCTD-LOW BUF       0.00     0.00     0.00     0.00
SYNCHRONOUS WRITES                0.00     0.00     0.00     0.00   WORKFILE REQ-ALL MERGE PASS       0.00     0.00     0.00     0.00
ASYNCHRONOUS WRITES           25556.00  2554.43   690.70     0.95   WORKFILE NOT CREATED-NO BUF       0.00     0.00     0.00     0.00
                                                                   WORKFILE PRF NOT SCHEDULED        0.00     0.00     0.00     0.00
PAGES WRITTEN PER WRITE I/O       3.06

HORIZ.DEF.WRITE THRESHOLD         0.00     0.00     0.00     0.00
VERTI.DEF.WRITE THRESHOLD         3.00     0.30     0.08     0.00
DM THRESHOLD                      0.00     0.00     0.00     0.00
WRITE ENGINE NOT AVAILABLE        0.00     0.00     0.00     0.00

SYNC.HPOOL WRITE                  0.00     0.00     0.00     0.00
ASYNC.HPOOL WRITE                 0.00     0.00     0.00     0.00
HPOOL WRITE FAILED                0.00     0.00     0.00     0.00
ASYN.DA.MOVER HPOOL WRITE-S       0.00     0.00     0.00     0.00
ASYN.DA.MOVER HPOOL WRITE-F       0.00     0.00     0.00     0.00

PAGE-INS REQUIRED FOR WRITE       0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 20 of 22)

```
     LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                        PAGE: 1-21
        GROUP: DSNDG0G                     STATISTICS REPORT - LONG              REQUESTED FROM: NOT SPECIFIED
       MEMBER: DG1G                                                                         TO: NOT SPECIFIED
    SUBSYSTEM: DG1G                                                             INTERVAL FROM: 04/03/99 18:35:00.80
  DB2 VERSION: V6                             SCOPE: MEMBER                                  TO: 04/03/99 18:45:01.07

---- HIGHLIGHTS ----------------------------------------------------------------------------------------------
INTERVAL START : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80   TOTAL THREADS    :     37.00
INTERVAL END   : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07   TOTAL COMMITS    :  26862.00
INTERVAL ELAPSED:      10:00.273742      OUTAGE ELAPSED:         0.000000       DATA SHARING MEMBER:   N/A

GROUP BP0                     QUANTITY  /MINUTE  /THREAD  /COMMIT   GROUP BP1                     QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------    --------  -------  -------  -------   --------------------------    --------  -------  -------  -------
SYN.READ(XI)-DATA RETURNED     3043.00   304.16    82.24     0.11   SYN.READ(XI)-DATA RETURNED    10321.00  1031.63   278.95     0.38
SYN.READ(XI)-NO DATA RETURN       0.00     0.00     0.00     0.00   SYN.READ(XI)-NO DATA RETURN       0.00     0.00     0.00     0.00
SYN.READ(NF)-DATA RETURNED        0.00     0.00     0.00     0.00   SYN.READ(NF)-DATA RETURNED        0.00     0.00     0.00     0.00
SYN.READ(NF)-NO DATA RETURN       0.00     0.00     0.00     0.00   SYN.READ(NF)-NO DATA RETURN       0.00     0.00     0.00     0.00
UNREGISTER PAGE                   0.00     0.00     0.00     0.00   UNREGISTER PAGE                   0.00     0.00     0.00     0.00

CLEAN PAGES SYNC.WRITTEN          0.00     0.00     0.00     0.00   CLEAN PAGES SYNC.WRITTEN          0.00     0.00     0.00     0.00
CHANGED PAGES SYNC.WRITTEN     6099.00   609.62   164.84     0.23   CHANGED PAGES SYNC.WRITTEN    18100.00  1809.17   489.19     0.67
CLEAN PAGES ASYNC.WRITTEN          0.00     0.00     0.00     0.00   CLEAN PAGES ASYNC.WRITTEN         0.00     0.00     0.00     0.00
CHANGED PAGES ASYNC.WRITTEN        9.00     0.90     0.24     0.00   CHANGED PAGES ASYNC.WRITTEN       1.00     0.10     0.03     0.00

REG.PAGE LIST (RPL) REQUEST       20.00     2.00     0.54     0.00   REG.PAGE LIST (RPL) REQUEST      35.00     3.50     0.95     0.00
CLEAN PAGES READ AFTER RPL        23.00     2.30     0.62     0.00   CLEAN PAGES READ AFTER RPL        0.00     0.00     0.00     0.00
CHANGED PGS READ AFTER RPL         5.00     0.50     0.14     0.00   CHANGED PGS READ AFTER RPL      284.00    28.39     7.68     0.01
PGS READ FRM DASD AFTER RPL       63.00     6.30     1.70     0.00   PGS READ FRM DASD AFTER RPL       4.00     0.40     0.11     0.00
ASYNC.READ-DATA RETURNED           0.00     0.00     0.00     0.00   ASYNC.READ-DATA RETURNED          0.00     0.00     0.00     0.00

PAGES CASTOUT                     60.00     6.00     1.62     0.00   PAGES CASTOUT                 10624.00  1061.92   287.14     0.40
UNLOCK CASTOUT                     2.00     0.20     0.05     0.00   UNLOCK CASTOUT                  428.00    42.78    11.57     0.02
READ CASTOUT CLASS                 1.00     0.10     0.03     0.00   READ CASTOUT CLASS              83.00     8.30     2.24     0.00
READ CASTOUT STATISTICS            0.00     0.00     0.00     0.00   READ CASTOUT STATISTICS          0.00     0.00     0.00     0.00

READ DIRECTORY INFO                0.00     0.00     0.00     0.00   READ DIRECTORY INFO              0.00     0.00     0.00     0.00
READ STORAGE STATISTICS          182.00    18.19     4.92     0.01   READ STORAGE STATISTICS          2.00     0.20     0.05     0.00
REGISTER PAGE                      0.00     0.00     0.00     0.00   REGISTER PAGE                    0.00     0.00     0.00     0.00
DELETE NAME                        0.00     0.00     0.00     0.00   DELETE NAME                      0.00     0.00     0.00     0.00
EXPLICIT X-INVALIDATIONS           0.00     0.00     0.00     0.00   EXPLICIT X-INVALIDATIONS         0.00     0.00     0.00     0.00

CASTOUT CLASS THRESHOLD            1.00     0.10     0.03     0.00   CASTOUT CLASS THRESHOLD         61.00     6.10     1.65     0.00
GROUP BP CASTOUT THRESHOLD         0.00     0.00     0.00     0.00   GROUP BP CASTOUT THRESHOLD       0.00     0.00     0.00     0.00
GBP CHECKPOINTS TRIGGERED          0.00     0.00     0.00     0.00   GBP CHECKPOINTS TRIGGERED        0.00     0.00     0.00     0.00
PARTICIPATION GBP REBUILD          0.00     0.00     0.00     0.00   PARTICIPATION GBP REBUILD        0.00     0.00     0.00     0.00

CASTOUT ENGINE NOT AVAIL.          0.00     0.00     0.00     0.00   CASTOUT ENGINE NOT AVAIL.       0.00     0.00     0.00     0.00
WRITE ENGINE NOT AVAILABLE         0.00     0.00     0.00     0.00   WRITE ENGINE NOT AVAILABLE      0.00     0.00     0.00     0.00
READ FAILED-NO STORAGE             0.00     0.00     0.00     0.00   READ FAILED-NO STORAGE          0.00     0.00     0.00     0.00
WRITE FAILED-NO STORAGE            0.00     0.00     0.00     0.00   WRITE FAILED-NO STORAGE         0.00     0.00     0.00     0.00

WRITE TO SEC-GBP                   0.00     0.00     0.00     0.00   WRITE TO SEC-GBP                0.00     0.00     0.00     0.00
WRITE TO SEC-GBP FAILED            0.00     0.00     0.00     0.00   WRITE TO SEC-GBP FAILED         0.00     0.00     0.00     0.00
DELETE NAME LIST SEC-GBP           0.00     0.00     0.00     0.00   DELETE NAME LIST SEC-GBP        0.00     0.00     0.00     0.00
DELETE NAME FROM SEC-GBP           0.00     0.00     0.00     0.00   DELETE NAME FROM SEC-GBP        0.00     0.00     0.00     0.00
READ CASTOUT STATS SEC-GBP         0.00     0.00     0.00     0.00   READ CASTOUT STATS SEC-GBP      0.00     0.00     0.00     0.00
```

Figure 194. Statistics Report — LONG (Part 21 of 22)

```
      LOCATION: DSNDG0G                    DB2 PERFORMANCE MONITOR (V6)                          PAGE: 1-22
         GROUP: DSNDG0G                     STATISTICS REPORT - LONG           REQUESTED FROM: NOT SPECIFIED
        MEMBER: DG1G                                                                       TO: NOT SPECIFIED
     SUBSYSTEM: DG1G                                                        INTERVAL FROM: 04/03/99 18:35:00.80
   DB2 VERSION: V6                              SCOPE: MEMBER                            TO: 04/03/99 18:45:01.07
```

```
---- HIGHLIGHTS ---------------------------------------------------------------------------------------------
INTERVAL START : 04/03/99 18:35:00.80   SAMPLING START: 04/03/99 18:35:00.80  TOTAL THREADS    :    37.00
INTERVAL END   : 04/03/99 18:45:01.07   SAMPLING END  : 04/03/99 18:45:01.07  TOTAL COMMITS    : 26862.00
INTERVAL ELAPSED:     10:00.273742       OUTAGE ELAPSED:          0.000000    DATA SHARING MEMBER:    N/A
```

GROUP TOT4K	QUANTITY	/MINUTE	/THREAD	/COMMIT
SYN.READ(XI)-DATA RETURNED	13364.00	1335.79	361.19	0.50
SYN.READ(XI)-NO DATA RETURN	0.00	0.00	0.00	0.00
SYN.READ(NF)-DATA RETURNED	0.00	0.00	0.00	0.00
SYN.READ(NF)-NO DATA RETURN	0.00	0.00	0.00	0.00
UNREGISTER PAGE	0.00	0.00	0.00	0.00
CLEAN PAGES SYNC.WRITTEN	0.00	0.00	0.00	0.00
CHANGED PAGES SYNC.WRITTEN	24199.00	2418.80	654.03	0.90
CLEAN PAGES ASYNC.WRITTEN	0.00	0.00	0.00	0.00
CHANGED PAGES ASYNC.WRITTEN	10.00	1.00	0.27	0.00
REG.PAGE LIST (RPL) REQUEST	55.00	5.50	1.49	0.00
CLEAN PAGES READ AFTER RPL	23.00	2.30	0.62	0.00
CHANGED PGS READ AFTER RPL	289.00	28.89	7.81	0.01
PGS READ FRM DASD AFTER RPL	67.00	6.70	1.81	0.00
ASYNC.READ-DATA RETURNED	0.00	0.00	0.00	0.00
PAGES CASTOUT	10684.00	1067.91	288.76	0.40
UNLOCK CASTOUT	430.00	42.98	11.62	0.02
READ CASTOUT CLASS	84.00	8.40	2.27	0.00
READ CASTOUT STATISTICS	0.00	0.00	0.00	0.00
READ DIRECTORY INFO	0.00	0.00	0.00	0.00
READ STORAGE STATISTICS	184.00	18.39	4.97	0.01
REGISTER PAGE	0.00	0.00	0.00	0.00
DELETE NAME	0.00	0.00	0.00	0.00
EXPLICIT X-INVALIDATIONS	0.00	0.00	0.00	0.00
CASTOUT CLASS THRESHOLD	62.00	6.20	1.68	0.00
GROUP BP CASTOUT THRESHOLD	0.00	0.00	0.00	0.00
GBP CHECKPOINTS TRIGGERED	0.00	0.00	0.00	0.00
PARTICIPATION GBP REBUILD	0.00	0.00	0.00	0.00
CASTOUT ENGINE NOT AVAIL.	0.00	0.00	0.00	0.00
WRITE ENGINE NOT AVAILABLE	0.00	0.00	0.00	0.00
READ FAILED-NO STORAGE	0.00	0.00	0.00	0.00
WRITE FAILED-NO STORAGE	0.00	0.00	0.00	0.00
WRITE TO SEC-GBP	0.00	0.00	0.00	0.00
WRITE TO SEC-GBP FAILED	0.00	0.00	0.00	0.00
DELETE NAME LIST SEC-GBP	0.00	0.00	0.00	0.00
DELETE NAME FROM SEC-GBP	0.00	0.00	0.00	0.00
READ CASTOUT STATS SEC-GBP	0.00	0.00	0.00	0.00

Figure 194. Statistics Report — LONG (Part 22 of 22)

Chapter 34. Statistics Report and Trace Blocks

Statistics reports and traces are arranged in blocks. Each block contains information about a particular activity. The layout of each block is presented followed by the field descriptions.

For each field in the block, the field name (as shown in the long report or trace) is followed by a short description with a reference to the table where additional information, such as the applicability of the field to exception processing, is also provided.

Field names used the short reports and traces may vary slightly from those used in the long versions. This is to allow the layout of the printed report or trace to align properly.

Highlights

```
---- HIGHLIGHTS -----------------------------------------------------------------------------------------
INTERVAL START  : 03/05/97 09:40:44.05    SAMPLING START: 03/05/97 09:40:44.05    TOTAL THREADS       : 9711.00
INTERVAL END    : 03/05/97 12:35:37.11    SAMPLING END  : 03/05/97 12:35:37.11    TOTAL COMMITS       : 13923.00
INTERVAL ELAPSED:      2:54:53.058292     OUTAGE ELAPSED:           0.000000       DATA SHARING MEMBER:    N/A
```

Figure 195. Statistics Long Report and Trace - Highlights

```
---- HIGHLIGHTS -----------------------------------------------------------------------------------------
INTERVAL START: 03/05/97 09:40:44.05    INTERVAL ELAPSED: 2:54:53.058    INCREMENTAL BINDS     :     0.00    DBAT QUEUED:    0.00
INTERVAL END  : 03/05/97 12:35:37.11    OUTAGE ELAPSED  :    0.000000    AUTH SUCC.W/OUT CATALOG: 13573.00   DB2 COMMAND:    6.00
SAMPLING START: 03/05/97 09:40:44.05    TOTAL THREADS   :     9711.00    BUFF.UPDT/PAGES WRITTEN:    17.16   TOTAL API  :    0.00
SAMPLING END  : 03/05/97 12:35:37.11    TOTAL COMMITS   :    13923.00    PAGES WRITTEN/WRITE I/O:     6.31   MEMBER     :    N/A
```

Figure 196. Statistics Short Report and Trace - Highlights

INTERVAL START

The start time of the period represented by this report or trace entry. For more information see item 1 on page 501.

For a report produced for DB2 Version 4 or later: the start time of the interval specified by INTERVAL.

INTERVAL END

The end time of the period represented by this report or trace entry. For more information see item 2 on page 501.

For a report produced for DB2 Version 4 or later: the end time of the interval specified by INTERVAL.

INTERVAL ELAPSED

The elapsed time of the period represented by this report or trace. For more information see item 3 on page 501.

SAMPLING START

The timestamp of the first DB2 statistics records pair used to derive this report entry. For more information see item 6 on page 502.

SAMPLING END

The timestamp of the last DB2 statistics records pair used to derive this report entry. For more information see item 7 on page 502.

Statistics Report Blocks

OUTAGE ELAPSED
> The time for which DB2 PM detected discontinuity in the available DB2 statistics data. For more information see item 8 on page 502.

TOTAL THREADS
> The number of successful create thread requests. This number does not include DBATs. For more information see item 2 on page 542.

TOTAL COMMITS
> The total number of commits. For more information see item 4 on page 501.

INCREMENTAL BINDS
> The number of incremental binds executed. For more information see item 5 on page 501.

AUTH SUCC W/OUT CATALOG
> The number of successful authorization checks that do not use the DB2 catalog, including plan cache checks and public checks. For more information see item 3 on page 529.

PAGES WRITTEN/WRITE I/O
> The number of pages written per write I/O operation. For more information see item 49 on page 512.

DBAT QUEUED
> The number of times a DBAT was queued because the MAX REMOTE ACTIVE value on the DSNTIPE installation panel was reached. For more information see item 1 on page 530.

DB2 COMMAND
> The total number of DB2 commands issued (including unrecognized commands). For more information see item 36 on page 547.

TOTAL API
> The total number of calls made to IFI. For more information see item 7 on page 548.

DATA SHARING MEMBER (MEMBER)
> In group-scope reports, this field shows the name of the member the statistics is presented for, and, on the group total page, the number of DB2 subsystems for the reported data sharing group. For more information see item 9 on page 502.

SQL DML

```
SQL DML                         QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------       --------  -------  -------  -------
  SELECT                         234.7K   1342.22    24.17    16.86
  INSERT                       75183.00    429.90     7.74     5.40
  UPDATE                        3951.00     22.59     0.41     0.28
  DELETE                        9203.00     52.62     0.95     0.66

  PREPARE                          0.00      0.00     0.00     0.00
  DESCRIBE                         0.00      0.00     0.00     0.00
  DESCRIBE TABLE                   0.00      0.00     0.00     0.00
  OPEN                           184.2K   1053.27    18.97    13.23
  CLOSE                          183.8K   1050.79    18.92    13.20
  FETCH                          644.4K   3684.74    66.36    46.28

  TOTAL                         1335.4K   7636.14   137.52    95.92
```

Figure 197. Statistics Long Report and Trace - SQL DML

```
SQL DML    QUANTITY
--------   --------
SELECT      234.7K
INSERT    75183.00
UPDATE     3951.00
DELETE     9203.00
PREPARE       0.00
DESCRIBE      0.00
DESC.TBL      0.00
OPEN        184.2K
CLOSE       183.8K
FETCH       644.4K
TOTAL      1335.4K
```

Figure 198. Statistics Short Report and Trace - SQL DML

SELECT

The number of SQL SELECT statements executed. For more information see item 1 on page 502.

INSERT

The number of INSERT statements executed. For more information see item 2 on page 502.

UPDATE

The number of UPDATE statements executed. For more information see item 3 on page 502.

DELETE

The number of DELETE statements executed. For more information see item 4 on page 502.

PREPARE

The number of SQL PREPARE statements executed. For more information see item 5 on page 502.

Statistics Report Blocks

DESCRIBE

The number of DESCRIBE statements executed. For more information see item 6 on page 502.

DESCRIBE TABLE

The number of DESCRIBE TABLE statements executed. For more information see item 7 on page 502.

OPEN The number of OPEN statements executed. For more information see item 8 on page 502.

CLOSE

The number of CLOSE statements executed. For more information see item 9 on page 502.

FETCH

The number of FETCH statements executed. For more information see item 10 on page 503.

TOTAL

The total number of SQL DML statements executed. For more information see item 11 on page 503.

SQL DCL

```
    SQL DCL                   QUANTITY  /MINUTE  /THREAD  /COMMIT
    -------------------------  --------  -------  -------  -------
    LOCK TABLE                    0.00     0.00     0.00     0.00
    GRANT                         0.00     0.00     0.00     0.00
    REVOKE                        0.00     0.00     0.00     0.00
    SET HOST VARIABLE           199.00     1.14     0.02     0.01
    SET CURRENT SQLID             0.00     0.00     0.00     0.00
    SET CURRENT DEGREE            0.00     0.00     0.00     0.00
    SET CURRENT RULES             0.00     0.00     0.00     0.00
    SET CURRENT PATH              0.00     0.00     0.00     0.00
    CONNECT TYPE 1                0.00     0.00     0.00     0.00
    CONNECT TYPE 2             3312.00    18.94     0.34     0.24
    RELEASE                    1656.00     9.47     0.17     0.12
    SET CONNECTION                0.00     0.00     0.00     0.00
    ASSOCIATE LOCATORS            0.00     0.00     0.00     0.00
    ALLOCATE CURSOR               0.00     0.00     0.00     0.00
    HOLD LOCATOR                  0.00     0.00     0.00     0.00
    FREE LOCATOR                  0.00     0.00     0.00     0.00

    TOTAL                      5167.00    29.55     0.53     0.37
```

Figure 199. Statistics Long Report and Trace - SQL DCL

```
SQL DCL         QUANTITY
--------------  --------
LOCK TABLE          0.00
GRANT               0.00
REVOKE              0.00
SET HOST VAR.     199.00
SET SQLID           0.00
SET DEGREE          0.00
SET RULES           0.00
SET PATH            0.00
CONNECT TYPE 1      0.00
CONNECT TYPE 2   3312.00
RELEASE          1656.00
SET CONNECTION      0.00
ASSOC LOCATORS      0.00
ALLOC CURSOR        0.00
HOLD LOCATOR        0.00
FREE LOCATOR        0.00
TOTAL            5167.00
```

Figure 200. Statistics Short Report and Trace - SQL DCL

LOCK TABLE
> The number of LOCK TABLE statements executed. For more information see item 1 on page 503.

GRANT
> The number of GRANT statements executed. For more information see item 2 on page 503.

REVOKE
> The number of REVOKE statements executed. For more information see item 3 on page 503.

SET HOST VARIABLE
> The number of SET HOST VARIABLE statements executed. For more information see item 5 on page 503.

SET CURRENT SQLID
> The number of SET CURRENT SQLID statements executed. For more information see item 4 on page 503.

SET CURRENT DEGREE
> The number of SET CURRENT DEGREE statements executed. For more information see item 6 on page 503.

SET CURRENT RULES
> The number of SET CURRENT RULES statements executed. For more information see item 7 on page 503.

SET CURRENT PATH
> The number of SET CURRENT PATH statements executed. For more information see item 8 on page 503.

CONNECT TYPE 1
> The number of CONNECT type 1 statements executed. For more information see item 9 on page 503.

CONNECT TYPE 2
> The number of CONNECT type 2 statements executed. For more information see item 10 on page 503.

Statistics Report Blocks

RELEASE
The number of RELEASE statements executed. For more information see item 12 on page 503.

SET CONNECTION
The number of SET CONNECTION statements executed. For more information see item 11 on page 503.

ASSOCIATE LOCATORS
The number of SQL ASSOCIATE LOCATORS statements executed. For more information see item 13 on page 503.

ALLOCATE CURSOR
The number of SQl ALLOCATE CURSOR statements executed. For more information see item 14 on page 503.

TOTAL
The total number of DCL statements executed. For more information see item 17 on page 504.

Stored Procedures

```
STORED PROCEDURES          QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------  --------  -------  -------  -------
CALL STATEMENTS EXECUTED      0.00     0.00     0.00     0.00
PROCEDURE ABENDED             0.00     0.00     0.00     0.00
CALL STATEMENT TIMED OUT      0.00     0.00     0.00     0.00
CALL STATEMENT REJECTED       0.00     0.00     0.00     0.00
```

Figure 201. Statistics Long Report and Trace — Stored procedures

```
STORED PROCEDURES  QUANTITY
-----------------  --------
CALL STATEMENT        0.00
PROCEDURE ABENDED     0.00
CALL TIMED OUT        0.00
CALL REJECTED         0.00
```

Figure 202. Statistics Short Report and Trace — Stored procedures

CALL STATEMENTS EXECUTED
The number of SQL CALL statements executed. For more information see item 1 on page 506.

PROCEDURE ABENDED
The number of times a stored procedure terminated abnormally. For more information see item 2 on page 506.

CALL STATEMENT TIMED OUT
The number of times an SQL CALL statement timed out waiting to be scheduled. For more information see item 3 on page 506.

CALL STATEMENT REJECTED
The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state. For more information see item 4 on page 506.

Triggers

```
TRIGGERS                    QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------  --------  -------  -------  -------
STATEMENT TRIGGER ACTIVATED     0.00     0.00     0.00     0.00
ROW TRIGGER ACTIVATED           0.00     0.00     0.00     0.00
SQL ERROR OCCURRED              0.00     0.00     0.00     0.00
```

Figure 203. Statistics Long Report and Trace - Triggers

```
TRIGGERS            QUANTITY
------------------  --------
STATEMENT TRIGGER       0.00
ROW TRIGGER             0.00
SQL ERROR OCCURRED      0.00
```

Figure 204. Statistics Short Report and Trace - Triggers

STATEMENT TRIGGER ACTIVATED
> The number of times a statement trigger was activated. For more information see item 5 on page 506.

ROW TRIGGER ACTIVATED
> The number of times a row trigger was activated. For more information see item 6 on page 506.

SQL ERROR OCCURRED
> The number of times an SQL error occured during the execution of a triggered action. For more information see item 7 on page 506.

SQL DDL

```
SQL DDL                    QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------- --------  -------  -------  -------
  CREATE TABLE                 0.00     0.00     0.00     0.00
  CREATE TEMP TABLE            0.00     0.00     0.00     0.00
  CREATE AUXILIARY TABLE       0.00     0.00     0.00     0.00
  CREATE INDEX                 0.00     0.00     0.00     0.00
  CREATE VIEW                  0.00     0.00     0.00     0.00
  CREATE SYNONYM               0.00     0.00     0.00     0.00
  CREATE TABLESPACE            0.00     0.00     0.00     0.00
  CREATE DATABASE              0.00     0.00     0.00     0.00
  CREATE STOGROUP              0.00     0.00     0.00     0.00
  CREATE ALIAS                 0.00     0.00     0.00     0.00
  CREATE DISTINCT TYPE         0.00     0.00     0.00     0.00
  CREATE FUNCTION              0.00     0.00     0.00     0.00
  CREATE PROCEDURE             0.00     0.00     0.00     0.00
  CREATE TRIGGER               0.00     0.00     0.00     0.00
  ALTER  TABLE                 0.00     0.00     0.00     0.00
  ALTER  INDEX                 0.00     0.00     0.00     0.00
  ALTER  TABLESPACE            0.00     0.00     0.00     0.00
  ALTER  DATABASE              0.00     0.00     0.00     0.00
  ALTER  STOGROUP              0.00     0.00     0.00     0.00
  ALTER  FUNCTION              0.00     0.00     0.00     0.00
  ALTER  PROCEDURE             0.00     0.00     0.00     0.00
  DROP   TABLE                 0.00     0.00     0.00     0.00
  DROP   INDEX                 0.00     0.00     0.00     0.00
  DROP   VIEW                  0.00     0.00     0.00     0.00
  DROP   SYNONYM               0.00     0.00     0.00     0.00
  DROP   TABLESPACE            0.00     0.00     0.00     0.00
  DROP   DATABASE              0.00     0.00     0.00     0.00
  DROP   STOGROUP              0.00     0.00     0.00     0.00
  DROP   ALIAS                 0.00     0.00     0.00     0.00
  DROP   PACKAGE               0.00     0.00     0.00     0.00
  DROP   DISTINCT TYPE         0.00     0.00     0.00     0.00
  DROP   FUNCTION              0.00     0.00     0.00     0.00
  DROP   PROCEDURE             0.00     0.00     0.00     0.00
  DROP   TRIGGER               0.00     0.00     0.00     0.00
  RENAME TABLE                 0.00     0.00     0.00     0.00

  COMMENT ON                   0.00     0.00     0.00     0.00
  LABEL ON                     0.00     0.00     0.00     0.00

  TOTAL                        0.00     0.00     0.00     0.00
```

Figure 205. Statistics Long Report and Trace - SQL DDL

```
 SQL DDL     QUANTITY
----------   --------
CREATES        0.00
DROPS          0.00
ALTERS         0.00
RENAME TBL      N/A
COMMENT ON     0.00
LABEL ON       0.00
TOTAL          0.00
```

Figure 206. Statistics Short Report and Trace - SQL DDL

CREATE TABLE

The number of CREATE TABLE statements executed. For more information see item 1 on page 504.

CREATE TEMP TABLE

The number of CREATE GLOBAL TEMPORARY TABLE statements executed. For more information see item 29 on page 505.

CREATE AUXILLIARY TABLE

The number of CREATE AUXILIARY TABLE statements executed. For more information see item 40 on page 505.

CREATE INDEX

The number of CREATE INDEX statements executed. For more information see item 2 on page 504.

CREATE VIEW

The number of CREATE VIEW statements executed. For more information see item 3 on page 504.

CREATE SYNONYM

The number of CREATE SYNONYM statements executed. For more information see item 4 on page 504.

CREATE TABLESPACE

The number of CREATE TABLESPACE statements executed. For more information see item 5 on page 504.

CREATE DATABASE

The number of CREATE DATABASE statements executed. For more information see item 6 on page 504.

CREATE STOGROUP

The number of CREATE STOGROUP statements executed. For more information see item 7 on page 504.

CREATE ALIAS

The number of CREATE ALIAS statements executed. For more information see item 8 on page 504.

CREATE DISTINCT TYPE

The number of CREATE DISTINCT TYPE statements executed. For more information see item 31 on page 505.

CREATE FUNCTION

The number of CREATE FUNCTION statements executed. For more information see item 33 on page 505.

CREATE PROCEDURE

The number of CREATE PROCEDURE statements executed. For more information see item 35 on page 505.

CREATE TRIGGER

The number of CREATE TRIGGER statements executed. For more information see item 38 on page 505.

ALTER TABLE

The number of ALTER TABLE statements executed. For more information see item 9 on page 504.

ALTER INDEX

The number of ALTER INDEX statements executed. For more information see item 10 on page 504.

Statistics Report Blocks

ALTER TABLESPACE
> The number of ALTER TABLESPACE statements executed. For more information see item 11 on page 504.

ALTER DATABASE
> The number of ALTER DATABASE statements executed. For more information see item 12 on page 504.

ALTER STOGROUP
> The number of ALTER STOGROUP statements executed. For more information see item 13 on page 504.

ALTER FUNCTION
> The number of ALTER FUNCTION statements executed. For more information see item 41 on page 505.

ALTER PROCEDURE
> The number of ALTER PROCEDURE statements executed. For more information see item 37 on page 505.

DROP TABLE
> The number of DROP TABLE statements executed. For more information see item 14 on page 504.

DROP INDEX
> The number of DROP INDEX statements executed. For more information see item 15 on page 504.

DROP VIEW
> The number of DROP VIEW statements executed. For more information see item 16 on page 504.

DROP SYNONYM
> The number of DROP SYNONYM statements executed. For more information see item 17 on page 504.

DROP TABLESPACE
> The number of DROP TABLESPACE statements executed. For more information see item 18 on page 504.

DROP DATABASE
> The number of DROP DATABASE statements executed. For more information see item 19 on page 504.

DROP STOGROUP
> The number of DROP STOGROUP statements executed. For more information see item 20 on page 505.

DROP ALIAS
> The number of DROP ALIAS statements executed. For more information see item 21 on page 505.

DROP PACKAGE
> The number of DROP PACKAGE statements executed. For more information see item 22 on page 505.

DROP DISTINCT TYPE
> The number of DROP DISTINCT TYPE statements executed. For more information see item 32 on page 505.

DROP FUNCTION
> The number of DROP FUNCTION statements executed. For more information see item 34 on page 505.

DROP PROCEDURE
> The number of DROP PROCEDURE statements executed. For more information see item 36 on page 505.

DROP TRIGGER
> The number of DROP TRIGGER statements executed. For more information see item 39 on page 505.

RENAME TBL
> The number of RENAME TABLE statements executed. For more information see item 30 on page 505.

COMMENT ON
> The number of COMMENT ON statements executed. For more information see item 23 on page 505.

LABEL ON
> The number of LABEL ON statements executed. For more information see item 24 on page 505.

TOTAL
> The total number of DDL statements executed. For more information see item 28 on page 505.

Row ID

```
ROW ID                    QUANTITY  /MINUTE  /THREAD  /COMMIT
------------------------   --------  -------  -------  -------
DIRECT ACCESS                 0.00     0.00     0.00     0.00
INDEX USED                    0.00     0.00     0.00     0.00
TABLE SPACE SCAN USED         0.00     0.00     0.00     0.00
```

Figure 207. Statistics Long Report and Trace - Row ID

```
ROWID           QUANTITY
-------------   --------
DIRECT ACCESS      0.00
INDEX USED         0.00
TS SCAN USED       0.00
```

Figure 208. Statistics Short Report and Trace - Row ID

DIRECT ACCESS
> The number of times that direct row access was successful. For more information see item 1 on page 522.

INDEX USED
> The number of times an index was used to find a record. For more information see item 2 on page 522.

TABLE SPACE SCAN USED
> The number of times a table or table space scan was used to find a record For more information see item 3 on page 522.

EDM Pool Activity

```
EDM POOL                      QUANTITY  /MINUTE  /THREAD  /COMMIT
----------------------------  --------  -------  -------  -------
PAGES IN EDM POOL             16250.00     N/A      N/A      N/A
% PAGES IN USE                    5.81
FREE PAGES IN FREE CHAIN      15305.55     N/A      N/A      N/A
PAGES USED FOR CT                 4.42     N/A      N/A      N/A
PAGES USED FOR DBD               80.95     N/A      N/A      N/A
PAGES USED FOR SKCT             146.31     N/A      N/A      N/A
PAGES USED FOR PT                33.11     N/A      N/A      N/A
PAGES USED FOR SKPT             679.66     N/A      N/A      N/A

FAILS DUE TO POOL FULL            0.00     0.00     0.00     0.00

REQUESTS FOR CT SECTIONS      11009.00    62.95     1.13     0.79
CT NOT IN EDM POOL              145.00     0.83     0.01     0.01
CT REQUESTS/CT NOT IN EDM        75.92
REQUESTS FOR PT SECTIONS      68552.00   391.98     7.06     4.92
PT NOT IN EDM POOL              974.00     5.57     0.10     0.07
PT REQUESTS/PT NOT IN EDM        70.38
REQUESTS FOR DBD SECTIONS     14140.00    80.85     1.46     1.02
DBD NOT IN EDM POOL              13.00     0.07     0.00     0.00
DBD REQUESTS/DBD NOT IN EDM    1087.69

PREP_STMT_CACHE_INSERTS           N/A      N/A      N/A      N/A
PREP_STMT_CACHE_REQUESTS          N/A      N/A      N/A      N/A
PREP_STMT_CACHE_PAGES_USED        N/A      N/A      N/A      N/A
PREP_STMT_HIT_RATIO               N/A
```

Figure 209. Statistics Long Report and Trace - EDM Pool Activity

```
EDM POOL                  QUANTITY
------------------------  --------
PAGES IN EDM POOL         16250.00
FREE PAGES IN FREE CHAIN  15305.55
FAILS DUE TO POOL FULL        0.00
PAGES USED FOR CT             4.42
PAGES USED FOR PT            33.11
PAGES USED FOR DBD           80.95
PAGES USED FOR SKCT         146.31
PAGES USED FOR SKPT         679.66
REQUESTS FOR CT SECTIONS  11009.00
CT NOT IN EDM POOL          145.00
REQUESTS FOR PT SECTIONS  68552.00
PT NOT IN EDM POOL          974.00
REQUESTS FOR DBD SECTIONS 14140.00
DBD NOT IN EDM POOL          13.00
PREP_STMT_HIT_RATIO           N/A
```

Figure 210. Statistics Short Report and Trace - EDM Pool Activity

PAGES IN EDM POOL
> The current number of pages in the EDM pool (snapshot). For more information see item 1 on page 522.

% PAGES IN USE
> Percentage of pages in the EDM pool currently in use. For more information see item 2 on page 522.

FREE PAGES IN FREE CHAIN
>The current number of free pages in the free chain (snapshot). For more information see item 3 on page 522.

PAGES USED FOR CT
>The current number of pages in the EDM pool used for cursor tables (snapshot). For more information see item 4 on page 523.

PAGES USED FOR DBD
>The current number of pages in the EDM pool used for database descriptors (snapshot). For more information see item 5 on page 523.

PAGES USED FOR SKCT
>The current number of pages in the EDM pool used for skeleton cursor tables (snapshot). For more information see item 6 on page 523.

PAGES USED FOR PT
>The current number of pages in the EDM pool used for package tables (snapshot). For more information see item 7 on page 523.

PAGES USED FOR SKPT
>The current number of pages in the EDM pool used for skeleton package tables (snapshot). For more information see item 8 on page 523.

FAILS DUE TO POOL FULL
>The total number of failures because the EDM pool is full. For more information see item 9 on page 523.

REQUESTS FOR CT SECTIONS
>The number of requests for cursor table sections. For more information see item 10 on page 523.

CT NOT IN EDM POOL
>The number of times a cursor table section was not found in the EDM pool. For more information see item 11 on page 523.

CT REQUESTS/CT NOT IN EDM
>The number of requests for cursor table sections per cursor table section not found in the EDM pool. For more information see item 12 on page 523.

REQUESTS FOR PT SECTIONS
>The number of requests for package table sections. For more information see item 13 on page 523.

PT NOT IN EDM POOL
>The number of times a package table section was not found in the EDM pool. For more information see item 14 on page 523.

PT REQUESTS/PT NOT IN EDM
>The number of requests for package table sections per package table section not found in the EDM pool. For more information see item 15 on page 523.

REQUESTS FOR DBD SECTIONS
>The number of requests for database descriptors. For more information see item 16 on page 523.

DBD NOT IN EDM POOL
>The number of times database descriptors were not found in the EDM pool. For more information see item 17 on page 523.

Statistics Report Blocks

DBD REQUESTS/DBD NOT IN EDM

The number of requests for database descriptors per database descriptor not found in the EDM pool. For more information see item 18 on page 524.

PREP_STMT_HIT_RATIO

The ratio of successful search requests for prepared statements from the cache to the total number of requests searching the cache. For more information see item 31 on page 524.

CACHE INSERTS

The number of inserts for a prepared statement cache. For more information see item 19 on page 524.

CACHE REQUESTS

The number of requests for prepared statement cache sections. For more information see item 20 on page 524.

CACHE PAGES USED

The number of pages used by the prepared statement cache. For more information see item 21 on page 524.

Subsystem Services

```
SUBSYSTEM SERVICES          QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------  --------  -------  -------  -------
IDENTIFY                      202.00     1.16     0.02     0.01
CREATE THREAD                9711.00    55.53     1.00     0.70
SIGNON                      13906.00    79.52     1.43     1.00
TERMINATE                    9970.00    57.01     1.03     0.72
ROLLBACK                       13.00     0.07     0.00     0.00

COMMIT PHASE 1              13893.00    79.44     1.43     1.00
COMMIT PHASE 2               6614.00    37.82     0.68     0.48
READ ONLY COMMIT             7279.00    41.62     0.75     0.52

UNITS OF RECOVERY INDOUBT       0.00     0.00     0.00     0.00
UNITS OF REC.INDBT RESOLVED     0.00     0.00     0.00     0.00

SYNCHS(SINGLE PHASE COMMIT)    17.00     0.10     0.00     0.00
QUEUED AT CREATE THREAD         0.00     0.00     0.00     0.00
SUBSYSTEM ALLIED MEMORY EOT   189.00     1.08     0.02     0.01
SUBSYSTEM ALLIED MEMORY EOM     0.00     0.00     0.00     0.00
SYSTEM EVENT CHECKPOINT         8.00     0.05     0.00     0.00
```

Figure 211. Statistics Long Report and Trace - Subsystem Services

```
SUBSYSTEM SERVICES               QUANTITY
------------------------------   --------
IDENTIFY                           202.00
CREATE THREAD                     9711.00
SIGNON                           13906.00
TERMINATE                         9970.00
ROLLBACK                            13.00
COMMIT PHASE 1                   13893.00
COMMIT PHASE 2                    6614.00
READ ONLY COMMIT                  7279.00
UNITS OF RECOVERY GONE INDOUBT       0.00
UNITS OF RECOVERY INDOUBT RESOLV     0.00
SYNCHS (SINGLE PHASE COMMIT)        17.00
QUEUED AT CREATE THREAD              0.00
SYSTEM EVENT CHECKPOINT              8.00
```

Figure 212. Statistics Short Report and Trace - Subsystem Services

IDENTIFY

> The number of successful connections to DB2 from an allied address space (TSO, BATCH, CICS, IMS, CAF, or UTILITY). For more information see item 1 on page 541.

CREATE THREAD

> The number of successful create thread requests. This number does not include DBATs. For more information see item 2 on page 542.

SIGNON

> The number of successful signon requests to identify a new user for IMS and CICS. For more information see item 3 on page 542.

TERMINATE

> The number of times threads were terminated successfully. For more information see item 4 on page 542.

ROLLBACK

> The number of times a unit of recovery was rolled back successfully. For more information see item 5 on page 542.

COMMIT PHASE 1

> The number of successful prepares to commit phase 1 in a two-phase environment such as CICS or IMS. For more information see item 6 on page 542.

COMMIT PHASE 2

> The number of successful commit phases 2 in a two-phase commit environment such as CICS or IMS. For more information see item 7 on page 543.

READ ONLY COMMIT

> The number of read-only commits. For more information see item 8 on page 543.

UNITS OF RECOVERY INDOUBT

> The number of indoubt units of recovery. For more information see item 9 on page 543.

UNITS OF REC.INDBT RESOLVED

> The number of indoubt units of recovery that have been successfully resolved, either automatically or manually. For more information see item 10 on page 543.

Statistics Report Blocks

SYNCHS(SINGLE PHASE COMMIT)
The number of commits in a single-phase environment such as TSO, CAF, or UTILITY. For more information see item 11 on page 543.

QUEUED AT CREATE THREAD
The number of create thread requests queued. This number does not include DBATs. For more information see item 12 on page 544.

SUBSYSTEM ALLIED MEMORY EOT
The number of times non-DB2 tasks abended while connected to DB2. For more information see item 13 on page 544.

SUBSYSTEM ALLIED MEMORY EOM
The number of times MVS deleted non-DB2 address space while connected to DB2. For more information see item 14 on page 544.

SYSTEM EVENT CHECKPOINT
The number of checkpoints DB2 has taken since startup. For more information see item 15 on page 544.

Open/Close Activity

```
OPEN/CLOSE ACTIVITY        QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------  --------  -------  -------  -------
OPEN DATASETS - HWM           320.00     N/A      N/A      N/A
OPEN DATASETS                 281.52     N/A      N/A      N/A
DS NOT IN USE,NOT CLOSE-HWM   320.00     N/A      N/A      N/A
DS NOT IN USE,NOT CLOSED      259.96     N/A      N/A      N/A
IN USE DATA SETS               21.56     N/A      N/A      N/A

DSETS CLOSED-THRESH.REACHED     0.00    0.00     0.00     0.00

DSETS CONVERTED R/W -> R/O     264.00    1.51     0.03     0.02
```

Figure 213. Statistics Long Report and Trace - Open/Close Activity

```
OPEN/CLOSE ACTIVITY        QUANTITY
------------------------   --------
OPEN DATASETS - HWM          320.00
OPEN DATASETS                281.52
IN USE DATA SETS              21.56
```

Figure 214. Statistics Short Report and Trace - Open/Close Activity

OPEN DATASETS - HWM
The maximum number of data sets concurrently open (HWM). For more information see item 1 on page 524.

OPEN DATASETS
The number of data sets concurrently open (snapshot). For more information see item 2 on page 525.

DS NOT IN USE,NOT CLOSE-HWM
The maximum number of page sets that were available to drain since the last statistics interval (HWM). For more information see item 6 on page 525.

DS NOT IN USE,NOT CLOSED
>The number of data sets that are not currently used, but are not closed due to a deferred close (snapshot). For more information see item 4 on page 525.

IN USE DATASETS
>The number of data sets currently in use (snapshot). For more information see item 16 on page 526.

DSETS CLOSED-THRESH.REACHED
>The number of data sets that were closed using the drain process. For more information see item 10 on page 526.

DSETS CONVERTED R/W -> R/O
>The number of infrequently updated data sets converted from R/W to R/O. For more information see item 14 on page 526.

Log Activity

```
LOG ACTIVITY               QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------  --------  -------  -------  -------
READS SATISFIED-OUTPUT BUFF  110.00     0.63     0.01     0.01
READS SATISFIED-OUTP.BUF(%)  100.00
READS SATISFIED-ACTIVE LOG     0.00     0.00     0.00     0.00
READS SATISFIED-ACTV.LOG(%)    0.00
READS SATISFIED-ARCHIVE LOG    0.00     0.00     0.00     0.00
READS SATISFIED-ARCH.LOG(%)    0.00
TAPE VOLUME CONTENTION WAIT    0.00     0.00     0.00     0.00

LOG RECORDS CREATED        72911.00   416.91     7.51     5.24
WRITE OUTPUT LOG BUFFERS   12132.00    69.37     1.25     0.87

BSDS ACCESS REQUESTS          56.00     0.32     0.01     0.00
UNAVAILABLE OUTPUT LOG BUFF    0.00     0.00     0.00     0.00

CONTR.INTERV.CREATED-ACTIVE 3913.00    22.37     0.40     0.28
ARCHIVE LOG READ ALLOCATION    0.00     0.00     0.00     0.00
ARCHIVE LOG WRITE ALLOCAT.     0.00     0.00     0.00     0.00
CONTR.INTERV.OFFLOADED-ARCH    0.00     0.00     0.00     0.00

READ DELAYED-UNAVAIL.RESOUR    0.00     0.00     0.00     0.00
LOOK-AHEAD MOUNT ATTEMPTED     0.00     0.00     0.00     0.00
LOOK-AHEAD MOUNT SUCCESSFUL    0.00     0.00     0.00     0.00
```

Figure 215. Statistics Long Report and Trace - Log Activity

Statistics Report Blocks

```
LOG ACTIVITY                      QUANTITY
--------------------------------  --------
READS SATISFIED-OUTPUT BUFFER       110.00
READS SATISFIED-ACTIVE LOG            0.00
READS SATISFIED-ARCHIVE LOG           0.00
READ DELAYED-UNAVAILABLE RESOURCE     0.00
LOG RECORDS CREATED               72911.00
WRITE OUTPUT LOG BUFFERS          12132.00
BSDS ACCESS REQUESTS                 56.00
UNAVAILABLE OUTPUT LOG BUFFER         0.00
CONTROL INTERVAL CREATED-ACTIVE    3913.00
ARCHIVE LOG READ ALLOCATION           0.00
ARCHIVE LOG WRITE ALLOCAT.            0.00
```

Figure 216. Statistics Short Report and Trace - Log Activity

READS SATISFIED-OUTPUT BUFF
> The number of times DB2 had to read log records that were still in the log output buffer. For more information see item 1 on page 540.

READS SATISFIED-OUTP.BUF(%)
> The percentage of log records that were satisfied in the log output buffer. For more information see item 2 on page 540.

READS SATISFIED-ACTIVE LOG
> The number of times DB2 had to read log records and access the active log for the records. For more information see item 3 on page 540.

READS SATISFIED-ACTV.LOG(%)
> The percentage of log reads that were satisfied from the active log. For more information see item 4 on page 540.

READS SATISFIED-ARCHIVE LOG
> The number of times DB2 had to read log records and access the archive log for the records. For more information see item 5 on page 540.

READS SATISFIED-ARCH.LOG(%)
> The percentage of log reads that were satisfied from the archive log data set. For more information see item 6 on page 540.

TAPE VOLUME CONTENTION WAIT
> The number of read accesses delayed due to a tape volume contention in a situation where only one reader per tape is possible. For more information see item 8 on page 540.

LOG RECORDS CREATED
> The total number of times DB2 externalized log records asynchronously. For more information see item 12 on page 541.

WRITE OUTPUT LOG BUFFERS
> The number of calls to the log write routine. For more information see item 13 on page 541.

BSDS ACCESS REQUEST
> The number of times the BSDS access routine was called. For more information see item 14 on page 541.

UNAVAILABLE OUTPUT LOG BUFF
> The number of times DB2 tried to place log records in the output buffer, but could not find an available log buffer. For more information see item 15 on page 541.

CONTR.INTERV.CREATED-ACTIVE

The number of active log output control intervals created. For more information see item 16 on page 541.

ARCHIVE LOG READ ALLOCATION

The number of archive log read allocations. For more information see item 17 on page 541.

ARCHIVE LOG WRITE ALLOCAT.

The number of archive log write allocations. For more information see item 18 on page 541.

CONTR.INTERV.OFFLOADED-ARCH

The number of control intervals offloaded from the active log to the archive log. For more information see item 19 on page 541.

READ DELAYED-UNAVAIL.RESOUR

The number of read accesses delayed due to an unavailable resource. For more information see item 9 on page 540.

LOOK-AHEAD MOUNT ATTEMPTED

The number of "look ahead" (tape volume) mounts attempted. For more information see item 10 on page 540.

LOOK-AHEAD MOUNT SUCCESSFUL

The number of successful "look ahead" (tape volume) mounts. For more information see item 11 on page 541.

Plan/Package Processing

```
PLAN/PACKAGE PROCESSING   QUANTITY  /MINUTE  /THREAD  /COMMIT
------------------------  --------  -------  -------  -------
INCREMENTAL BINDS             0.00     0.00     0.00     0.00

PLAN ALLOCATION ATTEMPTS   9694.00    55.43     1.00     0.70
PLAN ALLOCATION SUCCESSFUL  9694.00   55.43     1.00     0.70
PACKAGE ALLOCATION ATTEMPT 22437.00  128.30     2.31     1.61
PACKAGE ALLOCATION SUCCESS 20424.00  116.79     2.10     1.47

PLANS BOUND                   0.00     0.00     0.00     0.00
BIND ADD SUBCOMMANDS          0.00     0.00     0.00     0.00
BIND REPLACE SUBCOMMANDS      0.00     0.00     0.00     0.00
TEST BINDS NO PLAN-ID         0.00     0.00     0.00     0.00
PACKAGES BOUND                0.00     0.00     0.00     0.00
BIND ADD PACKAGE SUBCOMMAND   0.00     0.00     0.00     0.00
BIND REPLACE PACKAGE SUBCOM   0.00     0.00     0.00     0.00

AUTOMATIC BIND ATTEMPTS       0.00     0.00     0.00     0.00
AUTOMATIC BINDS SUCCESSFUL    0.00     0.00     0.00     0.00
AUTO.BIND INVALID RES. IDS    0.00     0.00     0.00     0.00
AUTO.BIND PACKAGE ATTEMPTS    0.00     0.00     0.00     0.00
AUTO.BIND PACKAGES SUCCESS    0.00     0.00     0.00     0.00

REBIND SUBCOMMANDS            0.00     0.00     0.00     0.00
ATTEMPTS TO REBIND A PLAN     0.00     0.00     0.00     0.00
PLANS REBOUND                 0.00     0.00     0.00     0.00
REBIND PACKAGE SUBCOMMANDS    0.00     0.00     0.00     0.00
ATTEMPTS TO REBIND PACKAGE    0.00     0.00     0.00     0.00
PACKAGES REBOUND              0.00     0.00     0.00     0.00

FREE PLAN SUBCOMMANDS         0.00     0.00     0.00     0.00
ATTEMPTS TO FREE A PLAN       0.00     0.00     0.00     0.00
PLANS FREED                   0.00     0.00     0.00     0.00
FREE PACKAGE SUBCOMMANDS      0.00     0.00     0.00     0.00
ATTEMPTS TO FREE A PACKAGE    0.00     0.00     0.00     0.00
PACKAGES FREED                0.00     0.00     0.00     0.00
```

Figure 217. Statistics Long Report and Trace - Plan/Package Processing

```
PLAN/PACKAGE PROC.   QUANTITY
-------------------  --------
PLAN ALLOC-ATTEMPTS   9694.00
PLAN ALLOC-SUCCESS    9694.00
PACK ALLOC-ATTEMPTS  22437.00
PACK ALLOC-SUCCESS   20424.00
AUTOBIND ATTEMPTS        0.00
AUTOBIND SUCCESSFUL      0.00
```

Figure 218. Statistics Long Report and Trace - Plan/Package Processing

INCREMENTAL BINDS
>   The number of incremental binds executed. For more information see item 5 on page 501.

PLAN ALLOCATION ATTEMPTS
>   The number of times a request was made to allocate a bound plan for an agent. For more information see item 1 on page 526.

PLAN ALLOCATION SUCCESSFUL
> The number of successful plan allocation attempts. For more information see item 2 on page 527.

PACKAGE ALLOCATION ATTEMPT
> The number of attempts to allocate a package. For more information see item 3 on page 527.

PACKAGE ALLOCATION SUCCESS
> The number of successful package allocation attempts. For more information see item 4 on page 527.

PLANS BOUND
> The number of plans successfully bound and kept for future agent allocations. For more information see item 5 on page 527.

BIND ADD SUBCOMMANDS
> The number of successful and unsuccessful BIND ADD subcommands for plans. For more information see item 6 on page 527.

BIND REPLACE SUBCOMMANDS
> The number of successful and unsuccessful BIND REPLACE subcommands for plans. For more information see item 7 on page 527.

TEST BINDS NO PLAN-ID
> The number of BIND subcommands issued without a plan ID. For more information see item 8 on page 527.

PACKAGES BOUND
> The number of packages successfully bound and kept for future agent allocations. For more information see item 9 on page 527.

BIND ADD PACKAGE SUBCOMMAND
> The number of successful and unsuccessful BIND ADD PACKAGE subcommands issued. For more information see item 10 on page 527.

BIND REPLACE PACKAGE SUBCOM
> The number of successful and unsuccessful BIND REPLACE PACKAGE subcommands issued. For more information see item 11 on page 527.

AUTOMATIC BIND ATTEMPTS
> The number of attempts to autobind a plan. For more information see item 12 on page 527.

AUTOMATIC BINDS SUCCESSFUL
> The number of plans autobound. For more information see item 13 on page 528.

AUTO.BIND INVALID RES. IDS
> The number of requests to allocate a nonexistent plan or package. This is the number of all failed plan and package allocation attempts due to an unavailable resource or nonexistent object. For more information see item 14 on page 528.

AUTO.BIND PACKAGE ATTEMPTS
> The number of attempts to autobind a package. For more information see item 15 on page 528.

AUTO.BIND PACKAGES SUCCESS
> The number of packages autobound. For more information see item 16 on page 528.

Statistics Report Blocks

REBIND SUBCOMMANDS
> The number of REBIND subcommands issued. For more information see item 17 on page 528.

ATTEMPTS TO REBIND A PLAN
> The number of attempts to rebind a plan. For more information see item 18 on page 528.

PLANS REBOUND
> The number of rebind attempts that completed successfully. For more information see item 19 on page 528.

REBIND PACKAGE SUBCOMMANDS
> The number of REBIND PACKAGE subcommands issued. For more information see item 20 on page 528.

ATTEMPTS TO REBIND PACKAGE
> The number of attempts to rebind a package. For more information see item 21 on page 528.

PACKAGES REBOUND
> The number of packages successfully rebound. For more information see item 22 on page 528.

FREE PLAN SUBCOMMANDS
> The number of FREE subcommands issued. For more information see item 23 on page 528.

ATTEMPTS TO FREE A PLAN
> The number of attempts to free a plan. For more information see item 24 on page 528.

PLANS FREED
> The number of times a plan was successfully freed. For more information see item 25 on page 529.

FREE PACKAGE SUBCOMMANDS
> The number of FREE PACKAGE subcommands issued. For more information see item 26 on page 529.

ATTEMPTS TO FREE A PACKAGE
> The number of attempts to free a package. For more information see item 27 on page 529.

PACKAGES FREED
> The number of packages successfully freed. For more information see item 28 on page 529.

DB2 Commands

```
DB2 COMMANDS               QUANTITY  /MINUTE
--------------------------  --------  -------
DISPLAY DATABASE                0.00     0.00
DISPLAY THREAD                  0.00     0.00
DISPLAY UTILITY                 0.00     0.00
DISPLAY TRACE                   0.00     0.00
DISPLAY RLIMIT                  0.00     0.00
DISPLAY LOCATION                0.00     0.00
DISPLAY ARCHIVE                 0.00     0.00
DISPLAY BUFFERPOOL              0.00     0.00
DISPLAY GROUPBUFFERPOOL         0.00     0.00
DISPLAY GROUP                   0.00     0.00
DISPLAY PROCEDURE               0.00     0.00
ALTER BUFFERPOOL                5.00     0.03
ALTER GROUPBUFFERPOOL           0.00     0.00
START DATABASE                  0.00     0.00
START TRACE                     0.00     0.00
START DB2                       0.00     0.00
START RLIMIT                    0.00     0.00
START DDF                       0.00     0.00
START PROCEDURE                 0.00     0.00
STOP DATABASE                   0.00     0.00
STOP TRACE                      0.00     0.00
STOP DB2                        1.00     0.01
STOP RLIMIT                     0.00     0.00
STOP DDF                        0.00     0.00
STOP PROCEDURE                  0.00     0.00
MODIFY TRACE                    0.00     0.00
CANCEL THREAD                   0.00     0.00
TERM UTILITY                    0.00     0.00
RECOVER BSDS                    0.00     0.00
RECOVER INDOUBT                 0.00     0.00
RESET INDOUBT                   0.00     0.00
RESET GENERICLU                 0.00     0.00
ARCHIVE LOG                     0.00     0.00
SET ARCHIVE                     0.00     0.00
UNRECOGNIZED COMMANDS           0.00     0.00

TOTAL                           6.00     0.03
```

Figure 219. Statistics Long Report and Trace - DB2 Commands

DISPLAY DATABASE
> The number of DB2 DISPLAY DATABASE commands issued. For more information see item 1 on page 544.

DISPLAY THREAD
> The number of DB2 DISPLAY THREAD commands issued. For more information see item 2 on page 544.

DISPLAY UTILITY
> The number of DB2 DISPLAY UTILITY commands issued. For more information see item 3 on page 544.

DISPLAY TRACE
> The number of DB2 DISPLAY TRACE commands issued. For more information see item 4 on page 544.

DISPLAY RLIMIT
> The number of DB2 DISPLAY RLIMIT commands issued. For more information see item 5 on page 544.

Statistics Report Blocks

DISPLAY LOCATION

The number of DB2 DISPLAY LOCATION commands issued. For more information see item 6 on page 544.

DISPLAY ARCHIVE

The number of DB2 DISPLAY ARCHIVE commands issued. For more information see item 7 on page 545.

DISPLAY BUFFERPOOL

The number of DB2 DISPLAY BUFFERPOOL commands issued. For more information see item 8 on page 545.

DISPLAY GROUPBUFFERPOOL

The number of DB2 DISPLAY GROUPBUFFERPOOL commands issued. For more information see item 9 on page 545.

DISPLAY GROUP

The number of DB2 DISPLAY GROUP commands issued. For more information see item 10 on page 545.

DISPLAY PROCEDURE

The number of DB2 DISPLAY PROCEDURE commands issued. For more information see item 11 on page 545.

ALTER BUFFERPOOL

The number of DB2 ALTER BUFFERPOOL commands issued. For more information see item 12 on page 545.

ALTER GROUPBUFFERPOOL

The number of DB2 ALTER GROUPBUFFERPOOL commands issued. For more information see item 13 on page 545.

START DATABASE

The number of DB2 START DATABASE commands issued. For more information see item 14 on page 545.

START TRACE

The number of DB2 START TRACE commands issued. For more information see item 15 on page 545.

START DB2

The number of DB2 START DB2 commands issued. For more information see item 16 on page 545.

START RLIMIT

The number of DB2 START RLIMIT commands issued. For more information see item 17 on page 545.

START DDF

The number of DB2 START DDF commands issued. For more information see item 18 on page 545.

START PROCEDURE

The number of DB2 START PROCEDURE commands issued. For more information see item 19 on page 545.

STOP DATABASE

The number of DB2 STOP DATABASE commands issued. For more information see item 20 on page 545.

STOP TRACE

The number of DB2 STOP TRACE commands issued. For more information see item 21 on page 546.

STOP DB2

The number of DB2 STOP DB2 commands issued. For more information see item 22 on page 546.

STOP RLIMIT

The number of DB2 STOP RLIMIT commands issued. For more information see item 23 on page 546.

STOP DDF

The number of DB2 STOP DDF commands issued. For more information see item 24 on page 546.

STOP PROCEDURE

The number of DB2 STOP PROCEDURE commands issued. For more information see item 25 on page 546.

MODIFY TRACE

The number of DB2 MODIFY TRACE commands issued. For more information see item 26 on page 546.

CANCEL THREAD

The number of DB2 CANCEL THREAD commands issued. For more information see item 27 on page 546.

TERM UTILITY

The number of DB2 TERM UTILITY commands issued. For more information see item 28 on page 546.

RECOVER BSDS

The number of DB2 RECOVER BSDS commands issued. For more information see item 29 on page 546.

RECOVER INDOUBT

The number of DB2 RECOVER INDOUBT commands issued. For more information see item 30 on page 546.

RESET INDOUBT

The number of DB2 RESET INDOUBT commands issued. For more information see item 31 on page 546.

RESET GENERICLU

The number of DB2 RESET GENERICLU commands issued. For more information see item 32 on page 546.

ARCHIVE LOG

The number of DB2 ARCHIVE LOG commands issued. For more information see item 33 on page 546.

SET ARCHIVE

The number of DB2 SET ARCHIVE commands issued. For more information see item 34 on page 547.

UNRECOGNIZED COMMANDS

The number of commands not recognized by DB2. For more information see item 35 on page 547.

TOTAL

The total number of DB2 commands issued (including unrecognized commands). For more information see item 36 on page 547.

RID List Processing

```
RID LIST PROCESSING         QUANTITY  /MINUTE  /THREAD  /COMMIT
---------------------------  --------  -------  -------  -------
MAX RID BLOCKS ALLOCATED       10.00      N/A      N/A      N/A
CURRENT RID BLOCKS ALLOCAT.     0.00      N/A      N/A      N/A
TERMINATED-NO STORAGE           0.00     0.00     0.00     0.00
TERMINATED-EXCEED RDS LIMIT     0.00     0.00     0.00     0.00
TERMINATED-EXCEED DM LIMIT      0.00     0.00     0.00     0.00
TERMINATED-EXCEED PROC.LIM.     0.00     0.00     0.00     0.00
```

Figure 220. Statistics Long Report and Trace - RID List Processing

```
RID LIST              QUANTITY
--------------------  --------
MAX BLOCKS ALLOCATED    10.00
CURRENT BLKS ALLOC.      0.00
FAILED-NO STORAGE        0.00
FAILED-RDS LIMIT         0.00
FAILED-DM LIMIT          0.00
FAILED-PROCESS LIMIT     0.00
```

Figure 221. Statistics Short Report and Trace - RID List Processing

MAX RID BLOCKS ALLOCATED
> The maximum number of RID blocks allocated (HWM). For more information see item 1 on page 536.

CURRENT RID BLOCKS ALLOCAT.
> The number of RID blocks currently allocated (snapshot). For more information see item 2 on page 536.

TERMINATED-NO STORAGE
> The number of times RID list processing was not used due to storage shortage. For more information see item 3 on page 536.

TERMINATED-EXCEED RDS LIMIT
> The number of times RID list processing was not used because the number of RID entries exceeded the RDS limit. For more information see item 4 on page 536.

TERMINATED-EXCEED DM LIMIT
> The number of times RID list processing was not used because the number of RID entries exceeded the Data Manager limit. For more information see item 5 on page 536.

TERMINATED-EXCEED PROC.LIM.
> The number of times RID list processing was not used because the maximum RID list storage was exceeded. For more information see item 6 on page 536.

Authorization Management

```
AUTHORIZATION MANAGEMENT     QUANTITY  /MINUTE  /THREAD  /COMMIT
---------------------------  --------  -------  -------  -------
PLAN-AUTH ATTEMPTS             216.00     7.36    72.00     5.40
PLAN-AUTH SUCC                 217.00     7.39    72.33     5.42
PLAN-AUTH SUCC-W/O CATALOG     220.00     7.49    73.33     5.50
PLAN-AUTH SUCC-PUB-W/O CAT     221.00     7.53    73.67     5.52

PKG-AUTH SUCC-W/O CATALOG      223.00     7.59    74.33     5.57
PKG-AUTH SUCC-PUB-W/O CAT      224.00     7.63    74.67     5.60
PKG-AUTH UNSUCC-CACHE          225.00     7.66    75.00     5.63
PKG CACHE OVERWRT - AUTH ID    227.00     7.73    75.67     5.67
PKG CACHE OVERWRT - ENTRY      228.00     7.76    76.00     5.70

RTN-AUTH SUCC-W/O CATALOG         N/A      N/A      N/A      N/A
RTN-AUTH SUCC-PUB-W/O CAT         N/A      N/A      N/A      N/A
RTN-AUTH UNSUCC-CACHE             N/A      N/A      N/A      N/A
RTN CACHE OVERWRT - AUTH ID       N/A      N/A      N/A      N/A
RTN CACHE OVERWRT - ENTRY         N/A      N/A      N/A      N/A
RTN CACHE - ENTRY NOT ADDED       N/A      N/A      N/A      N/A
```

Figure 222. Statistics Long Report and Trace - Authorization Management

PLAN-AUTH ATTEMPTS
> The number of authorization checks performed for a plan. For more information see item 1 on page 529.

PLAN-AUTH SUCC
> The number of authorization checks performed for authorized plans. For more information see item 2 on page 529.

PLAN-AUTH SUCC-W/O CATALOG
> The number of successful authorization checks that do not use the DB2 catalog, including plan cache checks and public checks. For more information see item 3 on page 529.

PLAN-AUTH SUCC-PUB-W/O CAT
> The number of successful authorization checks based on EXECUTE authority granted to PUBLIC. For more information see item 4 on page 529.

PKG-AUTH SUCC-W/O CATALOG
> The number of successful package EXECUTE authorization checks without accessing the DB2 catalog. For more information see item 5 on page 529.

PKG-AUTH SUCC-PUB-W/O CAT
> The number of successful package EXECUTE authorization checks without accessing the DB2 catalog. Package EXECUTE authority was granted to PUBLIC in the package authorization cache. For more information see item 6 on page 529.

PKG-AUTH UNSUCC-CACHE
> The number of unsuccessful package EXECUTE authorization checks in the package authorization cache. No applicable entry was found. Therefore, DB2 catalog access is required. For more information see item 7 on page 530.

PKG-CACHE OVERWRT - AUTH ID
> The number of times an authorization ID was overwritten to add another one to the package authorization cache. For more information see item 8 on page 530.

Statistics Report Blocks

PKG CACHE OVERWRT - ENTRY
The number of times an entry for a collection-id, package-id or collection-id was overwritten to add another one to the package authorization cache. For more information see item 9 on page 530.

RTN-AUTH SUCC-W/O CATALOG
Number of of successful routine authorization checks for EXECUTE authority on a stored procedure or UDF. For more information see item 10 on page 530.

RN-AUTH SUCC-PUB-W/O CAT
Number of successful authorization checks for user-defined function or stored procedure execution authority when that authority is held by PUBLIC. For more information see item 11 on page 530.

RTN-AUTH UNSUCC-CACHE
Number of unsuccessful authorization checks for user-defined function or stored procedure EXECUTE authority because no applicable entry was found in the routine authorization cache. For more information see item 12 on page 530.

RTN CACHE OVERFLW - AUTH ID
Number of times that DB2 overwrote an authorization ID in the routine authorization cache. For more information see item 13 on page 530.

RTN CACHE OVERFLW - ENTRY
Number of times that DB2 overwrote a routine entry in the routine authorization cache. For more information see item 14 on page 530.

Locking Activity

```
LOCKING ACTIVITY              QUANTITY  /MINUTE  /THREAD  /COMMIT
---------------------------   --------  -------  -------  -------
SUSPENSIONS (ALL)             4553.00     26.03     0.47     0.33
SUSPENSIONS (LOCK ONLY)        219.00      1.25     0.02     0.02
SUSPENSIONS (IRLM LATCH)      4134.00     24.67     0.44     0.31
SUSPENSIONS (OTHER)             20.00      0.11     0.00     0.00

TIMEOUTS                         0.00      0.00     0.00     0.00
DEADLOCKS                        7.00      0.04     0.00     0.00

LOCK REQUESTS                 1038.8K   5940.02   106.97    74.61
UNLOCK REQUESTS                923.3K   5279.22    95.07    66.31
QUERY REQUESTS                   0.00      0.00     0.00     0.00
CHANGE REQUESTS               9274.00     53.03     0.95     0.67
OTHER REQUESTS                   0.00      0.00     0.00     0.00

LOCK ESCALATION (SHARED)         0.00      0.00     0.00     0.00
LOCK ESCALATION (EXCLUSIVE)      0.00      0.00     0.00     0.00
DRAIN REQUESTS                 264.00      1.51     0.03     0.02
DRAIN REQUESTS FAILED            0.00      0.00     0.00     0.00
CLAIM REQUESTS                 115.3K    659.54    11.88     8.28
CLAIM REQUESTS FAILED            0.00      0.00     0.00     0.00
```

Figure 223. Statistics Long Report and Trace - Locking Activity

```
LOCKING ACTIVITY  QUANTITY
----------------  --------
DEADLOCKS             7.00
TIMEOUTS              0.00
SUSPENSIONS-LOCK    219.00
SUSPENSIONS-OTHR     20.00
LOCK REQUESTS      1038.8K
UNLOCK REQUEST      923.3K
LOCK ESCALAT(SH)      0.00
LOCK ESCALAT(EX)      0.00
DRAIN REQUESTS      264.00
CLAIM REQUESTS      115.3K
```

Figure 224. Statistics Short Report and Trace - Locking Activity

SUSPENSIONS (ALL)
> The total number of suspensions. For more information see item 1 on page 536.

SUSPENSIONS (LOCK ONLY)
> The number of lock suspensions. For more information see item 2 on page 536.

SUSPENSIONS (IRLM LATCH)
> The number of latch suspensions. For more information see item 3 on page 536.

SUSPENSIONS (OTHER)
> The number of other suspensions. For more information see item 4 on page 536.

TIMEOUTS
> The number of timeouts. For more information see item 5 on page 536.

DEADLOCKS
> The number of deadlocks. For more information see item 6 on page 536.

LOCK REQUESTS
> The number of lock requests. For more information see item 7 on page 536.

UNLOCK REQUESTS
> The number of unlock requests. For more information see item 8 on page 537.

QUERY REQUESTS
> The number of query requests. For more information see item 9 on page 537.

CHANGE REQUESTS
> The number of change requests. For more information see item 10 on page 537.

OTHER REQUESTS
> The number of other requests. For more information see item 11 on page 537.

LOCK ESCALATION (SHARED)
> The number of lock escalations to shared mode. For more information see item 12 on page 537.

Statistics Report Blocks

LOCK ESCALATION (EXCLUSIVE)
The number of lock escalations to exclusive mode. For more information see item 13 on page 537.

DRAIN REQUESTS
The number of drain requests. For more information see item 15 on page 537.

DRAIN REQUESTS FAILED
The number of unsuccessful drain requests. For more information see item 16 on page 537.

CLAIM REQUESTS
The number of claim requests. For more information see item 17 on page 537.

CLAIM REQUESTS FAILED
The number of unsuccessful claim requests. For more information see item 18 on page 537.

Data Sharing Locking

```
DATA SHARING LOCKING        QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------  --------  -------  -------  -------
GLOBAL CONTENTION RATE (%)      4.22
FALSE CONTENTION RATE (%)       0.26

LOCK REQUESTS (P-LOCKS)     16575.00    94.78     1.71     1.19
UNLOCK REQUESTS (P-LOCKS)   14924.00    85.34     1.54     1.07
CHANGE REQUESTS (P-LOCKS)     625.00     3.57     0.06     0.04

SYNCH.XES - LOCK REQUESTS   84382.00   482.50     8.69     6.06
SYNCH.XES - CHANGE REQUESTS  1417.00     8.10     0.15     0.10
SYNCH.XES - UNLOCK REQUESTS 55287.00   316.13     5.69     3.97
ASYNCH.XES - RESOURCES       1190.00     6.80     0.12     0.09

SUSPENDS - IRLM GLOBAL CONT   2119.00    12.12     0.22     0.15
SUSPENDS - XES GLOBAL CONT.   3712.00    21.23     0.38     0.27
SUSPENDS - FALSE CONTENTION    381.00     2.18     0.04     0.03
INCOMPATIBLE RETAINED LOCK       0.00     0.00     0.00     0.00

NOTIFY MESSAGES SENT            24.00     0.14     0.00     0.00
NOTIFY MESSAGES RECEIVED       900.00     5.15     0.09     0.06
P-LOCK/NOTIFY EXITS ENGINES     10.00      N/A      N/A      N/A
P-LCK/NFY EX.ENGINE UNAVAIL      0.00     0.00     0.00     0.00

PSET/PART P-LCK NEGOTIATION   1002.00     5.73     0.10     0.07
PAGE P-LOCK NEGOTIATION       1170.00     6.69     0.12     0.08
OTHER P-LOCK NEGOTIATION       616.00     3.52     0.06     0.04
P-LOCK CHANGE DURING NEG.     2326.00    13.30     0.24     0.17
```

Figure 225. Statistics Long Report and Trace - Data Sharing Locking

```
DATA SHARING LOCKS   QUANTITY
------------------   --------
GLB CONT.RATE (%)        4.22
FLS CONT.RATE (%)        0.26
LOCK REQ.(P-LOCK)    16575.00
UNLOCK REQ.(P-LCK)   14924.00
CHANGE REQ.(P-LCK)     625.00
SYNC.XES - LOCK      84382.00
SYNC.XES - CHANGE     1417.00
SYNC.XES - UNLOCK    55287.00
ASYN.XES-RESOURCES    1190.00
TOTAL SUSPENDS        6212.00
P-LCK/NFY ENG.UNAV       0.00
INCOM.RETAINED LCK       0.00
PSET/PART NEGOTIAT    1002.00
PAGE NEGOTIATION      1170.00
```

Figure 226. Statistics Short Report and Trace - Data Sharing Locking

GLOBAL CONTENTION RATE (%)
> The global contention rate. For more information see item 22 on page 539.

FALSE CONTENTION RATE (%)
> The false contention rate. For more information see item 23 on page 539.

LOCK REQUESTS (P-LOCKS)
> The number of lock requests for physical locks. For more information see item 1 on page 537.

UNLOCK REQUESTS (P-LOCKS)
> The number of unlock requests for physical locks. For more information see item 2 on page 537.

CHANGE REQUESTS (P-LOCKS)
> The number of change requests for physical locks. For more information see item 3 on page 537.

SYNCH.XES - LOCK REQUESTS
> The number of lock requests propagated to MVS XES synchronously, including logical and physical locks. For more information see item 4 on page 537.

SYNCH.XES - CHANGE REQUESTS
> The number of change requests propagated to MVS XES synchronously, including logical and physical locks. For more information see item 5 on page 538.

SYNCH.XES - UNLOCK REQUESTS
> The number of unlock requests propagated to MVS XES synchronously, including logical and physical locks. For more information see item 6 on page 538.

ASYNCH.XES - RESOURCES
> The number of resources IRLM propagated to MVS XES asynchronously, including logical and physical locks. For more information see item 7 on page 538.

SUSPENDS - IRLM GLOBAL CONT
> The number of suspensions due to IRLM global resource contention. All IRLM lock states were in conflict. For more information see item 8 on page 538.

Statistics Report Blocks

SUSPENDS - XES GLOBAL CONT.

The number of suspensions due to MVS XES global resource contention. The MVS XES lock states were in conflict but the IRLM lock states were not. For more information see item 9 on page 538.

SUSPENDS - FALSE CONTENTION

The number of suspensions due to false contention. For more information see item 10 on page 538.

INCOMPATIBLE RETAINED LOCK

The number of global lock or change requests denied or suspended due to an incompatible retained lock. For more information see item 20 on page 539.

NOTIFY MESSAGES SENT

The number of notify messages sent. For more information see item 12 on page 538.

NOTIFY MESSAGES RECEIVED

The number of notify messages received. For more information see item 13 on page 538.

P-LOCK/NOTIFY EXITS ENGINES

The maximum number of engines available for physical lock exit or notify exit requests. For more information see item 14 on page 539.

P-LCK/NFY EX.ENGINE UNAVAIL

The number of times an engine is not available for physical lock exit or notify exit requests. For more information see item 15 on page 539.

PSET/PART P-LCK NEGOTIATION

The number of times this DB2 was driven to negotiate a partition or page set physical lock due to changing inter-DB2 interest levels on the partition or page set. For more information see item 16 on page 539.

PAGE P-LOCK NEGOTIATION

The number of times this DB2 was driven to negotiate a page physical lock due to physical lock contention within DB2. For more information see item 17 on page 539.

OTHER P-LOCK NEGOTIATION

The number of times this DB2 was driven to negotiate a physical lock type other than page set, partition, or page. For more information see item 18 on page 539.

P-LOCK CHANGE DURING NEG.

The number of times a physical lock change request was issued during physical lock negotiation. For more information see item 19 on page 539.

Global DDF Activity

```
GLOBAL DDF ACTIVITY         QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------  --------  -------  -------  -------
DBAT QUEUED-MAXIMUM ACTIVE      0.00     0.00     0.00      N/A
CONV.DEALLOC-MAX.CONNECTED      0.00     0.00     0.00      N/A
INACTIVE DBATS - CURRENTLY      0.00      N/A      N/A      N/A
INACTIVE DBATS - HWM            0.00      N/A      N/A      N/A
ACTIVE   DBATS - CURRENTLY      0.00      N/A      N/A      N/A
ACTIVE   DBATS - HWM            0.00      N/A      N/A      N/A
TOTAL    DBATS - HWM            0.00      N/A      N/A      N/A
COLD START CONNECTIONS          0.00     0.00     0.00     0.00
WARM START CONNECTIONS          1.00     0.01     0.00     0.00
RESYNCHRONIZATION ATTEMPTED     0.00     0.00     0.00     0.00
RESYNCHRONIZATION SUCCEEDED     0.00     0.00     0.00     0.00
```

Figure 227. Statistics Long Report and Trace - Global DDF Activity

DBAT QUEUED-MAXIMUM ACTIVE
> The number of times a DBAT was queued because the MAX REMOTE ACTIVE value on the DSNTIPE installation panel was reached. For more information see item 1 on page 530.

CONV.DEALLOC-MAX.CONNECTED
> The number of conversations deallocated because the ZPARM limit for concurrently remote active and inactive threads was reached. For more information see item 2 on page 531.

INACTIVE DBATS - CURRENTLY
> The current number of inactive DBATs (snapshot). For more information see item 3 on page 531.

INACTIVE DBATS - HWM
> The maximum number of inactive DBATs (HWM). For more information see item 4 on page 531.

ACTIVE DBATS - CURRENTLY
> The current number of active database access threads (snapshot). For more information see item 9 on page 531.

ACTIVE DBATS - HWM
> The maximum number of active database access threads (HWM). For more information see item 10 on page 531.

TOTAL DBATS - HWM
> The maximum number of active and inactive database access threads (HWM). For more information see item 11 on page 532.

COLD START CONNECTIONS
> The number of cold start connections with all remote locations. For more information see item 5 on page 531.

WARM START CONNECTIONS
> The number of warm start connections with all remote locations. For more information see item 6 on page 531.

RESYNCHRONIZATION ATTEMPTED
> The number of attempted resynchronization connections with remote locations. For more information see item 7 on page 531.

RESYNCHRONIZATION SUCCEEDED

The number of successful resynchronizations with remote locations. For more information see item 8 on page 531.

Query Parallelism

```
QUERY PARALLELISM              QUANTITY
--------------------------     --------
MAX.DEGREE OF PARALLELISM         0.00
PARALLEL GROUPS EXECUTED          0.00
 RAN AS PLANNED                   0.00
 RAN REDUCED                      0.00
 SEQUENTIAL-CURSOR                0.00
 SEQUENTIAL-NO ESA                0.00
 SEQUENTIAL-NO BUFFER             0.00
 SEQUENTIAL-ENCLAVE SER.          0.00
 ONE DB2 - COORDINATOR = NO       0.00
 ONE DB2 - ISOLATION LEVEL        0.00
 REFORM PARAL-CONFIG CHANGED      0.00
 REFORM PARAL-NO BUFFER           0.00
MEMBER SKIPPED (%)                0.00
```

Figure 228. Statistics Long Report and Trace - Query Parallelism

```
QUERY PARALLELISM     QUANTITY
-------------------   --------
MAX DEGREE                0.00
GROUPS EXECUTED           0.00
 RAN AS PLANNED           0.00
 RAN REDUCED              0.00
 FALL TO SEQUENTIAL       0.00
 ONE DB2 COORD P=NO       0.00
 ONE DB2 ISO LVL          0.00
 REFORM PARAL-CONFIG      0.00
 REFORM PARAL-NO BUF      0.00
MEMBER SKIPPED (%)        0.00
```

Figure 229. Statistics Short Report and Trace - Query Parallelism

MAX.DEGREE OF PARALLELISM

The maximum degree of parallel query processing executed among all parallel groups to indicate the extent to which queries were processed in parallel. For more information see item 1 on page 506.

PARALLEL GROUPS EXECUTED

The total number of parallel groups executed. For more information see item 2 on page 506.

RAN AS PLANNED

The total number of parallel groups that executed in the desired parallel degree. For more information see item 8 on page 507.

RAN REDUCED

The total number of parallel groups that did not reach the planned parallel degree due to the shortage of space or contention on the buffer pool. For more information see item 7 on page 507.

SEQUENTIAL-CURSOR

The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE. For more information see item 3 on page 506.

SEQUENTIAL-NO ESA

The total number of parallel groups that fell back to sequential mode due to the lack of ESA sort support. For more information see item 4 on page 506.

SEQUENTIAL-NO BUFFER

The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool. For more information see item 5 on page 506.

SEQUENTIAL-ENCLAVE SER.

The total number of parallel groups that executed in sequential mode due to the unavailability of MVS/ESA enclave services. For more information see item 9 on page 507.

SINGLE DB2 COORD PARM = NO

The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO. For more information see item 10 on page 507.

SINGLE DB2 ISOLATION LEVEL

The total number of parallel groups executed on a single DB2 subsystem due to repeatable-read or read-stability isolation. For more information see item 11 on page 507.

REFORM PARAL-CONFIG CHANGED

The total numer of parallel groups in which DB2 reformulated the parallel portion of the access path. For more information see item 13 on page 507.

REFORM PARAL-NO BUFFER

The number of parallel groups whose parallel portion of the access path was reformulated due to insufficient buffer pool resources. For more information see item 14 on page 508.

MEMBER SKIPPED (%)

The percentage of parallel groups not distributed over the data sharing group. Valid for Sysplex query parallelism only. For more information see item 12 on page 507.

CPU Times

```
CPU TIMES                          TCB TIME        SRB TIME        TOTAL TIME         /THREAD          /COMMIT
-------------------------------  --------------  --------------  --------------  --------------  --------------
SYSTEM SERVICES ADDRESS SPACE       13.266945      1:21.998026     1:35.264971        0.009810        0.006842
DATABASE SERVICES ADDRESS SPACE     18.004036      8:19.823534     8:37.827570        0.053324        0.037192
IRLM                                 0.025114      2:19.401730     2:19.426843        0.014358        0.010014
DDF ADDRESS SPACE                    0.487295        13.813938       14.301233        0.001473        0.001027
TOTAL                               31.783390     12:15.037227    12:46.820617        0.078964        0.055076
```

Figure 230. Statistics Long Report and Trace - CPU Times

Statistics Report Blocks

```
CPU TIMES                            TCB TIME         SRB TIME        TOTAL TIME
------------------------------   --------------   --------------   --------------
SYSTEM SERVICES ADDRESS SPACE         13.266945      1:21.998026      1:35.264971
DATABASE SERVICES ADDRESS SPACE       18.004036      8:19.823534      8:37.827570
IRLM                                   0.025114      2:19.401730      2:19.426843
DDF ADDRESS SPACE                      0.487295        13.813938        14.301233
```

Figure 231. Statistics Short Report and Trace - CPU Times

TCB TIME

SYSTEM SERVICES ADDRESS SPACE
The TCB time for the system services address space. For more information see item 1 on page 539.

DATABASE SERVICES ADDRESS SPACE
The TCB time for the DB2 database services address space. For more information see item 4 on page 539.

IRLM The TCB time for IRLM. For more information see item 7 on page 540.

DDF ADDRESS SPACE
The TCB time for the DDF address space. For more information see item 10 on page 540.

TOTAL
The TCB time for all address spaces. For more information see item 13 on page 540.

SRB TIME

SYSTEM SERVICES ADDRESS SPACE
The SRB time for the system services address space. For more information see item 2 on page 539.

DATABASE SERVICES ADDRESS SPACE
The SRB time for the DB2 database services address space. For more information see item 5 on page 540.

IRLM The SRB time for IRLM. For more information see item 8 on page 540.

DDF ADDRESS SPACE
The SRB time for the DDF address space. For more information see item 11 on page 540.

TOTAL
The SRB time for all address spaces. For more information see item 14 on page 540.

TOTAL TIME

SYSTEM SERVICES ADDRESS SPACE
The total time for the system services address space. For more information see item 3 on page 539.

DATABASE SERVICES ADDRESS SPACE
The total times for the DB2 database services address space. For more information see item 6 on page 540.

IRLM The total time for IRLM. For more information see item 9 on page 540.

DDF ADDRESS SPACE
>The total time for the DDF address space. For more information see item 12 on page 540.

TOTAL
>The total time for all address spaces. For more information see item 15 on page 540.

DB2 API

```
DB2 APPL.PROGR.INTERFACE     QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------   --------  -------  -------  -------
ABENDS                           0.00     0.00     0.00     0.00
UNRECOGNIZED                     0.00     0.00     0.00     0.00
COMMAND REQUESTS                 0.00     0.00     0.00     0.00
READA REQUESTS                   0.00     0.00     0.00     0.00
READS REQUESTS                   0.00     0.00     0.00     0.00
WRITE REQUESTS                   0.00     0.00     0.00     0.00

TOTAL                            0.00     0.00     0.00     0.00
```

Figure 232. Statistics Long Report and Trace - DB2 API

ABENDS
>The number of IFI abnormal terminations. For more information see item 1 on page 548.

UNRECOGNIZED
>The number of calls made to IFI using a function that is not recognized by the interface. For more information see item 2 on page 548.

COMMAND REQUESTS
>The number of calls made to IFI using the COMMAND function. For more information see item 3 on page 548.

READA REQUESTS
>The number of calls made to IFI using the READA function. For more information see item 4 on page 548.

READS REQUESTS
>The number of calls made to IFI using the READS function. For more information see item 5 on page 548.

WRITE REQUESTS
>The number of calls made to IFI using the WRITE function. For more information see item 6 on page 548.

TOTAL
>The total number of calls made to IFI. For more information see item 7 on page 548.

Data Capture

```
DATA CAPTURE                QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------  --------  -------  -------  -------
LOG RECORDS CAPTURED           0.00     0.00     0.00     0.00
LOG READS PERFORMED            0.00     0.00     0.00     0.00
LOG RECORDS RETURNED           0.00     0.00     0.00     0.00
DATA ROWS RETURNED             0.00     0.00     0.00     0.00
DESCRIBES PERFORMED            0.00     0.00     0.00     0.00
DATA DESCRIPTIONS RETURNED     0.00     0.00     0.00     0.00
TABLES RETURNED                0.00     0.00     0.00     0.00
```

Figure 233. Statistics Long Report and Trace - Data Capture

LOG RECORDS CAPTURED
> The number of log records captured. For more information see item 1 on page 550.

LOG READS PERFORMED
> The number of log reads performed. For more information see item 2 on page 550.

LOG RECORDS RETURNED
> The number of log records returned. For more information see item 3 on page 550.

DATA ROWS RETURNED
> The number of data capture data rows returned. For more information see item 4 on page 550.

DESCRIBES PERFORMED
> The number of data capture describes performed. For more information see item 5 on page 550.

DATA DESCRIPTIONS RETURNED
> The number of data descriptions returned. For more information see item 6 on page 550.

TABLES RETURNED
> The number of data capture tables returned. For more information see item 7 on page 550.

Optimization

```
OPTIMIZATION                QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------  --------  -------  -------  -------
PREP_STMT_MATCH               N/A       N/A      N/A      N/A
PREP_STMT_NO_MATCH            N/A       N/A      N/A      N/A
IMPLICIT_PREPARES             N/A       N/A      N/A      N/A
PREP_FROM_CACHE               N/A       N/A      N/A      N/A
CACHE_LIMIT_EXCEED            N/A       N/A      N/A      N/A
PREP_STMT_PURGED              N/A       N/A      N/A      N/A
```

Figure 234. Statistics Long Report and Trace - Optimization

PREP_STMT_MATCH

The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache. For more information see item 22 on page 524.

PREP_STMT_NO_MATCH

The number of times a PREPARE command was received, but a matching statement was not found in the prepared statement cache. For more information see item 23 on page 524.

IMPLICIT_PREPARES

The number of times an implicit prepare was performed. For more information see item 24 on page 524.

PREP_FROM_CACHE

The number of times a prepare was avoided. For more information see item 25 on page 524.

CACHE_LIMIT_EXCEED

The number of times a kept dynamic statement was discarded. For more information see item 26 on page 524.

PREP_STMT_PURGED

The number of times a dynamic cached statement was purged from the cache. For more information see item 27 on page 524.

IFC Destinations

```
IFC DEST.  WRITTEN  NOT WRTN  BUF.OVER  NOT ACCP  WRT.FAIL
---------  --------  --------  --------  --------  --------
SMF        13995.00     0.00      0.00      0.00      0.00
GTF            0.00     0.00       N/A      0.00      0.00
OP1            0.00     0.00       N/A      0.00       N/A
OP2            0.00     0.00       N/A      0.00       N/A
OP3            0.00     0.00       N/A      0.00       N/A
OP4            0.00     0.00       N/A      0.00       N/A
OP5            0.00     0.00       N/A      0.00       N/A
OP6            0.00     0.00       N/A      0.00       N/A
OP7            0.00     0.00       N/A      0.00       N/A
OP8            0.00     0.00       N/A      0.00       N/A
RES            0.00      N/A       N/A       N/A       N/A

TOTAL      13995.00     0.00                0.00      0.00
```

Figure 235. Statistics Long Report and Trace - IFC Destinations

WRITTEN

SMF The total number of SMF records successfully written. For more information see item 1 on page 548.

GTF The total number of GTF records successfully written. For more information see item 6 on page 548.

OP1 The total number of OP1 records successfully written. For more information see item 10 on page 549.

OP2 The total number of OP2 records successfully written. For more information see item 13 on page 549.

Statistics Report Blocks

OP3
The total number of OP3 records successfully written. For more information see item 16 on page 549.

OP4
The total number of OP4 records successfully written. For more information see item 19 on page 549.

OP5
The total number of OP5 records successfully written. For more information see item 22 on page 549.

OP6
The total number of OP6 records successfully written. For more information see item 25 on page 549.

OP7
The total number of OP7 records successfully written. For more information see item 28 on page 549.

OP8
The total number of OP8 records successfully written. For more information see item 31 on page 550.

RES
The total number of RES records successfully written. For more information see item 34 on page 550.

TOTAL
The total number of IFC records successfully written. For more information see item 35 on page 550.

NOT WRTN

SMF
The total number of SMF records not written. For more information see item 2 on page 548.

GTF
The total number of GTF records not written. For more information see item 7 on page 548.

OP1
The total number of OP1 records not written. For more information see item 11 on page 549.

OP2
The total number of OP2 records not written. For more information see item 14 on page 549.

OP3
The total number of OP3 records not written. For more information see item 17 on page 549.

OP4
The total number of OP4 records not written. For more information see item 20 on page 549.

OP5
The total number of OP5 records not written. For more information see item 23 on page 549.

OP6
The total number of OP6 records not written. For more information see item 26 on page 549.

OP7
The total number of OP7 records not written. For more information see item 29 on page 549.

OP8
The total number of OP8 records not written. For more information see item 32 on page 550.

TOTAL
The total number of IFC records not written. For more information see item 36 on page 550.

BUF.OVER

SMF The total number of SMF buffer overruns. For more information see item 4 on page 548.

NOT ACCP

SMF The total number of SMF records not accepted. For more information see item 3 on page 548.

GTF The total number of GTF records not accepted. For more information see item 8 on page 548.

OP1 The total number of OP1 records not accepted. For more information see item 12 on page 549.

OP2 The total number of OP2 records not accepted. For more information see item 15 on page 549.

OP3 The total number of OP3 records not accepted. For more information see item 18 on page 549.

OP4 The total number of OP4 records not accepted. For more information see item 21 on page 549.

OP5 The total number of OP5 records not accepted. For more information see item 24 on page 549.

OP6 The total number of OP6 records not accepted. For more information see item 27 on page 549.

OP7 The total number of OP7 records not accepted. For more information see item 30 on page 550.

OP8 The total number of OP8 records not accepted. For more information see item 33 on page 550.

TOTAL
The total number of IFC records not accepted. For more information see item 37 on page 550.

WRT.FAIL

SMF The total number of SMF write failures. For more information see item 5 on page 548.

GTF The total number of GTF write failures. For more information see item 9 on page 548.

TOTAL
The total number of IFC write failures. For more information see item 38 on page 550.

IFCID Record Counts

```
IFC RECORD COUNTS   WRITTEN  NOT WRTN
-----------------   --------  --------
SYSTEM RELATED          6.00      0.00
DATABASE RELATED        6.00      0.00
ACCOUNTING          13923.00      0.00
START TRACE             0.00      0.00
STOP TRACE              0.00      0.00
SYSTEM PARAMETERS       1.00      0.00
SYS.PARMS-BPOOLS        6.00      0.00
AUDIT                   0.00      0.00
TOTAL               13942.00      0.00
```

Figure 236. Statistics Long Report and Trace - IFCID Record Counts

WRITTEN

SYSTEM RELATED
> The number of system-related records written. For more information see item 1 on page 547.

DATABASE RELATED
> The number of database-related records written. For more information see item 3 on page 547.

ACCOUNTING
> The number of accounting records written. For more information see item 5 on page 547.

START TRACE
> The number of start trace records written. For more information see item 7 on page 547.

STOP TRACE
> The number of stop trace records written. For more information see item 9 on page 547.

SYSTEM PARAMETERS
> The number of DB2 system parameter records written. For more information see item 11 on page 547.

SYS.PARMS-BPOOLS
> The number of DB2 system parameter buffer pool records written. For more information see item 13 on page 547.

AUDIT
> The number of DB2 audit records written. For more information see item 15 on page 547.

TOTAL
> The total number of DB2 records written. For more information see item 17 on page 548.

NOT WRTN

SYSTEM RELATED
> The number of system-related records not written. For more information see item 2 on page 547.

DATABASE RELATED

The number of database-related records not written. For more information see item 4 on page 547.

ACCOUNTING

The number of accounting records not written. For more information see item 6 on page 547.

START TRACE

The number of start trace records not written. For more information see item 8 on page 547.

STOP TRACE

The number of stop trace records not written. For more information see item 10 on page 547.

SYSTEM PARAMETERS

The number of DB2 system parameter records not written. For more information see item 12 on page 547.

SYS.PARMS-BPOOLS

The number of DB2 system parameter buffer pool records not written. For more information see item 14 on page 547.

AUDIT

The number of DB2 audit records not written. For more information see item 16 on page 548.

TOTAL

The total number of DB2 records not written. For more information see item 18 on page 548.

Latch Counters

```
LATCH CNT  QUANTITY  QUANTITY  QUANTITY  QUANTITY
---------  --------  --------  --------  --------
LC01-LC04      0.00      0.00      0.00      0.00
LC05-LC08      0.00      0.00    201.00      0.00
LC09-LC12      0.00     22.00      0.00      0.00
LC13-LC16      0.00  20148.00      0.00      0.00
LC17-LC20      0.00      0.00     29.00      0.00
LC21-LC24      0.00      0.00     61.00   1818.00
LC25-LC28     28.00      0.00      0.00      0.00
LC29-LC32      0.00      6.00    907.00   1148.00
```

Figure 237. Statistics Long Report and Trace - Latch Counters

LC01   First of 32 servicability fields (LC01 through LC32). These fields are internal to DB2. For more information see item 4 on page 551.

Miscellaneous

```
MISCELLANEOUS
--------------------+++++++++
COLUMNS BYPASSED        0.00
MAX SQL CASCAD LEVEL    0.00
MAX STOR LOB VALUES     0.00
```

Figure 238. Statistics Long Report and Trace - Miscellaneous

BYPASS COL

> The total number of columns (rows × columns) for which a select procedure was bypassed because the select procedure was invalidated by applying service to DB2. For more information see item 3 on page 551.

MAX SQL CASCAD LEVEL

> The maximum level of indirect SQL cascading. For more information see item 42 on page 506.

MAX STORAGE LOB VALUE

> Maximum storage used for LOB values. For more information see item 6 on page 551.

Buffer Pool General

```
BP0     GENERAL               QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------    --------  -------  -------  -------
CURRENT ACTIVE BUFFERS          931.10      N/A      N/A      N/A
UNAVAIL.BUFFER-VPOOL FULL          0.00     0.00     0.00     0.00

NUMBER OF DATASET OPENS           24.00     0.14     0.00     0.00

BUFFERS ALLOCATED - VPOOL      15000.00    85.77     1.54     1.08
BUFFERS ALLOCATED - HPOOL          0.00     0.00     0.00     0.00
HPOOL BUFFERS BACKED               0.00     0.00     0.00     0.00

DFHSM MIGRATED DATASET             0.00     0.00     0.00     0.00
DFHSM RECALL TIMEOUTS              0.00     0.00     0.00     0.00
HPOOL EXPANS. OR CONTRACT.         0.00     0.00     0.00     0.00
VPOOL EXPANS. OR CONTRACT.         0.00     0.00     0.00     0.00
VPOOL OR HPOOL EXP.FAILURE         0.00     0.00     0.00     0.00

CONCUR.PREF.I/O STREAMS-HWM        0.00      N/A      N/A      N/A
PREF.I/O STREAMS REDUCTION         0.00     0.00     0.00     0.00
PARALLEL QUERY REQUESTS            0.00     0.00     0.00     0.00
PARALL.QUERY REQ.REDUCTION         0.00     0.00     0.00     0.00
PREF.QUANT.REDUCED TO 1/2          0.00     0.00     0.00     0.00
PREF.QUANT.REDUCED TO 1/4          0.00     0.00     0.00     0.00
```

Figure 239. Statistics Long Report and Trace - Buffer Pool General

```
BP0     GENERAL         QUANTITY
--------------------    --------
BPOOL HIT RATIO (%)      95.72
GETPAGES-SEQ            224.5K
GETPAGES-SEQ.ONLY       133.3K
SYNC.READ-SEQ          1689.00
SYNC.READ-SEQ.ONLY        0.00
SEQ.PREFETCH REQ       16725.00
SEQ.PREFETCH READS     1434.00
PAGES READ-SEQ.PREF.   7584.00
LST.PREFETCH REQUEST      0.00
LST.PREFETCH READS        0.00
PAGES READ-LST.PREF.      0.00
DYN.PREFETCH REQUEST     14.00
DYN.PREFETCH READS       13.00
PAGES READ-DYN.PREF.    339.00
BUFFER UPDATES          203.1K
SYNCHRONOUS WRITES        0.00
ASYNCHRONOUS WRITES      56.00
DATA SET OPENS           24.00
HDW THRESHOLD             0.00
VDW THRESHOLD             0.00
DM THRESHOLD              0.00
```

Figure 240. Statistics Short Report and Trace - Buffer Pool General

CURRENT ACTIVE BUFFERS
> The number of currently active (non-stealable) buffers.

UNAVAIL.BUFFER-VPOOL FULL
> The number of times a usable buffer could not be located in the virtual buffer pool because the virtual buffer pool was full.

NUMBER OF DATASET OPENS
> The number of data sets physically opened successfully.

BUFFERS ALLOCATED - VPOOL
> The number of buffers allocated for a virtual buffer pool.

BUFFERS ALLOCATED - HPOOL
> The number of buffers allocated for a hiperpool.

HPOOL BUFFERS BACKED
> The number of hiperpool buffers currently backed by expanded storage.

DFHSM MIGRATED DATASET
> The number of times migrated data sets were encountered.

DFHSM RECALL TIMEOUTS
> The number of recall timeouts.

VPOOL EXPANS. OR CONTRACT.
> The number of successful virtual buffer pool expansions or contractions due to the ALTER BUFFERPOOL command.

HPOOL EXPANS. OR CONTRACT.
> The number of successful hiperpool expansions or contractions due to the ALTER BUFFERPOOL command.

VPOOL OR HPOOL EXP.FAILURE
> The total number of virtual buffer pool or hiperpool expansion failures due to the lack of virtual storage space.

Statistics Report Blocks

CONCUR.PREF.I/O STREAMS-HWM

The highest number of concurrent prefetch I/O streams allocated to support a parallel I/O or CP query by the buffer pool (HWM).

PREF.I/O STREAMS REDUCTION

The total number of requested prefetch I/O streams denied because of a storage shortage in the buffer pool.

PARALLEL QUERY REQUESTS

The total number of requests made to get support for a parallel query.

PARALL.QUERY REQ.REDUCTION

The total number of requests made to get support for a parallel query, but the parallel query went into reduced or degenerated mode due to buffer pool shortage.

PREF.QUANT.REDUCED TO 1/2

The total number of occurrences when the prefetch quantity is reduced from normal to 50% of normal.

PREF.QUANT.REDUCED TO 1/4

The total number of occurrences when prefetch quantity is reduced to 25% of normal.

Buffer Pool Read Operations

```
BP0    READ OPERATIONS        QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------   --------  -------  -------  -------
BPOOL HIT RATIO (%)             95.72

GETPAGE REQUEST               224.5K   1283.52    23.11    16.12
GETPAGE REQUEST-SEQUENTIAL     133.3K    762.00    13.72     9.57
GETPAGE REQUEST-RANDOM       91205.00    521.52     9.39     6.55

SYNCHRONOUS READS             1689.00      9.66     0.17     0.12
SYNCHRON. READS-SEQUENTIAL       0.00      0.00     0.00     0.00
SYNCHRON. READS-RANDOM        1689.00      9.66     0.17     0.12

GETPAGE PER SYN.READ-RANDOM     54.00

SEQUENTIAL PREFETCH REQUEST  16725.00     95.63     1.72     1.20
SEQUENTIAL PREFETCH READS     1434.00      8.20     0.15     0.10
PAGES READ VIA SEQ.PREFETCH   7584.00     43.37     0.78     0.54
S.PRF.PAGES READ/S.PRF.READ      5.29

LIST PREFETCH REQUESTS           0.00      0.00     0.00     0.00
LIST PREFETCH READS              0.00      0.00     0.00     0.00
PAGES READ VIA LIST PREFTCH      0.00      0.00     0.00     0.00
L.PRF.PAGES READ/L.PRF.READ      N/C

DYNAMIC PREFETCH REQUESTED      14.00      0.08     0.00     0.00
DYNAMIC PREFETCH READS          13.00      0.07     0.00     0.00
PAGES READ VIA DYN.PREFETCH    339.00      1.94     0.03     0.02
D.PRF.PAGES READ/D.PRF.READ     26.08

PREF.DISABLED-NO BUFFER          0.00      0.00     0.00     0.00
PREF.DISABLED-NO READ ENG        0.00      0.00     0.00     0.00

SYNC.HPOOL READ                  0.00      0.00     0.00     0.00
ASYNC.HPOOL READ                 0.00      0.00     0.00     0.00
HPOOL READ FAILED                0.00      0.00     0.00     0.00
ASYN.DA.MOVER HPOOL READ-S       0.00      0.00     0.00     0.00
ASYN.DA.MOVER HPOOL READ-F       0.00      0.00     0.00     0.00

PAGE-INS REQUIRED FOR READ    1217.00      6.96     0.13     0.09
```

Figure 241. Statistics Long Report and Trace - Buffer Pool Read Operations

BPOOL HIT RATIO (%)

The buffer pool hit ratio. For more information see item 24 on page 539.

GETPAGE REQUEST

The number of GETPAGE requests including conditional and unconditional requests. For more information see item 12 on page 509.

GETPAGE REQUEST-SEQUENTIAL

The number of GETPAGE requests issued by sequential access requesters. For more information see item 13 on page 509.

GETPAGE REQUEST-RANDOM

The number of random GETPAGE requests. For more information see item 14 on page 509.

SYNCHRONOUS READS

The number of synchronous read I/O operations. For more information see item 15 on page 509.

Statistics Report Blocks

SYNCHRON. READS-SEQUENTIAL

The number of synchronous read I/O requests issued by sequential access requesters. For more information see item 16 on page 509.

SYNCHRON. READS-RANDOM

The number of random synchronous read I/O requests. For more information see item 17 on page 509.

GETPAGE PER SYN.READ RANDOM

The number of random GETPAGE requests per random synchronous read I/O request. For more information see item 18 on page 509.

SEQUENTIAL PREFETCH REQUEST

The number of sequential prefetch requests. For more information see item 19 on page 509.

SEQUENTIAL PREFETCH READS

The number of normal sequential prefetch reads. For more information see item 20 on page 509.

PAGES READ VIA SEQ.PREFETCH

The number of pages read via normal sequential prefetch. For more information see item 21 on page 509.

S.PRF.PAGES READ/S.PRF.READ

The number of sequential prefetch pages read per sequential prefetch read I/O. For more information see item 22 on page 509.

LIST PREFETCH REQUESTS

The number of list prefetch requests. For more information see item 23 on page 510.

LIST PREFETCH READS

The number of list prefetch reads. For more information see item 24 on page 510.

PAGES READ VIA LIST PREFTCH

The number of pages read via list prefetch. For more information see item 25 on page 510.

L.PRF.PAGES READ/L.PRF.READ

The number of list prefetch pages read per list prefetch read I/O. For more information see item 26 on page 510.

DYNAMIC PREFETCH REQUESTED

The number of dynamic prefetch requests. For more information see item 27 on page 510.

DYNAMIC PREFETCH READS

The number of dynamic prefetch reads. For more information see item 28 on page 510.

PAGES READ VIA DYN.PREFETCH

The number of pages read via dynamic prefetch. For more information see item 29 on page 510.

D.PRF.PAGES READ/D.PRF.READ

The number of dynamic prefetch pages read per dynamic prefetch read I/O. For more information see item 30 on page 510.

PREF.DISABLED-NO BUFFER

The total number of times sequential prefetch was disabled because buffers were not available. For more information see item 31 on page 510.

PREF.DISABLED-NO READ ENG
>   The number of times a sequential prefetch is disabled because of an
>   unavailable read engine. For more information see item 32 on page 510.

SYNC.HPOOL READ
>   The number of successful hiperpool reads. For more information see item
>   34 on page 510.

ASYNC.HPOOL READ
>   The number of pages moved asynchronously from the hiperpool to the
>   virtual buffer pool. For more information see item 35 on page 511.

HPOOL READ FAILED
>   The number of unsuccessful hiperpool reads. For more information see item
>   36 on page 511.

ASYN.DA.MOVER HPOOL READ-S
>   The number of pages moved successfully from hiperpool to virtual pool
>   using the asynchronous data mover facility. For more information see item
>   40 on page 511.

ASYN.DA.MOVER HPOOL READ-F
>   The number of pages for which a read request using the asynchronous
>   data mover facility failed. For more information see item 41 on page 511.

PAGE-INS REQUIRED FOR READ
>   The number of page-ins required for the read I/O. For more information see
>   item 69 on page 515.

Buffer Pool Write Operations

```
BP0     WRITE OPERATIONS      QUANTITY  /MINUTE  /THREAD  /COMMIT
--------------------------    --------  -------  -------  -------
BUFFER UPDATES                 203.1K   1161.12   20.91    14.58
PAGES WRITTEN                  501.00      2.86    0.05     0.04
BUFF.UPDATES/PAGES WRITTEN     405.31

SYNCHRONOUS WRITES               0.00      0.00    0.00     0.00
ASYNCHRONOUS WRITES             56.00      0.32    0.01     0.00

PAGES WRITTEN PER WRITE I/O      8.95

HORIZ.DEF.WRITE THRESHOLD        0.00      0.00    0.00     0.00
VERTI.DEF.WRITE THRESHOLD        0.00      0.00    0.00     0.00
DM THRESHOLD                     0.00      0.00    0.00     0.00
WRITE ENGINE NOT AVAILABLE       0.00      0.00    0.00     0.00
SYNC.HPOOL WRITE                 0.00      0.00    0.00     0.00
ASYNC.HPOOL WRITE                0.00      0.00    0.00     0.00
HPOOL WRITE FAILED               0.00      0.00    0.00     0.00
ASYN.DA.MOVER HPOOL WRITE-S      0.00      0.00    0.00     0.00
ASYN.DA.MOVER HPOOL WRITE-F      0.00      0.00    0.00     0.00
PAGE-INS REQUIRED FOR WRITE      0.00      0.00    0.00     0.00
```

Figure 242. Statistics Long Report and Trace - Buffer Pool Write Operations

BUFFER UPDATES
>   The number of times buffer updates were requested against pages in the
>   buffer pool. For more information see item 44 on page 512.

Statistics Report Blocks

PAGES WRITTEN

The number of pages written. For more information see item 45 on page 512.

BUFF.UPDATES/PAGES WRITTEN

The number of buffer updates per pages written. For more information see item 46 on page 512.

SYNCHRONOUS WRITES

The number of immediate writes. For more information see item 47 on page 512.

ASYNCHRONOUS WRITES

The number of asynchronous writes. For more information see item 48 on page 512.

PAGES WRITTEN PER WRITE I/O

The number of pages written per write I/O operation. For more information see item 49 on page 512.

HORIZ.DEF.WRITE THRESHOLD

The number of times the deferred write threshold (DWTH) was reached. For more information see item 50 on page 513.

VERTI.DEF.WRITE THRESHOLD

The number of times the vertical deferred write threshold was reached. For more information see item 51 on page 513.

DM THRESHOLD

The number of times the data manager threshold was reached. For more information see item 53 on page 513.

WRITE ENGINE NOT AVAILABLE

The number of times a write engine is unavailable for asynchronous write I/O. For more information see item 52 on page 513.

SYNC.HPOOL WRITE

The number of successful hiperpool writes. For more information see item 37 on page 511.

ASYNC.HPOOL WRITE

The number of pages moved asynchronously from the virtual buffer pool to the hiperpool. For more information see item 38 on page 511.

HPOOL WRITE FAILED

The number of unsuccessful hiperpool writes. For more information see item 39 on page 511.

ASYN.DA.MOVER HPOOL WRITE-S

The number of pages successfully moved from virtual buffer pool to the hiperpool using the asynchronous data mover facility. For more information see item 42 on page 512.

ASYN.DA.MOVER HPOOL WRITE-F

The number of pages for which a write request failed using the asynchronous data mover facility. For more information see item 43 on page 512.

PAGE-INS REQUIRED FOR WRITE

The number of page-ins required for a write I/O. For more information see item 70 on page 515.

Buffer Pool Sort/Merge

```
BP0    SORT/MERGE            QUANTITY  /MINUTE  /THREAD  /COMMIT
---------------------------  --------  -------  -------  -------
MAX WORKFILES CONCURR. USED    928.67      N/A      N/A      N/A
MERGE PASSES REQUESTED       12309.00    70.38     1.27     0.88
MERGE PASS DEGRADED-LOW BUF      0.00     0.00     0.00     0.00
WORKFILE REQ.REJCTD-LOW BUF      0.00     0.00     0.00     0.00
WORKFILE REQ-ALL MERGE PASS  24624.00   140.80     2.54     1.77
WORKFILE NOT CREATED-NO BUF      0.00     0.00     0.00     0.00
WORKFILE PRF NOT SCHEDULED       0.00     0.00     0.00     0.00
```

Figure 243. Statistics Long Report and Trace - Buffer Pool Sort/Merge

MAX WORKFILES CONCURR. USED
> The maximum number of work files concurrently used. For more information see item 60 on page 514.

MERGE PASSES REQUESTED
> The number of merge passes requested for DB2 sort activities. For more information see item 61 on page 514.

MERGE PASS DEGRADED-LOW BUF
> The number of times a merge pass could not be efficiently performed due to buffer pool shortage. For more information see item 62 on page 514.

WORKFILE REQ.REJCTD-LOW BUF
> The number of times work file requests were rejected due to buffer pool shortage. For more information see item 63 on page 514.

WORKFILE REQ-ALL MERGE PASS
> The number of work files requested for all merge passes. For more information see item 64 on page 515.

WORKFILE NOT CREATED-NO BUF
> The number of times a work file could not be created during sort processing due to buffer pool shortage. For more information see item 65 on page 515.

WORKFILE PRF NOT SCHEDULED
> The number of times a sequential prefetch was not scheduled because the prefetch quantity was 0. For more information see item 66 on page 515.

Group Buffer Pool Activity

```
GROUP BP0                  QUANTITY  /MINUTE  /THREAD  /COMMIT
-------------------------  --------  -------  -------  -------
SYN.READ(XI)-DATA RETURNED   143.00     0.82     0.01     0.01
SYN.READ(XI)-NO DATA RETURN   79.00     0.45     0.01     0.01
SYN.READ(NF)-DATA RETURNED    21.00     0.12     0.00     0.00
SYN.READ(NF)-NO DATA RETURN   66.00     0.38     0.01     0.00
UNREGISTER PAGE                0.00     0.00     0.00     0.00

CLEAN PAGES SYNC.WRITTEN       0.00     0.00     0.00     0.00
CHANGED PAGES SYNC.WRITTEN    433.00     2.48     0.04     0.03
CLEAN PAGES ASYNC.WRITTEN      0.00     0.00     0.00     0.00
CHANGED PAGES ASYNC.WRITTEN    0.00     0.00     0.00     0.00
REG.PAGE LIST (RPL) REQUEST    0.00     0.00     0.00     0.00
CLEAN PAGES READ AFTER RPL     0.00     0.00     0.00     0.00
CHANGED PGS READ AFTER RPL     0.00     0.00     0.00     0.00
ASYNC.READ-DATA RETURNED       0.00     0.00     0.00     0.00
ASYNC.READ-NO DATA RETURNED    0.00     0.00     0.00     0.00
PAGES CASTOUT                501.00     2.86     0.05     0.04
UNLOCK CASTOUT                 0.00     0.00     0.00     0.00
READ CASTOUT CLASS             0.00     0.00     0.00     0.00
READ CASTOUT STATISTICS        0.00     0.00     0.00     0.00

READ DIRECTORY INFO            0.00     0.00     0.00     0.00
READ STORAGE STATISTICS        0.00     0.00     0.00     0.00
REGISTER PAGE                  0.00     0.00     0.00     0.00
DELETE NAME                    0.00     0.00     0.00     0.00
EXPLICIT X-INVALIDATIONS       0.00     0.00     0.00     0.00

CASTOUT CLASS THRESHOLD        0.00     0.00     0.00     0.00
GROUP BP CASTOUT THRESHOLD     0.00     0.00     0.00     0.00
GBP CHECKPOINTS TRIGGERED      0.00     0.00     0.00     0.00
PARTICIPATION GBP REBUILD      0.00     0.00     0.00     0.00

CASTOUT ENGINE NOT AVAIL.      0.00     0.00     0.00     0.00
WRITE ENGINE NOT AVAILABLE     0.00     0.00     0.00     0.00
READ FAILED-NO STORAGE         0.00     0.00     0.00     0.00
WRITE FAILED-NO STORAGE        0.00     0.00     0.00     0.00

WRITE TO SEC-GBP               0.00     0.00     0.00     0.00
WRITE TO SEC-GBP FAILED        0.00     0.00     0.00     0.00
DELETE NAME LIST SEC-GBP       0.00     0.00     0.00     0.00
DELETE FROM SEC-GBP            0.00     0.00     0.00     0.00
READ CASTOUT STATS SEC-GBP     0.00     0.00     0.00     0.00
```

Figure 244. Statistics Long Report and Trace - Group Buffer Pool Activity

```
GROUP BP0                    QUANTITY
--------------------------   --------
SYN.READ(XI)-DATA RETURNED    143.00
SYN.READ(XI)-NO DATA RETURN    79.00
SYN.READ(NF)-DATA RETURNED     21.00
SYN.READ(NF)-NO DATA RETURN    66.00
CLEAN PAGES SYN.WRTN            0.00
CHANGED PGS SYN.WRTN          433.00
CLEAN PAGES ASYN.WRT           0.00
CHANGED PGS ASYN.WRT           0.00
REG.PG LIST (RPL) RQ           0.00
CLEAN PGS READ RPL             0.00
CHANGED PGS READ RPL           0.00
ASYN.READ-DATA RETURNED        0.00
ASYN.READ-NO DATA RETURNED     0.00
PAGES CASTOUT                 501.00
EXPLICIT X-INVALIDATIONS       0.00
CASTOUT CLASS THRESH           0.00
GROUP BP CAST.THRESH           0.00
CASTOUT ENG.UNAVAIL.           0.00
WRITE ENG.UNAVAIL.             0.00
READ FAILED-NO STOR.           0.00
WRITE FAILED-NO STOR           0.00
```

Figure 245. Statistics Short Report and Trace - Group Buffer Pool Activity

SYN.READS(XI)-DATA RETURNED

The number of synchronous coupling facility read requests because the buffer was marked *invalid*. Data is returned from the group buffer pool. For more information see item 2 on page 516.

SYN.READS(XI)-NO DATA RETURN

The number of requests to read a page from the group buffer pool made because the page was invalidated in the member's buffer pool. The page was not found in the GBP and the page was recovered from DASD. For more information see item 35 on page 521.

SYN.READS(NF)-DATA RETURNED

The number of synchronous coupling facility read requests necessary because the requested page was not found in the buffer pool. Data is returned from the coupling facility. For more information see item 5 on page 517.

SYN.READS(NF)-NO DATA RETURN

The number of requests to read a page from the group buffer pool made because the page was not found in the member's buffer pool. The data was not found in the GBP and the page was retrieved from DASD. For more information see item 36 on page 521.

UNREGISTER PAGE

The number of coupling facility read requests to unregister a page. For more information see item 34 on page 521.

CLEAN PAGES SYNC.WRITTEN

The number of clean pages synchronously written to the group buffer pool. For more information see item 11 on page 518.

CHANGED PAGES SYNC.WRITTEN

The number of changed pages synchronously written to the group buffer pool. For more information see item 12 on page 518.

Statistics Report Blocks

CLEAN PAGES ASYNC.WRITTEN

The number of clean pages asynchronously written to the group buffer pool. For more information see item 13 on page 518.

CHANGED PAGES ASYNC.WRITTEN

The number of changed pages asynchronously written to the group buffer pool. For more information see item 14 on page 518.

PAGES CASTOUT

The number of pages cast out. For more information see item 15 on page 518.

UNLOCK CASTOUT

The number of times DB2 issues an unlock request to the coupling facility for castout I/Os that have completed. For more information see item 28 on page 519.

READ CASTOUT CLASS

The number of requests to the group buffer pool to determine which pages are cached as changed and thus must be cast out. For more information see item 29 on page 519.

READ CASTOUT STATISTICS

The number of requests issued by the group buffer pool structure owner when the GBPOOLT threshold is reached to determine which castout classes have changed pages. For more information see item 30 on page 520.

READ DIRECTORY INFO

The number of requests to read the directory entries of all changed pages in the group buffer pool. For more information see item 32 on page 520.

READ STORAGE STATISTICS

The number of times DB2 requested statistics information from the group buffer pool. For more information see item 25 on page 519.

REGISTER PAGE

The number of coupling facility read requests to register a page. For more information see item 33 on page 520.

DELETE NAME

The number of times DB2 issued a request to the group buffer pool to delete directory and data entries associated with a given page set or partition. For more information see item 31 on page 520.

EXPLICIT CROSS-INVALIDATIONS

The number of explicit cross invalidations. For more information see item 38 on page 521.

CASTOUT CLASS THRESHOLD

The number of times a group buffer pool castout was initiated because the class castout threshold was detected. For more information see item 16 on page 518.

GROUP BP CASTOUT THRESHOLD

The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected. For more information see item 17 on page 518.

GBP CHECKPOINTS TRIGGERED

The number of group buffer pool checkpoints triggered by this member. For more information see item 26 on page 519.

PARTICIPATION IN GBP REBUILD
> The number of group buffer pool rebuilds in which this member participated. For Group-scope reports and traces, N/A is printed. For more information see item 27 on page 519.

CASTOUT ENGINE NOT AVAIL.
> The number of times the castout engine was not available. For more information see item 18 on page 518.

WRITE ENGINE NOT AVAILABLE
> The number of times a coupling facility write engine was not available for coupling facility writes. For more information see item 19 on page 518.

READ FAILED-NO STORAGE
> The number of coupling facility read requests that could not complete due to a lack of coupling facility storage resources. For more information see item 20 on page 518.

WRITE FAILED-NO STORAGE
> The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources. For more information see item 21 on page 518.

WRITE TO SEC-GBP
> The number of coupling facility requests to write changed pages to the secondary group buffer pool for duplexing. For more information see item 39 on page 521.

WRITE TO SEC-GBP FAILED
> The number of times a request to write to the secondary buffer pool failed. For more information see item 40 on page 521.

DELETE NAME LIST SEC-GBP
> The number of DELETE NAME LIST requests to delete pages from the secondary group buffer pool that have just been cast out from the primary. For more information see item 42 on page 521.

DELETE NAME FROM SEC-GBP
> The number of requests to delete a page from the secondary group buffer pool. For more information see item 43 on page 521.

READ CASTOUT STATS SEC-GBP
> The number of requests to read castout statistics for the secondary group buffer pool. For more information see item 44 on page 521.

DRDA Remote Locs

```
DRDA REMOTE LOCS                SENT   RECEIVED
--------------------------    --------  --------
TRANSACTIONS                   1401.00      0.00
CONVERSATIONS                  1401.00      0.00
CONVERSATIONS QUEUED              0.00
SQL STATEMENTS                 4892.00      0.00
SINGLE PHASE COMMITS              0.00      0.00
SINGLE PHASE ROLLBACKS            0.00      0.00
ROWS                              0.00   6291.00
MESSAGES                       7696.00   6295.00
BYTES                          1260.3K    706.1K
BLOCKS                            0.00    250.00
MESSAGES IN BUFFER             1955.00
CONT->LIM.BLOCK FETCH SWTCH       0.00
STATEMENTS BOUND AT SERVER        0.00

PREPARE REQUEST                1401.00      0.00
LAST AGENT REQUEST                0.00      0.00
TWO PHASE COMMIT REQUEST       1401.00      0.00
TWO PHASE BACKOUT REQUEST         0.00      0.00
FORGET RESPONSES                  0.00      0.00
COMMIT RESPONSES                  0.00   1401.00
BACKOUT RESPONSES                 0.00      0.00
THREAD INDOUBT-REM.L.COORD.       0.00
COMMITS DONE-REM.LOC.COORD.       0.00
BACKOUTS DONE-REM.L.COORD.        0.00
```

Figure 246. Statistics Long Report and Trace - DRDA Remote Locs

REMOTE LOCATION	TRN SENT TRN RECV	CON SENT CON RECV	CON QUE SYS BIND	SQL SENT SQL RECV	COM SENT COM RECV	RBK SENT RBK RECV	ROW SENT ROW RECV	MSG SENT MSG RECV	BYT SENT BYT RECV	LIM BLK MSG BUF	BLK SENT BLK RECV
DRDA REMOTE LOCS	1401.00 0.00	1401.00 0.00	0.00 0.00	4892.00 0.00	1401.00 0.00	0.00 0.00	0.00 6291.00	7696.00 6295.00	1260.3K 706.1K	0.00 1955.00	0.00 250.00

Figure 247. Statistics Short Report and Trace - DRDA Remote Locs

SENT

TRANSACTIONS

The number of DBAT allocation requests sent to the remote location. For more information see item 2 on page 532.

CONVERSATIONS

The number of conversations initiated from the requester location. For more information see item 4 on page 532.

CONVERSATIONS QUEUED

The number of conversations queued. For more information see item 6 on page 532.

SQL STATEMENTS

The number of SQL statements sent to the remote server. For more information see item 8 on page 532.

SINGLE PHASE COMMITS

The number of commit requests sent to the server location (single-phase commit operations only). For more information see item 10 on page 532.

SINGLE PHASE ROLLBACKS
>> The number of rollback requests sent to the server location (single-phase commit operations only). For more information see item 12 on page 533.

ROWS
>> The number of data rows sent to the requester location (includes SQLDA). For more information see item 14 on page 533.

MESSAGES
>> The number of messages sent to the remote location. For more information see item 16 on page 533.

BYTES
>> The number of bytes of data sent to the requester location. For more information see item 18 on page 533.

BLOCKS
>> The number of blocks transmitted using block fetch. For more information see item 22 on page 534.

MESSAGES IN BUFFER
>> The number of rows in the message buffer if block fetch is used. For more information see item 21 on page 534.

CONT->LIM.BLOCK FETCH SWTCH
>> The number of times a switch was made from continuous to limited block fetch (system-directed access only). For more information see item 20 on page 534.

STATEMENTS BOUND AT SERVER
>> The number of SQL statements sent to a system-directed access server for a bind. For more information see item 7 on page 532.

PREPARE REQUEST
>> The number of prepare requests sent to the participant (two-phase commit operations only). For more information see item 24 on page 534.

LAST AGENT REQUEST
>> The number of last agent requests sent to the coordinator (two-phase commit operations only). For more information see item 26 on page 534.

TWO PHASE COMMIT REQUEST
>> The number of commit requests sent to the participant (two-phase commit operations only). For more information see item 28 on page 534.

TWO PHASE BACKOUT REQUEST
>> The number of backout requests sent to the participant (two-phase commit operations only). For more information see item 30 on page 534.

FORGET RESPONSES
>> The number of forget responses sent to the coordinator (two-phase commit operations only). For more information see item 32 on page 535.

COMMIT RESPONSES
>> The number of request commit responses sent to the coordinator (two-phase commit operations only). For more information see item 34 on page 535.

BACKOUT RESPONSES
>> The number of backout responses sent to the coordinator (two-phase commit operations only). For more information see item 36 on page 535.

THREAD INDOUBT-REM.L.COORD

The number of threads that became indoubt with the remote location as coordinator (two-phase commit operations only). For more information see item 38 on page 535.

COMMITS DONE-REM.LOC.COORD.

The number of commit operations performed with the remote location as coordinator (two-phase commit operations only). For more information see item 39 on page 535.

BACKOUTS DONE-REM.L.COORD.

The number of backout operations performed with the remote location as coordinator (two-phase commit operations only). For more information see item 40 on page 535.

RECEIVED

TRANSACTIONS

The number of DBAT allocation requests received from the remote location. For more information see item 3 on page 532.

CONVERSATIONS

The number of conversations initiated to the server by the requester. For more information see item 5 on page 532.

SQL STATEMENTS

The number of SQL statements received from the remote location. For more information see item 9 on page 532.

SINGLE PHASE COMMITS

The number of commit requests received from the requester location (single-phase commit operations only). For more information see item 11 on page 533.

SINGLE PHASE ROLLBACKS

The number of rollback requests received from the requester location (single-phase commit operations only). For more information see item 13 on page 533.

ROWS

The number of data rows received from the server location. For more information see item 15 on page 533.

MESSAGES

The number of messages received from the remote location. For more information see item 17 on page 533.

BYTES

The number of bytes of data received from the server location. For more information see item 19 on page 534.

BLOCKS

The number of blocks received using block fetch. For more information see item 23 on page 534.

PREPARE REQUEST

The number of prepare requests received from the coordinator (two-phase commit operations only). For more information see item 25 on page 534.

LAST AGENT REQUEST

The number of last agent requests received from the initiator (two-phase commit operations only). For more information see item 27 on page 534.

TWO PHASE COMMIT REQUEST

> The number of commit requests received from the coordinator (two-phase commit operations only). For more information see item 29 on page 534.

TWO PHASE BACKOUT REQUEST

> The number of backout requests received from the coordinator (two-phase commit operations only). For more information see item 31 on page 534.

FORGET RESPONSES

> The number of forget responses received from the participant (two-phase commit operations only). For more information see item 33 on page 535.

COMMIT RESPONSES

> The number of request commit responses received from the participant (two-phase commit operations only). For more information see item 35 on page 535.

BACKOUT RESPONSES

> The number of backout responses received from the participant (two-phase commit operations only). For more information see item 37 on page 535.

Statistics Report Blocks

Chapter 35. Statistics Report and Trace Fields

Table 44. Highlights

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	SDBEGREC	The start time of the period represented by this report or trace entry. For a trace, it is the timestamp of the DB2 statistics records pair which marks the beginning of the delta record represented by the trace entry. For the group page of group-scope reports it is the beginning of the earliest interval across reported members.			●	●	●
2	SDENDREC	The end time of the period represented by this report or trace entry. For a trace, it is the timestamp of the DB2 statistics records pair which marks the end of the delta record represented by the trace entry. For the group page of group-scope reports it is the ending of the latest interval across reported members.			●	●	●
3	SDELTIME	The elapsed time of the period represented by this report or trace entry. For a trace, it is the time elapsed between two consecutive DB2 statistics records pairs which mark the beginning and the end of the delta record represented by the trace entry. For a report, it is the elapsed time for the period within the interval record for which the DB2 statistics data is available. For the group page of group-scope reports it is the average elapsed time of all the reported members.			●	●	●
4	SDCOMMIT	The total number of commits during the interval covered by the report or trace. This includes commit, read-only commit, sync, and rollback events. DBATs executed on this location are not included.		●	●	●	●
5	QXINCRB	The number of incremental binds (excluding prepare). It is incremented by • SQL statements with BIND VALIDATE(RUN) that fail at bind time and are bound again at execution time, • static DDL statements (CREATE TABLE and DROP TABLE, or LOCK TABLE statements, for example) that use DB2 private protocol.	●	●	●	●	●

Table 44. Highlights (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
6	SDSAMPST	The timestamp of the first DB2 statistics records pair used to derive a report entry (an interval record). For example, when INTERVAL(0) is specified, the sampling start coincides with the interval record start time in member-scope reports.			●	●	●
7	SDSAMPEN	The timestamp of the last DB2 statistics records pair used to derive a report entry (an interval record). For example, when INTERVAL(0)is specified, the sampling start coincides with the interval record end time in member-scope reports.			●	●	●
8	SDOUTEL	The time for which DB2 PM detected discontinuity in the available DB2 statistics data. The most common reason for this is a stop or start of the reported DB2 system within the reported interval. For the group page of group-scope reports it is the average outage time of all reported members.			●	●	●
9	QWHAMEMN	In group-scope reports, this field shows the name of the member for which statistics is presented, and, on the group total page, the number of DB2 subsystems in the reported data sharing group. In member-scope reports, this field shows N/A.			●	●	●

Table 45. SQL DML

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QXSELECT	The number of SQL SELECT statements executed.		●	●	●	●
2	QXINSRT	The number of INSERT statements executed.		●	●	●	●
3	QXUPDTE	The number of UPDATE statements executed.		●	●	●	●
4	QXDELET	The number of DELETE statements executed.		●	●	●	●
5	QXPREP	The number of SQL PREPARE statements executed. This number at the server location might not match the user application because of DDF's internal processing.		●	●	●	●
6	QXDESC	The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the user application because of DDF's internal processing.		●	●	●	●
7	QXDSCRTB	The number of DESCRIBE TABLE statements executed.		●	●	●	●
8	QXOPEN	The number of OPEN statements executed.		●	●	●	●
9	QXCLOSE	The number of CLOSE statements executed. This number at the server location might not match the user application because of DDF's internal processing.		●	●	●	●

Table 45. SQL DML (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
10	QXFETCH	The number of FETCH statements executed. This number at the server location might not match the user application because of DDF's internal processing.		●	●	●	●
11	SSCDML	The total number of SQL DML statements executed.	●		●	●	●
Note: All fields can be qualified by minute, thread, and commit.							

Table 46. SQL DCL

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QXLOCK	The number of LOCK TABLE statements executed.		●	●	●	●
2	QXGRANT	The number of GRANT statements executed.		●	●	●	●
3	QXREVOK	The number of REVOKE statements executed.		●	●	●	●
4	QXSETSQL	The number of SET CURRENT SQLID statements executed.		●	●	●	●
5	QXSETHV	The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked.			●	●	●
6	QXSETCDG	The number of SET CURRENT DEGREE statements executed.			●	●	●
7	QXSETCRL	The number of SET CURRENT RULES statements executed.			●	●	●
8	QXSETPTH	The number of SET CURRENT PATH statements executed.					●
9	QXCON1	The number of CONNECT type 1 statements executed.			●	●	●
10	QXCON2	The number of CONNECT type 2 statements executed.			●	●	●
11	QXSETCON	The number of SET CONNECTION statements executed.			●	●	●
12	QXREL	The number of RELEASE statements executed.			●	●	●
13	QXALOCL	The number of SQL ASSOCIATE LOCATORS statements executed. This field shows N/A for data produced by releases prior to DB2 Version 6.				●	●
14	QXALOCC	The number of SQL ALLOCATE CURSOR statements executed. This field shows N/A for data produced by releases prior to DB2 Version 6.				●	●
15	QXHLDLOC	The number of HOLD LOCATOR statements executed.					●
16	QXFRELOC	The number of times a FREE LOCATOR statement was issued.					●

Table 46. SQL DCL (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
17	SSCDCL	The total number of DCL statements executed. The exception field name is SSCDCL.	●		●	●	●

Note: All fields can be qualified by minute, thread, and commit.

Table 47. SQL DDL

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QXCRTAB	The number of CREATE TABLE statements executed.		●	●	●	●
2	QXCRINX	The number of CREATE INDEX statements executed.		●	●	●	●
3	QXDEFVU	The number of CREATE VIEW statements executed.		●	●	●	●
4	QXCRSYN	The number of CREATE SYNONYM statements executed.		●	●	●	●
5	QXCTABS	The number of CREATE TABLESPACE statements executed.		●	●	●	●
6	QXCRDAB	The number of CREATE DATABASE statements executed.		●	●	●	●
7	QXCRSTG	The number of CREATE STOGROUP statements executed.		●	●	●	●
8	QXCRALS	The number of CREATE ALIAS statements executed.		●	●	●	●
9	QXALTTA	The number of ALTER TABLE statements executed.		●	●	●	●
10	QXALTIX	The number of ALTER INDEX statements executed.		●	●	●	●
11	QXALTTS	The number of ALTER TABLESPACE statements executed.		●	●	●	●
12	QXALDAB	The number of ALTER DATABASE statements executed.		●	●	●	●
13	QXALTST	The number of ALTER STOGROUP statements executed.		●	●	●	●
14	QXDRPTA	The number of DROP TABLE statements executed.		●	●	●	●
15	QXDRPIX	The number of DROP INDEX statements executed.		●	●	●	●
16	QXDRPVU	The number of DROP VIEW statements executed.		●	●	●	●
17	QXDRPSY	The number of DROP SYNONYM statements executed.		●	●	●	●
18	QXDRPTS	The number of DROP TABLESPACE statements executed.		●	●	●	●
19	QXDRPDB	The number of DROP DATABASE statements executed.		●	●	●	●

Table 47. SQL DDL (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
20	QXDRPST	The number of DROP STOGROUP statements executed.		●	●	●	●
21	QXDRPAL	The number of DROP ALIAS statements executed.		●	●	●	●
22	QXDRPPKG	The number of DROP PACKAGE statements executed.		●	●	●	●
23	QXCMTON	The number of COMMENT ON statements executed.		●	●	●	●
24	QXLABON	The number of LABEL ON statements executed.		●	●	●	●
25	SDTOTCRT	The total number of CREATE statements executed.		●	●	●	●
26	SDTOTDRP	The total number of DROP statements executed.		●	●	●	●
27	SDTOTALT	The total number of ALTER statements executed.		●	●	●	●
28	SSCDDL	The total number of DDL statements executed, including the number of RENAME TABLE statements.	●	●	●	●	●
29	QXCRGTT	The number of CREATE GLOBAL TEMPORARY TABLE statements executed.				●	●
30	QXRNTAB	The number of RENAME TABLE statements executed. This field shows N/A if the DB2 level is less than Version 5.				●	●
31	QXCDIST	The number of CREATE DISTINCT TYPE statements executed.					●
32	QXDDIST	The number of DROP DISTINCT TYPE statements executed.					●
33	QXCRUDF	The number of CREATE FUNCTION statements executed.					●
34	QXDRPFN	The number of DROP FUNCTION statements executed.					●
35	QXCRPRO	The number of CREATE PROCEDURE statements issued.					●
36	QXDRPPR	The number of DROP PROCEDURE statements executed.					●
37	QXALPRO	The number of ALTER PROCEDURE statements executed.					●
38	QXCTRIG	The number of CREATE TRIGGER statements executed.					●
39	QXDRPTR	The number of DROP TRIGGER statements executed.					●
40	QXCRATB	The number of CREATE AUXILLIARY TABLE staements executed.					●
41	QXALUDF	The number of ALTER FUNCTION statements executed.					●

Table 47. SQL DDL (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
42	QXCASCDP	The maximum level of indirect SQL cascading. This includes cascading due to triggers UDFs or stored procedures.	●				●
Note: All fields can be qualified by minute, thread, and commit.							

Table 48. Stored procedures

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QXCALL	The number of SQL CALL statements executed.			●	●	●
2	QXCALLAB	The number of times a stored procedure terminated abnormally.	●	●	●	●	●
3	QXCALLTO	The number of times an SQL call timed out waiting to be scheduled.	●	●	●	●	●
4	QXCALLRJ	The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.	●	●	●	●	●
5	QXSTTRG	The number of times a statement trigger was activated.					●
6	QXROWTRG	The number of times a row trigger was activated.					●
7	QXTRGERR	The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.	●				●

Table 49. Query Parallelism

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QXMAXDEG	The maximum degree of parallel query processing executed among all parallel groups to indicate the extent to which queries were processed in parallel.		●	●	●	●
2	QXTOTGRP	The total number of parallel groups executed.		●	●	●	●
3	QXDEGCUR	The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.	●	●	●	●	●
4	QXDEGESA	The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort support.	●	●	●	●	●
5	QXDEGBUF	The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool. The exception field name is QXDEGBUF.	●	●	●	●	●

Table 49. Query Parallelism (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
6	SDTOTPFL	The total number of parallel groups that fall back to sequential mode due to any of the following reasons: • The cursor can be used by UPDATE or DELETE. • Lack of ESA sort support. • Lack of storage space or contention on the buffer pool. • Unavailability of MVS/ESA enclave services.	●	●	●	●	●
7	QXREDGRP	The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool. The exception field name is QXREDGRP.	●	●	●	●	●
8	QXNORGRP	The total number of parallel groups that executed in the planned parallel degree. This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).		●	●	●	●
9	QXDEGENC	The total number of parallel groups that executed in sequential mode due to the unavailability of MVS/ESA enclave services.	●	●	●	●	●
10	QXCOORNO	The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.				●	●
11	QXISORR	The total number of parallel groups executed on a single DB2 subsystem due to repeatable-read or read-stability isolation.				●	●
12	SXXCRAT	The percentage of parallel groups that were not distributed over the data sharing group because one or more DB2 members did not have enough buffer pool storage. This only applies to parallel groups that were intended to run in Sysplex query parallelism.				●	●
13	QXREPOP1	The total number of parallel groups where DB2 reformulated the parallel potion of the access path because because of a change in the number of active members, or because of a change of processor models on which they run, from bind time to run time. This counter is incremented only on the parallelism coordinator at run time.					●

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
14	QXREPOP2	The total number of parallel groups in which DB2 reformulated the parallel portion of the access path because there were insufficient buffer-pool resources. This counter is incremented only on the parallelism coordinator at run time.					●

Note: All fields except high-water mark fields can be qualified by minute, thread, and commit.

Table 50. Buffer Pool Activity

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QBSTPID	Identifies the buffer pool to which the information in this section refers: • Values 0 through 49 are identifiers for BP0 through BP49. • Values 80 through 89 are identifiers for BP32K through BP32K9. • Values 100 through 109 are identifiers for BP8K through BP8K9. • Values 120 through 129 are identifiers for BP16K through BP16K9.			●	●	●
2	QBSTCBA	The total number of currently active (nonstealable) buffers. This field is an instantaneous sample of the number of buffers in the buffer pool that were updated or in use at the time this monitor data was requested. Because this field gives a snapshot value at statistics collection time, it only shows a problem if it happens at this time.	●		●	●	●
3	QBSTXFL	The number of times a usable buffer could not be located in the virtual buffer pool because the virtual buffer pool was full.	●	●	●	●	●
4	QBSTXFV	The total number of virtual buffer pool or hiperpool expansion failures due to the lack of virtual storage space.	●	●	●	●	●
5	QBSTDSO	The number of data sets physically opened successfully. This value is cumulative from the start of the DB2 statistics interval.	●	●	●	●	●
6	QBSTMIG	The number of times migrated data sets were encountered.	●	●	●	●	●
7	QBSTRTO	The number of recall timeouts.	●	●	●	●	●
8	QBSTVPL	The number of buffers allocated for a virtual buffer pool. The number of buffers within each pool is always less than or equal to the corresponding value specified at installation time or when using the ALTER BUFFERPOOL command.		●	●	●	●
9	QBSTHPL	The number of buffers allocated for a hiperpool.		●	●	●	●

Table 50. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
10	QBSTVPA	The number of successful virtual buffer pool expansions or contractions due to the ALTER BUFFERPOOL command. An increase in this counter indicates that buffer-pool-related system parameters have been changed.	●	●	●	●	●
11	QBSTHPA	The number of successful hiperpool expansions or contractions due to the ALTER BUFFERPOOL command.	●	●	●	●	●
12	QBSTGET	This counter is incremented for: • each successful or unsuccessful page request, where the query is not processed in parallel. • each successful page request, where the query is processed in parallel. Unsuccessful page requests for queries processed in parallel are reported in the Unsuccessful Page Requests field.		●	●	●	●
13	QBSTSGT	The number of GETPAGE requests issued by sequential access requesters.		●	●	●	●
14	SDGETRAN	The number of random GETPAGE requests.		●	●	●	●
15	QBSTRIO	The number of synchronous read I/O operations performed by DB2 for applications and utilities.	●	●	●	●	●
16	QBSTSIO	The number of synchronous read I/O requests issued by sequential access requesters.	●	●	●	●	●
17	SDSTRAN	The number of random synchronous read I/O requests.	●	●	●	●	●
18	SBRGPRIO	The number of random GETPAGE requests per random synchronous read I/O request.			●	●	●
19	QBSTSEQ	The number of sequential prefetch requests. This counter is incremented for each PREFETCH request (which can result in an I/O read). If it results in an I/O read, up to 32 pages may be read for SQL, and up to 64 pages for utilities. A request does not result in an I/O read if all pages to be prefetched are already in the buffer pool. Sequential detection is not included in QBSTSEQ but is separately recorded in the Dynamic Prefetch - Requested field.	●	●	●	●	●
20	QBSTPIO	The number of asynchronous read I/O operations due to normal sequential prefetch (applications and utilities).	●	●	●	●	●
21	QBSTSPP	The total number of pages read due to a normal sequential prefetch. A sequential prefetch request does not result in a read I/O if all the desired pages are found in the buffer pool.	●	●	●	●	●
22	SBRPPRIO	The number of sequential prefetch pages read per sequential prefetch read I/O operation.			●	●	●

Table 50. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
23	QBSTLPF	The number of list sequential prefetch requests. List sequential prefetch allows DB2 to access data pages efficiently even when the required data pages are not contiguous. It allows CP and I/O operations to be overlapped.	●	●	●	●	●
24	QBSTLIO	The number of asynchronous read I/O operations caused by the list sequential prefetch. The number of pages read is recorded in the List Prefetch Pages Read field.	●	●	●	●	●
25	QBSTLPP	The number of pages read due to a list prefetch. A list sequential prefetch request does not result in a read I/O if all the desired pages are found in the buffer pool.	●	●	●	●	●
26	SDLPPPIO	The number of list prefetch pages read per list prefetch read I/O.			●	●	●
27	QBSTDPF	The number of dynamic prefetch requests. Dynamic prefetch is the process that is triggered because of sequential detection. If the prefetch request results in an I/O read, up to 32 advancing pages may be read at a time.	●	●	●	●	●
28	QBSTDIO	The number of asynchronous read I/Os because of dynamic prefetch. The number of pages read is recorded in the Dynamic Prefetch Pages Read field.	●	●	●	●	●
29	QBSTDPP	The number of pages read because of dynamic prefetch. Dynamic prefetch is the process that is triggered because of sequential detection.	●	●	●	●	●
30	SDDPPPIO	The number of dynamic prefetch pages read per dynamic prefetch read I/O.			●	●	●
31	QBSTSPD	The total number of times sequential prefetch was disabled or canceled because buffers were not available. This is the number of times the sequential prefetch threshold (StrH) is reached. Ideally, this value should be 0.	●	●	●	●	●
32	QBSTREE	The total number of times a sequential prefetch is disabled because of an unavailable read engine.	●	●	●	●	●
33	QBSTHBE	The number of hiperpool buffers which are currently backed by expanded storage. For CASTOUT=YES hiperpools, this number can include non-backed buffers if the backing-expanded storage frames were stolen and DB2 has not subsequently attempted to access the buffers.		●	●	●	●
34	QBSTHRE	The number of successful synchronous requests to move a page from a hiperpool to a virtual buffer pool. In case of a page access request, DB2 moves a page from a hiperpool to a virtual buffer pool (if the page is found in the hiperpool).		●	●	●	●

Table 50. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
35	QBSTHRA	The number of pages moved asynchronously from the hiperpool to the virtual buffer pool. Asynchronous movements occur under the control of an asynchronous DB2 system task such as sequential prefetch. This count does not include pages moved by the asynchronous data mover facility.		●	●	●	●
36	QBSTHRF	The number of pages for which a synchronous or asynchronous read request failed because the backing-expanded storage page was stolen by the system. This count does not include pages moved by the asynchronous data mover facility (ADMF).	●	●	●	●	●
37	QBSTHWR	The number of successful requests issued by DB2 to synchronously move a page from the virtual buffer pool to the hiperpool. That is, the number of times that pages are cached in the hiperpool. Before reusing a buffer in a virtual pool for a page request, its old content must be saved in a hiperpool if it is a candidate for hiperpool caching (this does not include data accessed by parallel queries).		●	●	●	●
38	QBSTHWA	The number of pages moved asynchronously from the virtual buffer pool to the hiperpool. Asynchronous movements occur under the control of an asynchronous DB2 system task such as sequential prefetch. This count does not include pages moved by the asynchronous data mover facility.		●	●	●	●
39	QBSTHWF	The number of pages for which a synchronous or asynchronous write request failed due to a shortage of expanded storage. That is, no backing-expanded storage page could be allocated. This count does not include pages moved by the asynchronous data mover facility (ADMF).	●	●	●	●	●
40	QBSTARA	The number of pages moved successfully from the hiperpool to the virtual buffer pool using the asynchronous data mover facility (ADMF). This type of page movement is only performed by asynchronous DB2 system tasks such as sequential prefetch.		●	●	●	●
41	QBSTARF	The number of pages for which a read request, using the asynchronous data mover facility (ADMF), failed because the backing-expanded storage was stolen by the system.	●	●	●	●	●

Table 50. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
42	QBSTAWA	The number of pages moved successfully from the virtual buffer pool to the hiperpool using the asynchronous data mover facility. This type of page movement is performed only by asynchronous DB2 system tasks such as sequential prefetch.		●	●	●	●
43	QBSTAWF	The number of pages for which a write request, using asynchronous mover facility, failed due to the backing-expanded storage being stolen or some other error.	●	●	●	●	●
44	QBSTSWS	The number of times buffer updates were requested against pages in the buffer pool.	●	●	●	●	●
45	QBSTPWS	The number of pages in the buffer pool written to DASD.	●	●	●	●	●
46	SBRBUPW	The number of buffer updates per page written from the buffer pool to DASD. The ratio of BUFFER UPDATES (QBSTSWS) to PAGES WRITTEN (QBSTPWS) suggests a high level of efficiency as the ratio increases, because more updates are being externalized per physical write. For example, if there are 10 updates on the same page before it is externalized, then the ratio is 10:1 or 10. If all 10 updates are on 10 distinct pages, then the ratio is 10:10 or 1.			●	●	●
47	QBSTIMW	The total number of immediate writes. Immediate writes occur when: • An immediate write threshold is reached • No deferred write engines are available • More than two checkpoints pass without a page being written. Immediate writes are a type of synchronous write, but not the only one. Sometimes DB2 uses synchronous writes even when the IWTH is not exceeded. As an example, when more than two checkpoints pass without a page being written. This type of situation does not indicate a buffer shortage.	●	●	●	●	●
48	QBSTWIO	The number of asynchronous write I/O operations performed by media manager to a direct access storage device.	●	●	●	●	●
49	SBRPWWIO	The number of pages written from the buffer pool to DASD per synchronous or asynchronous write I/O. This count does not include preformatting I/O, such as I/O needed to prepare a data set for use.			●	●	●

Table 50. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
50	QBSTDWT	The number of times the deferred write threshold (DWTH) was reached. This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (at up to 128 pages per data set) to decrease the number of unavailable buffers to 10% below the threshold.	●	●	●	●	●
51	QBSTDWV	The number of times the vertical deferred write threshold was reached. This threshold is expressed as a percentage of the virtual buffer pool that may be occupied by updated pages from a single data set. This threshold is checked whenever an update to a page is completed. If the percentage of updated pages for the data set exceeds the threshold, writes are scheduled for that data set.	●	●	●	●	●
52	QBSTWEE	The number of times a write engine is unavailable for asynchronous write I/O.	●	●	●	●	●
53	QBSTDMC	The number of times the data manager critical threshold (DMTH-95%) was reached. This field shows how many times a page was immediately released because the data management threshold was reached. The threshold is checked before a page is read or updated. If the threshold has not been exceeded, DB2 accesses the page in the virtual buffer pool once for each page, no matter how many rows are retrieved or updated in that page. If the threshold has been exceeded, GETPAGE requests and RELEASEs apply to rows instead of pages. That is, when more than one row is retrieved or updated in a page, more than one GETPAGE request and RELEASE is performed on that page.	●	●	●	●	●
54	QBSTXIS	The highest number of concurrent prefetch I/O streams allocated to support a parallel I/O or CP query in this buffer pool. It reflects prefetch activities for non-work-file page sets. This number only applies to query I/O and CP parallelism.	●	●	●	●	●

Table 50. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
55	QBSTJIS	The total number of requested prefetch I/O streams that were denied because of a lack of buffer pool storage space. It only applies to query I/O and CP parallelism. For example, if 100 prefetch I/O streams are requested and only 80 are granted, then 20 is added to the number in this field.	●	●	●	●	●
56	QBSTPQO	The total number of requests made for parallel query support in this buffer pool. This field only applies to non-work-file page sets in query I/O and CP parallelism.		●	●	●	●
57	QBSTPQF	The number of times that DB2 could not allocate the requested number of buffer pages to allow a parallel group to run as planned. This field only applies to non-work-file page sets in query I/O and CP parallelism.	●	●	●	●	●
58	QBSTPL1	The total number of times prefetch quantity is reduced from normal to 50% of normal. The normal size depends on the page size of the buffer pool. This field only applies to query I/O and CP parallelism.	●	●	●	●	●
59	QBSTPL2	The total number of times prefetch quantity is reduced from 50% to 25% of normal. The normal size depends on the page size of the buffer pool. This field only applies to query I/O and CP parallelism.	●	●	●	●	●
60	QBSTWFM	The maximum number of work files concurrently used during merge processing within this statistics period. Ideally, each work file needs 16 buffers to allow DB2 to perform a sequential prefetch for work files.	●	●	●	●	●
61	QBSTWFR	The total number of merge passes for DB2 sort activities. This value reflects how many merge passes were requested for DB2 to determine the number of work files permitted to support each merge pass.		●	●	●	●
62	QBSTWFF	The number of times that a merge pass was not efficiently performed due to a shortage of space in the buffer pool. The number in this field is incremented for each merge pass where the maximum number of work files allowed is less than the number of work files requested.	●	●	●	●	●
63	QBSTWFD	The total number of work files that were rejected during all merge passes because of insufficient buffer resources.	●	●	●	●	●

Table 50. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
64	QBSTWFT	The total number of work files requested for all merge passes. This field and the **Merge passes requested** field can be used to determine the average number of work files requested in a single merge pass. For DB2 to perform an efficient prefetch for work files, each work file should have at least 16 dedicated buffers. Work files used during sort phase processing or other non-sort-related processing are not included in this number.		●	●	●	●
65	QBSTMAX	This field is only applicable if DB2 is running under MVS/XA. The number of times a work file could not be created due to insufficient buffer resources. It indicates that a sort is in progress and limited in regard to the number of work files it can use.	●	●	●	●	●
66	QBSTWKPD	The number of times a sequential prefetch was not scheduled for a work file because the dynamic prefetch quantity is zero.	●	●	●	●	●
67	QBSTWDRP	The number of pages for which a destructive read was requested.	●	●	●	●	●
68	QBSTWBVQ	The number of pages removed from the data set deferred write queue for destructive read requests.	●	●	●	●	●
69	QBSTRPI	The number of page-ins required for a read I/O.	●		●	●	●
70	QBSTWPI	The number of page-ins required for a write I/O. This counter is incremented each time the media manager does not find a page in central storage. This counter does not differenciate between expanded storage and page datasets.	●		●	●	●

Table 50. Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
72	QBSTNGT	The number of times a page requested for a query processed in parallel was unavailable because an I/O was in progress or the page was not found in the buffer pool. The agent does not wait. Instead, control returns to the agent and asynchronous prefetch I/O is triggered. This counter is used only when queries are processed in parallel. If the value is close to zero, most pages are already prefetched into the buffer pool and wait time for synchronous I/O is small. This counter can be high if, for example, there is a cluster index scan and the data is not truly clustered by the index key, so the data pages are not accessed in their true order. Hence, the cluster ratio is not valid. Use the RUNSTATS utility to update it. This number is also used to determine how many sequential prefeteches of one page were scheduled.		●	●	●	●

Note: All fields except those which are either high water marks, snapshots, or derived ratios can be qualified by minute, thread, and commit.

All fields can be explicitly qualified by one of the following in an exception or graphics specification:

BPn   4 KB buffer pool number (0 <= n <= 49)

BP32Kn
          32 KB buffer pool number (1 <= n <= 9)

TOT4K Total of all 4 KB buffer pools

TOT32K
          Total of all 32 KB buffer pools

TOTAL Total of all 4 KB and 32 KB buffer pools

Table 51. Group Buffer Pool Activity

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QBGLGN	The group buffer pool ID.			●	●	●
2	QBGLXD	The number of requests made to read a page from the group buffer pool because the page was invalidated in the member's buffer pool. The member found the required data in the group buffer pool.	●		●	●	●
3	QBGLXR	The number of requests to read a page from the group buffer pool that were required because the page was invalidated in the member's buffer pool. The member did not find the data in the group buffer pool and had to retrieve the page from DASD.			●	●	●

Table 51. Group Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
4	QBGLXN	The number of synchronous coupling facility read requests because the buffer was marked *invalid*. Data is not returned from the group buffer pool, and no directory entry is created for this page. When no other DB2 in the group has read and write interest in the page set or partition, the process of creating the directory entry for cross invalidation can be avoided.			●	●	●
5	QBGLMD	The number of requests made to read a page from the group buffer pool because the page was not in the member's buffer pool. The member found the required data in the group buffer pool.	●		●	●	●
6	QBGLMR	The number of requests made to read a page from the group buffer pool because the page was not in the member's buffer pool. The member did not find the required data in the group buffer pool and had to retrieve the page from DASD.			●	●	●
7	QBGLMN	The number of synchronous coupling facility read requests necessary because the requested page was not found in the buffer pool. Data is not returned from the coupling facility, and no directory entry is created for this page. When no other DB2 in the group has read and write interest in the page set or partition, the process of creating the directory entry for cross invalidation can be avoided.			●	●	●
8	QBGLAD	The number of coupling facility page reads done for prefetch where the page was returned from the group buffer pool. This counter is incremented only when the register page list (RPL) function is not used.	●		●	●	●
9	QBGLAR	If RPL is used, this is the number of pages that were read from DASD after an RPL request. If the register page list (RPL) function is not used, this is the number of coupling facility read requests performed by prefetch where data was not returned from the group buffer pool.	●				
10	QBGLAN	If the register page list (RPL) function is not used, this is the number of coupling facility reads performed by prefetch in which data was not returned from the coupling facility and no coupling facility directory entry for cross invalidation was created. If RPL is used, this number should be 0. When no other DB2 in the group has read and write interest in the page set or partition, the process of creating the directory entry can be avoided.			●	●	●

Table 51. Group Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
11	QBGLWC	The number of clean pages that were synchronously written to the group buffer pool from the virtual pool.	●		●	●	●
12	QBGLSW	The number of changed pages synchronously written to the group buffer pool. At commit time changed pages are forced from the member's virtual buffer pool to the coupling facility.	●		●	●	●
13	QBGLAC	The number of clean pages that were asynchronously written to the group buffer pool from the virtual pool.	●		●	●	●
14	QBGLAW	The number of changed pages asynchronously written to the group buffer pool. Changed pages can be written from the member's virtual buffer pool the coupling facility before the application commits. This happens when, for example, a local buffer pool threshold is reached, or when P-lock negotiation forces the pages on the vertical deferred write queue to be written to the group buffer pool.	●		●	●	●
15	QBGLRC	The number of data pages that were cast out of the member's group buffer pool. Castout to a page set or partition is done by the castout owner of the page set or partition. This is normally the DB2 subsystem that had the first update intent on the page set or partition.	●		●	●	●
16	QBGLCT	The number of times group buffer pool castout was initiated because the group buffer pool class castout threshold was detected.	●		●	●	●
17	QBGLGT	The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected.	●		●	●	●
18	QBGLCN	The number of times a castout engine was not available.	●		●	●	●
19	QBGLSU	The number of times a coupling facility write engine was not available for coupling facility writes.	●		●	●	●
20	QBGLRF	The number of coupling facility read requests that did not complete due to a lack of coupling facility storage resources.	●		●	●	●
21	QBGLWF	The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources.	●		●	●	●
22	QBGLAY	The number of coupling facility read requests made by prefetch to retrieve a changed page from the group buffer pool due to feedback from the register page list (RPL) function.	●		●	●	●

Table 51. Group Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
23	QBGLAX	The number of register page list (RPL) requests made by prefetch. Prefetch must run under MVS Version 5.2 or later, and the group buffer pool must be allocated in a coupling facility with CFLEVEL=2 or higher.	●		●	●	●
24	QBGLAZ	The number of coupling facility read requests made by prefetch to retrieve a clean page from the group buffer pool due to feedback from the register page list (RPL) function.	●		●	●	●
25	QBGLOS	The number of times DB2 requested statistics information from the group buffer pool. It is issued by the group buffer pool structure owner at timed intervals to determine whether the group buffer pool castout threshold (GBPOOLT) has been reached. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●
26	QBGLCK	The number of group buffer pool checkpoints triggered by this member. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●
27	QBGLRB	The number of group buffer pool rebuilds in which this member participated. This includes normal rebuilds and rebuilds to establish duplexing. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●
28	QBGLUN	The number of times DB2 issued an unlock request to the coupling facility for completed castout I/Os. When pages are being castout to DASD, they are locked for castout in the coupling facility. This castout lock is not an IRLM lock; it is to enforce that only one system can cast out a given page at a time. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●
29	QBGLCC	The number of requests made to the group buffer pool to determine which pages, from a particular page set or partition, must be cast out because they are cached as changed pages. This request is issued either by the page set or partition castout owner, or, when the group buffer pool castout threshold is reached, by the group buffer pool structure owner. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●

Table 51. Group Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
30	QBGLCS	The number of requests issued by the group buffer pool structure owner to determine which castout classes have changed pages. This request is made by the group buffer pool structure owner when the group buffer pool threshold is reached. Normally, you would expect only one or two requests each time the group buffer pool threshold is reached. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●
31	QBGLDN	The number of requests made by DB2 to delete directory and data entries associated with a particular page set or partition from the group buffer pool. DB2 issues this request when it converts a page set or partition from GBP-dependent to non-GBP-dependent. DB2 also issues this request for objects that are defined with GBPCACHE ALL when those objects are first opened.				●	●
32	QBGLRD	The number of requests issued by the group buffer pool structure owner to read the directory entries of all changed pages in the group buffer pool. This request is issued at group buffer pool checkpoints to record the oldest recovery log record sequence number (LRSN). It is used as a basis for recovery if the group buffer pool fails. Such requests might have to be issued several times for each group buffer pool checkpoint to read the directory entries for all changed pages. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●
33	QBGLRG	The number of times DB2 registered interest in a single page. These are ″register-only″ requests, which means that DB2 is not requesting any data back from the request. This request is made only to create a directory entry for the page to be used for cross-invalidation when the page set or partition P-lock is downgraded from S to IS mode, or from SIX to IX mode. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●

Table 51. Group Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
34	QBGLDG	The number of times DB2 unregistered interest for a single page. This happens when DB2 steals pages from the member's buffer pool that belong to GBP-dependent page sets or partitions. This field shows N/A for data produced by releases prior to DB2 for OS/390 Version 5.				●	●
35	SBGLXR	The number of requests to read a page from the group buffer pool that were required because the page was invalidated in the member's buffer pool. The member did not find the data in the group buffer pool and had to retrieve the page from DASD.	●				
36	SBGLMR	The number of requests made to read a page from the group buffer pool because the page was not in the member' buffer pool. The member did not find the required data in the group buffer pool and had to retrieve the page from DASD.	●				
37	SBGLAR	If the register page list (RPL) function is not used, this is the number of coupling facility read requests performed by prefetch where data was not returned from the group buffer pool. If RPL is used, this is the number of pages that were not retrieved from the group buffer pool after an RPL request.	●				
38	QBGLEX	The number of times an explicit coupling facility cross-invalidation request was issued.					●
39	QBGL2W	The number of coupling facility requests to write changed pages to the secondary group buffer pool for duplexing.					●
40	QBGL2F	The number of coupling facility requests to write changed pages to the secondary group buffer pool for duplexing that failed because of a lack of storage in the coupling facility.	●				●
42	QBGL2D	The number of DELETE NAME LIST requests to delete pages from the secondary group buffer pool that have just been cast out from the primary.					●
43	QBGL2N	The number of group buffer pool requests to delete a page from the secondary group buffer pool. These requests are issued by the group buffer pool structure owner to delete orphaned data entries in the secondary GBP as part of the garbage collection logic.					●
44	QBGL2R	The number of coupling facility requests to read the castout statistics for the secondary group buffer pool. These requests are issued by the group buffer pool structure owner to check for orphaned data entries in the secondary group buffer pool.					●

Table 51. Group Buffer Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
Note: All fields except those which are either high water marks, snapshots, or derived ratios can be qualified by minute, thread, and commit.							
All fields can be explicitly qualified by one of the following in an exception or graphics specification:							
BPn 4 KB group buffer pool number (0 <= n <= 49)							
BP32Kn 32 KB group buffer pool number (1 <= n <= 9)							
TOT4K Total of all 4 KB group buffer pools							
TOT32K Total of all 32 KB group buffer pools							
TOTAL Total of all 4 KB and 32 KB group buffer pools Note that the counters are cumulative from the time when the buffer pool was connected for the first time.							

Table 52. Row ID

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QXROIMAT	The number of times that direct row access was successful.					●
2	QXROIIDX	The number of times that direct row access failed and an index was used to find a record.					●
3	QXROITS	The number of times that an attempt to use direct row access reverted to using a table-space scan to locate a record.					●

Table 53. EDM Pool Activity

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6

1	QISEPAGE	The current number of pages in the EDM pool. This number is a **snapshot value.**
		
		This field should be equal to the sum of all following fields:
		
		   Free pages in free chain
		   Pages used - CT
		   Pages used - PT
		   Pages used - DBD
		   Pages used - SKCT
		   Pages used - SKPT
					●	●	●

2	SERBUTP	The percentage of pages in the EDM pool that have been used or are currently in use (**snapshot value**).			●	●	●
3	QISEFREE	The number of pages currently not used by any object in the EDM pool. This number is a snapshot value.			●	●	●

Table 53. EDM Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
4	QISECT	The current number of pages in the EDM pool used for the cursor tables (CTs). This number is a snapshot value.			●	●	●
5	QISEDBD	The current number of pages in the EDM pool used for database descriptors (DBDs). This number is a snapshot value.			●	●	●
6	QISESKCT	The current number of pages in the EDM pool used for skeleton cursor tables (SKCTs). This number is a snapshot value.			●	●	●
7	QISEKT	The current number of pages in the EDM pool used for package tables (PTs). This number is a snapshot value.			●	●	●
8	QISESKPT	The current number of pages in the EDM pool used for skeleton package tables (SKPTs). This number is a snapshot value.			●	●	●
9	QISEFAIL	The total number of failures because the EDM pool is full.	●	●	●	●	●
10	QISECTG	The number of requests for cursor table (CT) sections.		●	●	●	●
11	QISECTL	The number of times a cursor table section was loaded from DASD. If you subtract this number from the number in the **Requests for sections - CT** field, you get the number of times the CT was already in the EDM pool.	●	●	●	●	●
12	SERCTLR	The number of requests for cursor table sections per cursor table section not found in EDM pool.	●		●	●	●
13	QISEKTG	The number of requests for package table (PT) sections.		●	●	●	●
14	QISEKTL	The number of times a package table section was loaded from DASD. If you subtract this number from the number in the **Requests for sections - PT** field, you get the number of times the PT was already in the EDM pool.	●	●	●	●	●
15	SERPTLR	The number of requests for package table (PT) sections per package table section not found in the EDM pool.	●		●	●	●
16	QISEDBDG	The number of requests for database descriptors.		●	●	●	●
17	QISEDBDL	The total number of times database descriptors were loaded from DASD. If you subtract this number from the number in the **Requests for sections - DBD** field, you get the number of times the DBD was already in the EDM pool.	●	●	●	●	●

Table 53. EDM Pool Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
18	SERDBLR	The number of requests for database descriptors (DBD) per database descriptor not found in the EDM pool.	●		●	●	●
19	QISEDSI	The number of inserts for the prepared statement cache.				●	●
20	QISEDSG	The number of requests for prepared statement cache sections.				●	●
21	QISEDSC	The number of pages used for prepared statement cache.				●	●
22	QXSTFND	The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.				●	●
23	QXSTNFND	The number of times a PREPARE command was received, but a matching statement was not found in the prepared statement cache. Cache search is only done for DML SQL.				●	●
24	QXSTIPRP	The number of times an implicit prepare was performed because KEEPDYNAMIC(YES) was used and an open, execute, or describe for a dynamic SQL statement has occurred after a commit.				●	●
25	QXSTNPRP	The number of times a prepare was avoided because the KEEPDYNAMIC(YES) bind option was used and an open, execute, or describe for a dynamic SQL statement has occurred after a commit.				●	●
26	QXSTDEXP	The number of times a kept dynamic statement was discarded because the MAXKEEPD system limit has been reached.				●	●
27	QXSTDINV	The number of times a dynamic cached statement was purged from the cache because of a drop.				●	●
28	QISEDYNI	The number of inserts for dynamic cache.				●	●
29	QISEDYNR	The number of requests for the dynamic cache section.				●	●
30	QISEDYNP	The number of pages used for cache.				●	●
31	SCACHRAT	The ratio of successful search requests for prepared statements from the cache to the total number of requests searching the cache. This ratio shows the effectivness of the cache.				●	●

Note: All fields except those which are either high water marks, snapshots, or derived ratios can be qualified by minute, thread, and commit.

Table 54. Open/Close Activity

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QTMAXDS	The maximum number of data sets concurrently open since the last time DB2 was started. It represents a high water mark (HWM).	●	●	●	●	●

Table 54. Open/Close Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
2	QTDSOPN	The number of data sets that are currently open at the instant at which statistics are collected (snapshot value).	●		●	●	●
3	QTPUBDD	The number of currently open data sets that were specified with CLOSE(NO).					
4	QTSLWDD	The number of data sets that are not currently used but are not closed because of a deferred close. If you subtract QTSLWDD from QTDSOPN, you get the number of data sets in use.	●		●	●	●
5	QTCURPB	The number of page sets that were specified with CLOSE(YES) and are not currently in use, but are not yet physically closed (snapshot value). It is the number of currently open but not referenced page sets. If you subtract this field from the **Current** field, you get the number of data sets in use.					
6	QTMAXPB	The maximum number of data sets on the deferred close queue. It is a high water mark representing the maximum number of data sets that are not in use but have not been physically closed yet.	●		●	●	●
7	QTTTDRN	The number of times that DB2 was requested to perform a drain. A synchronous drain is requested when a new data set attempts to open, but the MVS limit for the number of open data sets has been reached. Asynchronous drains are requested when the number of open data sets reaches DSMAX or the number of open data sets is larger than a DB2 internal limit.		●			
8	QTSTDRN	The number of times that the drain process was disabled because: • There is a request for drain, but there are no data sets that can be closed. • There are multiple DRAIN requests queued, but when a specific drain request is ready to be executed, sufficient free data sets are available, and there is no reason to continue with the drain.		●			
9	QTEXDRN	The number of times that DB2 successfully completed the drain process. Drain attempts to close data sets that are no longer used and were specified with CLOSE(YES), but were not physically closed.		●			

Table 54. Open/Close Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
10	QTDSDRN	The number of data sets that were closed because the total number of open data sets reached the deferred close threshold value. The deferred close value is based on the value of DSMAX or the MVS DD limit (whichever is smaller).	●	●	●	●	●
11	QTOPNOK	The number of page set OPENs that were delayed because the MVS limit on the number of open data sets was reached. A synchronous drain was initiated to close other data sets, and the page sets were subsequently opened successfully. Any value in this field indicates slow performance. Check the MVS limit on the number of open data sets for your system.		●			
12	QTOPNNO	The number of page set OPENs that were delayed because the MVS limit on the number of open data sets was reached. A synchronous drain was initiated to close other data sets, but the page sets subsequently failed to open.		●			
13	QTREOPN	DB2 serviceability field.		●	●	●	●
14	QTPCCT	The number of infrequently updated data sets that are converted from R/W to R/O state. An updated data set is considered infrequently updated when it has not been updated for either 5 consecutive DB2 checkpoints or 60 minutes. For tablespace data sets, the switching from R/W to R/O state means the SYSLGRNG entry is closed.	●	●	●	●	●
15	SDOPDELA	The number of page set OPENs that were delayed because the MVS limit on the number of open data sets was reached.		●			
16	SDINUSEC	The number of data sets currently in use (snapshot).	●	●	●	●	●

Note: All fields except those which are either high water marks or snapshots can be qualified by minute, thread, and commit.

Table 55. Plan/Package Processing

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QTALLOCA	The number of times a request was made to allocate a bound plan for an agent. It represents the number of times DB2 was requested to create a thread by the attachment facility for the user. This does not include allocations for DB2 system agents.		●	●	●	●

Table 55. Plan/Package Processing (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
2	QTALLOC	The number of successful plan allocation attempts identified by **Plan allocation - Attempts** that completed successfully. The cause of plan allocation failure could be plan unavailability or attempting to allocate a nonexistent plan.		●	●	●	●
3	QTPKALLA	The number of attempts to allocate a package.		●	●	●	●
4	QTPKALL	The number of successful package allocation attempts. Package allocation failure can be caused by an unavailable or non-existent package.		●	●	●	●
5	QTPLNBD	The number of plans successfully bound and kept for future agent allocations. This field represents the sum of successful BIND ADD (QTBINDA) and successful BIND REPLACE (QTBINDR) commands. This counter is not incremented for BIND subcommands with no plan ID specified, as identified by QTTESTB. Note that QTBINDA + QTBINDR is not necessarily equal to this field. It is equal only if all BIND ADD and BIND REPLACE subcommands issued are successful.		●	●	●	●
6	QTBINDA	The number of successful and unsuccessful BIND ADD subcommands issued. The sum of QTBINDA, QTBINDR, and QTTESTB equals the total number of BIND subcommands.		●	●	●	●
7	QTBINDR	The number of successful and unsuccessful BIND REPLACE subcommands issued.		●	●	●	●
8	QTTESTB	The number of BIND subcommands issued without a plan ID.		●	●	●	●
9	QTPKGBD	The number of packages bound and kept for future package allocations. It is the sum of successful BIND ADD PACKAGE and BIND REPLACE PACKAGE subcommands, but only if all these commands are really issued successfully.		●	●	●	●
10	QTBINDPA	The number of successful and unsuccessful BIND ADD PACKAGE subcommands issued.		●	●	●	●
11	QTBINDPR	The number of successful and unsuccessful BIND REPLACE PACKAGE subcommands issued.		●	●	●	●
12	QTABINDA	The number of attempts to autobind a plan. This occurs when the plan was invalidated by modifications to the declarations of the data referenced by the programs bound as part of the plan. For example, dropping an index when it is used in the plan results in automatic bind.	●	●	●	●	●

Table 55. Plan/Package Processing (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
13	QTABIND	The number of plans successfully autobound.	●	●	●	●	●
14	QTINVRID	The number of requests to allocate a nonexistent plan or package. This is the number of all plan and package allocation attempts that failed because the resource was unavailable or the object did not exist.	●	●	●	●	●
15	QTAUTOBA	The number of attempts to autobind a package.	●	●	●	●	●
16	QTPKABND	The number of packages successfully autobound.	●	●	●	●	●
17	QTREBIND	The number of REBIND subcommands issued. More than one plan can be rebound with a single REBIND subcommand. If the value in this field is 1, then the number of plans you are attempting to rebind is shown in the **Rebind - plan attempts** field		●	●	●	●
18	QTRBINDA	The number of attempts to rebind a plan. This number can be larger than the value shown in the **Rebind - plan subcommands**field. because you can specify more than one plan in a single REBIND subcommand.		●	●	●	●
19	QTPLNRBD	The number of rebind attempts that completed successfully. This field is equal to the **Rebind - Plan attempts** field if all specified plans rebound successfully.		●	●	●	●
20	QTRBINDP	The number of REBIND PACKAGE subcommands issued. More than one package can be rebound with a single subcommand. If the value in this field is 1, **Rebind - package attempts** shows the number of packages you are attempting to rebind.		●	●	●	●
21	QTRBNDPA	The number of attempts to rebind a package. This can be larger than the value shown in **Rebind package subcommands** because you can rebind more than one package with a single subcommand.		●	●	●	●
22	QTPKGRBD	The number of packages successfully rebound. If all specified packages were rebound successfully, this field is equal to **Rebind package attempts**		●	●	●	●
23	QTFREE	The number of FREE subcommands issued. More than one plan can be freed with a single FREE subcommand. If this field is 1, then the number of plans you are trying to free is shown in **Free - plan attempts**		●	●	●	●
24	QTFREEA	The number of attempts to free a plan. This value can be larger than field **Free - plan subcommands** because multiple plan IDs can be specified in a single FREE subcommand.		●	●	●	●

Table 55. Plan/Package Processing (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
25	QTPLNFRD	The number of times a plan was successfully freed. Freeing a plan can fail if someone else is using the plan and holds a lock on it.		●	●	●	●
26	QTFREEP	The number of FREE PACKAGE subcommands issued. More than one package can be freed with a single FREE subcommand. If the value in this field is 1, then the number of packages you are attempting to free is shown in **Free - Package attempts** field.		●	●	●	●
27	QTFREEAP	The number of attempts to free a package. This number can be larger than **Free - package subcommands** because you can free several packages in a single command.		●	●	●	●
28	QTPKGFRD	The number of times a package was successfully freed. If all the specified packages were freed successfully, the value of this field is equal to the that of the **Free - Package attempts** field.		●	●	●	●
Note: All fields can be qualified by minute, thread, and commit.							

Table 56. Authorization Management

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QTAUCHK	The number of authorization checks performed for a plan.		●	●	●	●
2	QTAUSUC	The number of successful authorization checks performed on authorized plans.		●	●	●	●
3	QTAUCCH	The number of successful authorization checks that do not use the DB2 catalog (including plan cache checks and public checks).		●	●	●	●
4	QTAUPUB	The number of successful authorization checks based on EXECUTE authority granted to PUBLIC.		●	●	●	●
5	QTPACAUT	The number of successful package EXECUTE authorization checks without accessing the DB2 catalog. This field shows N/A for data originating from DB2 releases prior to Version 5.				●	●
6	QTPACPUB	The number of successful package EXECUTE authorization checks without accessing the DB2 catalog. Package EXECUTE authority was granted to PUBLIC in the package authorization cache. This field shows N/A for data originating from DB2 releases prior to Version 5.				●	●

Table 56. Authorization Management (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	**Graph**	**V4**	**V5**	**V6**
7	QTPACNOT	The number of unsuccessful package EXECUTE authorization checks in the package authorization cache. No applicable entry was found. Therefore, DB2 catalog access is required. This field shows N/A for data originating from DB2 releases prior to Version 5.				●	●
8	QTPACOW1	The number of times an authorization ID was overwritten to add another one to the package authorization cache. This field shows N/A for data originating from DB2 releases prior to Version 5.				●	●
9	QTPACOW2	The number of times an entry for a collection-id, package-id or collection-id was overwritten to add another one to the package authorization cache. This field shows N/A for data originating from DB2 releases prior to Version 5.				●	●
10	QTRACAUT	The number of times the routine authorization cache was checked successfully of EXECUTE authority on a stored procedure or user-defined function. The DB2 catalog was not accessed. This counter includes the number of PUBLIC authorization checks.					●
11	QTRACPUB	Number of successful authorization checks for user-defined function or stored procedure execution authority when that authority is held by PUBLIC. The DB2 catalog was not checked.					
12	QTRACNOT	Number of unsuccessful authorization checks for user-defined function or stored procedure EXECUTE authority because no applicable entry was found in the routine authorization cache.					
13	QTRACOW1	Number of times that DB2 overwrote an authorization ID in the routine authorization cache.					
14	QTRACOW2	Number of times that DB2 overwrote a routine entry in the routine authorization cache. An entry in the routine authorization cache can refer to a function or procedure or to all functions or procedures within a specific schema.					

Note: All fields can be qualified by minute, thread, and commit.

Table 57. DDF Activity—General

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	**Graph**	**V4**	**V5**	**V6**
1	QDSTQDBT	The number of times a DBAT was queued because it reached the ZPARM maximum for active remote threads. This value is maintained at the server location.	●	●	●	●	●

Table 57. DDF Activity—General (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
2	QDSTQCRT	The number of conversations deallocated because the ZPARM limit for concurrently remote active and inactive threads was reached. The maximum is specified in the MAX REMOTE CONNECTED field on installation panel DSNTIPE, or ZPARM name: CONDBAT in DSN6SYSP.		●	●	●	●
3	QDSTQCIT	The current number of inactive DBATs (snapshot).		●	●	●	●
4	QDSTQMIT	The maximum number of inactive DBATs (high water mark).	●	●	●	●	●
5	QDSTCSTR	The number of cold start connections with all remote locations (two phase commit operations only).	●	●	●	●	●
6	QDSTWSTR	The number of warm start connections with all remote locations (two phase commit operations only).	●	●	●	●	●
7	QDSTRSAT	The number of resynchronization connections attempted with all remote locations (two phase commit operations only).	●	●	●	●	●
8	QDSTRSSU	The number of resynchronization connections that succeeded with all remote locations (two phase commit operations only).	●	●	●	●	●
9	QDSTCNAT	The current number of active database access threads.		●	●	●	●
10	QDSTHWAT	The maximum number of active database access threads. This is a high water mark. If the inactive option is specified for DDF threads on the installation panel DSNTIPR, it is possible this field and the Active DBATs currently field to exceed the MAX REMOTE ACTIVE value specified on installation panel DSNTIPE. This is because DDF allows database access threads to be initialized as long as the MAX REMOTE CONNECTED value specified on installation panel DSNTIPE is not exceeded. The resulting database access threads are regarded as active during database access thread initialization and are thus accounted for in both this field and the Active DBATs currently counts. If the current database access thread number is still greater than the MAXIMUM REMOTE ACTIVE value after the completion of the database access thread initialization, the extra database access threads are made inactive. The Active DBATs currently value is then decreased and the value of this field is increased by the number of threads that were made inactive.	●	●	●	●	●

Table 57. DDF Activity—General (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
11	QDSTHWDT	The maximum number of active and inactive database access threads.	●	●	●	●	●
Note: All fields except those which are either high water marks or snapshots can be qualified by minute, thread, and commit.							

Table 58. DDF Activity

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QLSTLOCN	For DB2 private protocol, the name of the remote location, statistics are gathered independently for each remote location. For DRDA protocol, this field contains the constant DRDA REMOTE LOCN. Statistics are grouped under the location name DRDA REMOTE LOCN.			●	●	●
2	QLSTTRNS	The number of DBAT allocation requests sent to the remote location. This value is only meaningful at the requester location.		●	●	●	●
3	QLSTTRNR	The number of DBAT allocation requests received from the remote location. This value is only meaningful at the server location.		●	●	●	●
4	QLSTCNVS	The number of conversations that were initiated from the requester location. This value is maintained at the requester location. A conversation is a specific instance of using TCP/IP or SNA LU 6.2 to transfer information between a requester and a server. A conversation is a logical connection between a requester and a server.		●	●	●	●
5	QLSTCNVR	The number of conversations that were initiated from the requester to the server location. This value is updated at the server location.		●	●	●	●
6	QLSTCNVQ	The number of conversation requests queued by the distributed data facility that are waiting for allocation. This value is maintained at the requester location.	●	●	●	●	●
7	QLSTRBND	The number of SQL statements that were bound for remote access (DB2 private protocol only). This value is maintained at the requester location.	●	●	●	●	●
8	QLSTSQLS	The number of SQL statements sent to the remote server. This value is updated at the requester location.	●	●	●	●	●
9	QLSTSQLR	The number of SQL statements received from the requester location. This value is updated at the server location.	●	●	●	●	●
10	QLSTCOMS	The number of commit requests sent to the server location (single-phase commit operations only). This value is maintained at the requester location.		●	●	●	●

Table 58. DDF Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
11	QLSTCOMR	The number of commit requests received from the requester location (single-phase commit operations only). This value is maintained at the server location.		●	●	●	●
12	QLSTABRS	The number of rollback requests sent to the remote location (single-phase commit operations only). This value is maintained at the requester location.		●	●	●	●
13	QLSTABRR	The number of rollback requests received from the requester location (single-phase commit operations only). This value is maintained at the server location.		●	●	●	●
14	QLSTROWS	The number of data rows sent to the requester location (includes SQLDA). This value is updated at the server location.		●	●	●	●
15	QLSTROWR	The number of data rows received from the server location. This value is maintained at the requester location. **Notes:** • This value does not include any SQLDA or SQLCA transmitted. • Block fetch can significantly affect the number of rows sent across the network. When used with nonupdate cursors, block fetch groups as many rows as possible into the message buffer, and transmits the buffer over the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the requester location. This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages from the requester.		●	●	●	●
16	QLSTMSGS	The number of messages sent to the remote location. A message is a group of characters and control bit sequences transferred on a single TCP/IP or SNA API call. This value is maintained at the location where the messages originated.		●	●	●	●
17	QLSTMSGR	The number of messages received by VTAM from the remote location. This value is maintained at the location where the messages were received. More messages might be sent from the server location than are received by the requester due to the manner in which distributed SQL statements are processed internally.		●	●	●	●
18	QLSTBYTS	The number of bytes of data sent to the requester location. This value is maintained at the server location.		●	●	●	●

Table 58. DDF Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
19	QLSTBYTR	The number of bytes of data received from the server location. This value is maintained at the requester location. More bytes of data might be sent from the server location than are received by the requester due to the manner in which distributed SQL statements are processed internally.		●	●	●	●
20	QLSTCBLB	The number of times a switch was made from continuous block fetch to limited block fetch (DB2 private protocol only). This value is maintained at the requester location.	●	●	●	●	●
21	QLSTBROW	The number of rows transmitted or received in DB2 message buffers using block fetch. This field counts both requester and server activity.	●	●	●	●	●
22	QLSTBTBF	The number of blocks transmitted using block fetch. This value is maintained at the server location.	●	●	●	●	●
23	QLSTBRBF	The number of blocks received from the remote location using block fetch. This value is maintained at the requester location.	●	●	●	●	●
24	QLSTPRSE	The number of prepare requests sent to the participant (two-phase commit operations only).			●	●	●
25	QLSTPRRC	The number of prepare requests received from the coordinator (two-phase commit operations only).			●	●	●
26	QLSTLASE	The number of last agent requests sent to the coordinator (two-phase commit operations only). A last agent request reduces the number of messages to be sent for the commit. When DB2 is the requester, this number is incremented when a conversation is deallocated **and** the conversation was not used since the last commit.			●	●	●
27	QLSTLARC	The number of last agent requests received from the initiator (two-phase commit operations only). This number is incremented when the DB2 server is receiving a last agent request from its requester.			●	●	●
28	QLSTCRSE	The number of commit requests sent to the participant (two-phase commit operations only).		●	●	●	●
29	QLSTCRRC	The number of commit requests received from the coordinator (two-phase commit operations only).		●	●	●	●
30	QLSTBKSE	The number of backout requests sent to the participant (two-phase commit operations only).		●	●	●	●
31	QLSTBKRC	The number of backout requests received from the coordinator (two-phase commit operations only).		●	●	●	●

Table 58. DDF Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
32	QLSTRRSE	The number of forget responses sent to the coordinator (two-phase commit operations only). This indicates that the participant was read-only.			●	●	●
33	QLSTRRRC	The number of forget responses received from the participant (two-phase commit operations only). This indicates that the participant was read-only.			●	●	●
34	QLSTVYSE	The number of request commit responses sent to the coordinator (two-phase commit operations only).			●	●	●
35	QLSTVYRC	The number of request commit responses received from the participant (two-phase commit operations only).			●	●	●
36	QLSTVNSE	The number of backout responses sent to the coordinator (two-phase commit operations only). This indicates that the participant voted no to the prepare request.			●	●	●
37	QLSTVNRC	The number of backout responses received from the participant (two-phase commit operations only). This indicates that the participant voted no to the prepare request.			●	●	●
38	QLSTINDT	The number of threads that became indoubt with the remote location as the coordinator (two-phase commit operations only). A large value might indicate network problems.	●	●	●	●	●
39	QLSTCPTR	The number of commit operations performed with the remote location as the coordinator (two-phase commit operations only).		●	●	●	●
40	QLSTRBTR	The number of rollback operations performed with the remote location as the coordinator (two-phase commit operations only).		●	●	●	●
41	SDROL12S	The number of rollback requests (single-phase commit operations) and backout requests (two-phase commit operations) sent.	●		●	●	●
42	SDROL12R	The number of rollback requests (single-phase commit operations) and backout requests (two-phase commit operations) received.	●		●	●	●
43	SDCOM12S	The number of commit requests (single-phase and two-phase commit operations) sent.	●		●	●	●
44	SDCOM12R	The number of commit requests (single-phase and two-phase commit operations) received.	●		●	●	●

Note:

• All fields can be explicitly qualified by the remote location in an exception or graphics specification.

• For UTR, TOTAL (meaning all the locations) and ANY (meaning any active location) can be specified.

Table 59. RID List Processing

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QISTRHIG	The highest number of RID blocks in use at any time since DB2 startup.	●		●	●	●
2	QISTRCUR	The number of RID blocks currently in use (snapshot value).			●	●	●
3	QISTRSTG	The number of times RID list processing exhausted virtual storage.	●	●	●	●	●
4	QISTRLLM	The number of times RID list processing terminated because the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size).	●	●	●	●	●
5	QISTRPLM	The number of times RID list processing terminated because the number of RID entries was greater than the physical limit of approximately 16 million RIDs.	●	●	●	●	●
6	QISTRMAX	The number of times the maximum RID pool storage was exceeded. The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 16 KB and 1 GB. The general formula for calculating the RID pool size is: Number of concurrent RID processing activities x average number of RIDs x 2 x 5 bytes per RID	●	●	●	●	●
7	SRTTERM	The number of times RID list processing was not used.	●	●	●	●	●

Note: All fields except those which are either high water marks or snapshots can be qualified by minute, thread, and commit.

Table 60. Locking Activity

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	SLRSUSP	The total number of suspensions.	●	●	●	●	●
2	QTXASLOC	The number of times a lock could not be obtained and the unit of work was suspended.	●	●	●	●	●
3	QTXASLAT	The number of latch suspensions.		●	●	●	●
4	QTXASOTH	The number of suspensions caused by something other than lock or latch.		●	●	●	●
5	QTXATIM	The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.	●	●	●	●	●
6	QTXADEA	The number of times deadlocks were detected. This number should be low, ideally 0.	●	●	●	●	●
7	QTXALOCK	The number of requests to lock a resource.		●	●	●	●

Table 60. Locking Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
8	QTXAUNLK	The number of requests to unlock a resource. This value can be less than the number of **lock requests** because DB2 releases several locks with a single unlock request.		●	●	●	●
9	QTXAQRY	The number of query requests.		●	●	●	●
10	QTXACHG	The number of change requests.		●	●	●	●
11	QTXAIRLM	The number of requests to IRLM to perform a function other than LOCK, UNLOCK, QUERY, or CHANGE.		●	●	●	●
12	QTXALES	The number of times the maximum page locks per table space are exceeded, and the table space lock escalates from a page lock (IS) to a table space lock (S) for this thread. LOCKS PER TABLE(SPACE) is a parameter on the DB2 install panel DSNTIPJ.	●	●	●	●	●
13	QTXALEX	The number of times the maximum page locks per table space are exceeded and the table space lock escalates from a page lock (IX) to a table space lock (X).	●	●	●	●	●
14	SLCLKET	The number of lock escalations to shared and exclusive mode.	●	●	●	●	●
15	QTXADRNO	The number of drain requests.		●	●	●	●
16	QTXADRUN	The number of unsuccessful drain requests.	●	●	●	●	●
17	QTXACLNO	The number of claim requests.		●	●	●	●
18	QTXACLUN	The number of unsuccessful claim requests.	●	●	●	●	●
Note: All fields can be qualified by minute, thread, and commit.							

Table 61. Data Sharing Activity

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QTGSLPLK	The number of lock requests for physical locks. These lock requests are a subset of Lock requests, which reflects the total number of logical and physical locks.			●	●	●
2	QTGSUPLK	The number of unlock requests for physical locks. These unlock requests are a subset of Unlock requests which reflects the total number of unlock requests for logical and physical locks.			●	●	●
3	QTGSCPLK	The number of change requests for physical locks. These change requests are a subset of Change requests which reflects the total number of change requests for logical and physical locks.			●	●	●
4	QTGSLSLM	The number of lock requests propagated to MVS XES synchronously, including logical and physical locks. This number is not incremented if the request is suspended before going to XES.			●	●	●

Table 61. Data Sharing Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
5	QTGSCSLM	The number of change requests propagated to MVS XES synchronously, including logical and physical locks. This number is not incremented if the request is suspended before going to XES.			●	●	●
6	QTGSUSLM	The number of unlock requests propagated to MVS XES synchronously, including logical and physical locks. This number is not incremented if the request is suspended before going to XES.			●	●	●
7	QTGSKIDS	The number of resources propagated by IRLM to MVS XES asynchronously, including logical and physical locks. This can happen when new inter-DB2 interest occurs on a parent resource or when a request completes after the requester's execution unit was suspended.			●	●	●
8	QTGSIGLO	The number of suspensions due to IRLM global resource contention. All IRLM lock states were in conflict on the same resource. Global contention requires inter-system communication to resolve the lock conflict whereas local contention does not.			●	●	●
9	QTGSSGLO	The number of suspensions due to MVS XES global resource contention. The MVS XES lock states were in conflict but the IRLM lock states were not. IRLM has many lock states but XES is only aware of the exclusive and shared lock states.			●	●	●
10	QTGSFLSE	The number of suspensions due to false contention. This happens when different resource names hash to the same entry in the coupling facility lock table. This causes MVS XES to detect contention on the hash class; however, when MVS XES determines that there is no real conflict on the resource, the contention is called *false*.			●	●	●
11	SDTOTSUS	The total number of suspensions caused by the following reasons: • IRLM global resource contention • MVS XES global resource contention • False contention.	●	●	●	●	●
12	QTGSNTFY	The number of notify messages sent.			●	●	●
13	QTGSNTFR	The number of notify messages received.			●	●	●

Table 61. Data Sharing Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
14	QTGSPEMX	The maximum number of engines available for physical lock exit or notify exit requests.			●	●	●
15	QTGSPEQW	The number of times an engine is not available for physical lock exit or notify exit requests.	●		●	●	●
16	QTGSPPPE	The number of times this DB2 was driven to negotiate a partition or page set physical lock due to changing inter-DB2 interest levels on the partition or page set.			●	●	●
17	QTGSPGPE	The number of times this DB2 was driven to negotiate a page physical lock due to physical lock contention within DB2.			●	●	●
18	QTGSOTPE	The number of times this DB2 was driven to negotiate a physical lock type other than page set, partition, or page.			●	●	●
19	QTGSCHNP	The number of times a physical lock change request was issued during physical lock negotiation.			●	●	●
20	QTGSDRTA	The number of global lock or change requests denied or suspended due to an incompatible retained lock.	●		●	●	●
21	SLLPSUSP	The total number of all suspensions, including local and global suspensions.	●	●	●	●	●
22	SGLOBRAT	The total number of suspends because of contention, divided by the total number of requests that went to XES (excluding asynchronous requests), and multiplied by 100.			●	●	●
23	SFLSERAT	The number of false contentions, divided by the total number of contentions, and multiplied by 100. A false contention is where two different locks on different resources hash to the same lock entry.			●	●	●
24	SBUFFRAT	The total number of GETPAGE operations minus the number of pages read from DASD (both synchronously and using prefetch), divided by the total number of GETPAGE operations, and multiplied by 100.			●	●	●

Note: All fields can be qualified by minute, thread, and commit.

Table 62. CPU Times per Address Space

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	SSTCBT	The TCB time for the system services address space.		●	●	●	●
2	SSSRBT	The SRB time for the system services address space.		●	●	●	●
3	SSTOTT	The total time for the system services address space.	●	●	●	●	●
4	SDTCBT	The TCB time for the DB2 database services address space.		●	●	●	●

Table 62. CPU Times per Address Space (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
5	SDSRBT	The SRB time for the DB2 database services address space.		●	●	●	●
6	SDTOTT	The total times for the DB2 database services address space.	●	●	●	●	●
7	SDITCBT	The TCB time for IRLM.		●	●	●	●
8	SDISRBT	The SRB time for IRLM.		●	●	●	●
9	SDITOTT	The total time for IRLM.	●	●	●	●	●
10	SDDFTCBT	The TCB time for the DDF address space.		●	●	●	●
11	SDDFSRBT	The SRB time for the DDF address space.		●	●	●	●
12	SDDFTOTT	The total time for the DDF address space.	●	●	●	●	●
13	SDTLTCBT	The TCB time for all address spaces.		●	●	●	●
14	SDTLSRBT	The SRB time for all address spaces.		●	●	●	●
15	SDTLTOTT	The total time for all address spaces.		●	●	●	●
16	SDNONCPU	The time not attributed to the CPU time or outage elapsed time.			●	●	●
Note: All fields can be qualified by thread and by commit.							

Table 63. Log Activity

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QJSTRBUF	The number of log reads satisfied from the output buffer.	●	●	●	●	●
2	SARLRBUF	The percentage of log reads that were satisfied in the log output buffer.			●	●	●
3	QJSTRACT	The number of log reads satisfied from the active log data set.	●	●	●	●	●
4	SARLRACT	The percentage of log reads satisfied from the active log.			●	●	●
5	QJSTRARH	The number of log reads satisfied from the archive log data set.	●	●	●	●	●
6	SARLRARC	The percentage of log reads that were satisfied from the archive log data set.			●	●	●
7	QJSTWTL	The number of log reads delayed because the limit on the number of concurrently open archive log data sets has been reached.		●			
8	QJSTTVC	The number of read accesses that were delayed because of a tape volume contention in a situation where only one reader per tape is possible.	●	●	●	●	●
9	QJSTWUR	The number of read accesses delayed due to unavailable resources.	●	●	●	●	●
10	QJSTLAMA	The number of look ahead (tape volume) mounts attempted.		●	●	●	●

Table 63. Log Activity (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
11	QJSTLAMS	The number of successful look-ahead (tape volume) mounts. It indicates the look-ahead mounting performance gains.		●	●	●	●
12	QJSTWRNW	The number of NOWAIT log write requests. NOWAIT means write the log record to the log buffer and do not wait for it to be written to the log data set. The application regains control immediately. The log buffers are written to DASD when the amount used exceeds the threshold. This is the most common type of log write request.		●	●	●	●
13	QJSTBFWR	The number of calls to the log write routine. This does not represent the number of physical log I/Os.		●	●	●	●
14	QJSTBSDS	The total number of bootstrap data set (BSDS) access requests. The BSDS contains name and status information for DB2 as well as RBA range specifications for all active and archive log data sets. It also contains passwords for the DB2 directory and catalog, and lists of conditional restart and checkpoint records.		●	●	●	●
15	QJSTWTB	The number of waits caused by the output log buffer being unavailable. When DB2 wants to write a log record and the log buffer is not available, DB2 and the application must wait for an available log buffer.	●	●	●	●	●
16	QJSTBFFL	The number of active log output control intervals created.		●	●	●	●
17	QJSTALR	The number of archive log read allocations. It indicates the frequency of archive log open and close activity.		●	●	●	●
18	QJSTALW	The number of archive log write allocations. It indicates the frequency of archive log open and close activity.		●	●	●	●
19	QJSTCIOF	The number of control intervals offloaded from the active log to the archive log.			●	●	●

Note: All fields except derived percentages can be qualified by minute, thread, and commit.

Table 64. Subsystem Services

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	Q3STIDEN	The number of successful connections to DB2 from an allied address space (TSO, BATCH, CICS, IMS, CAF, or UTILITY).		●	●	●	●

Table 64. Subsystem Services (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
2	Q3STCTHD	The number of successful create thread requests. It does not include DBATs. A thread is required before an application can use SQL. Once established, a thread can have one or more secondary authorization IDs. A thread is needed to perform any DB2 activity. For example, a thread is needed to run a DB2 utility to perform an IFI request such as READS, or to process a DB2 command such as -DISPLAY THREAD. However, a thread is not created if the command failed because of a syntax error.	●	●	●	●	●
3	Q3STSIGN	The number of signons that identified a new user of an existing thread for IMS and CICS. This field is valid only for CICS and IMS (not valid for TSO, CAF, or UTILITY). The initial signon does not perform an authorization check because the thread does not exist yet, but a resignon can.	●	●	●	●	●
4	Q3STTERM	The number of times threads were terminated successfully. This number does not agree with the create thread count because each level of a thread's access (IDENTIFY, SIGNON, and CREATE THREAD) must be terminated.		●	●	●	●
5	Q3STABRT	The number of times a unit of recovery was successfully rolled back. Some reasons for a rollback include: • Application program abend • Application rollback request • Application deadlock on database records • Application canceled by operator • Thread abend due to resource shortage This number also includes successfully aborted agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF).	●	●	●	●	●
6	Q3STPREP	The number of successful requests for commit phase 1 in a two-phase commit environment such as CICS or IMS. It includes successfully prepared agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits.		●	●	●	●

Table 64. Subsystem Services (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
7	Q3STCOMM	The number of successful commit phases 2 in a two-phase environment such as CICS or IMS. It includes successfully committed agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits.		●	●	●	●
8	Q3STRDON	The number of read-only commits. There are occasions when CICS or IMS invokes DB2 when no DB2 resource was altered since the completion of the last commit process. When this occurs, DB2 performs both phases of the two-phase commit during the first commit phase and records that the user or job is read-only in relation to its DB2 processing.		●	●	●	●
9	Q3STINDT	The number of indoubt units of recovery. A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. The failure can occur in the address space of the application, the transaction manager, DB2, or all of these. IMS and CICS applications use the prepare and commit sequence to commit work. Ideally, this value should be 0.	●	●	●	●	●
10	Q3STRIUR	The number of indoubt units of recovery successfully resolved, either automatically or manually. It includes successful indoubt resolutions for agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. This number should equal the number of units of recovery gone indoubt. If it is less, then some indoubt units of recovery might still exist.		●	●	●	●
11	Q3STSYNC	The total number of commits in a single-phase commit environment such as TSO, CAF, or UTILITY. IMS applications use the prepare-and-commit sequence; CICS applications use both the synchronized commit request and the prepare-and-commit sequence to commit work. Note that DBATs executed on this location are not included. For DBAT statistics, see SINGLE PHASE COMMITS received on the DDF activity block.		●	●	●	●

Table 64. Subsystem Services (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
12	Q3STCTHW	The number of create thread requests queued (not including DBATs). The total number of threads accessing data that can be allocated concurrently is the MAX USERS value on the installation panel DSNTIPE. Requests are queued when the MAX USERS value is exceeded. If no threads are queued during peak hours, the maximum number of threads might be set too high.	●	●	●	●	●
13	Q3STMEOT	The number of times non-DB2 tasks abended while connected to DB2.	●	●	●	●	●
14	Q3STMEOM	The number of times MVS deleted non-DB2 address space while connected to DB2.	●	●	●	●	●
15	QWSDCKPT	The number of checkpoints DB2 has taken since startup. A checkpoint is a point at which DB2 records internal status information on the DB2 log used in the recovery process if DB2 abends.	●	●	●	●	●
Note: All fields can be qualified by minute, thread, and commit.							

Table 65. DB2 Commands

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	Q9STCTR0	The number of DB2 DISPLAY DATABASE commands issued to view objects within one or more DB2 databases. This includes normal and abnormal completion of the command.			●	●	●
2	Q9STCTR1	The number of DB2 DISPLAY THREAD commands issued to view threads active within the DB2 subsystem. This includes normal and abnormal completion of the command.			●	●	●
3	Q9STCTR2	The number of DB2 DISPLAY UTILITY commands issued to view the status of one or more DB2 utilities. This includes normal and abnormal completion of the command.			●	●	●
4	Q9STCTRC	The number of DB2 DISPLAY TRACE commands issued to determine the currently active DB2 traces. This includes normal and abnormal completion of the command.			●	●	●
5	Q9STCTRG	The number of DB2 DISPLAY RLIMIT commands issued to view the current status of the DB2 resource limit facility. This includes normal and abnormal completion of the command.			●	●	●
6	Q9STCTRL	The number of DB2 DISPLAY LOCATION commands issued to display statistics about threads with a distributed relationship. This includes normal and abnormal completion of the command.			●	●	●

Table 65. DB2 Commands (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
7	Q9STCTRQ	The number of DB2 DISPLAY ARCHIVE commands issued. This includes normal and abnormal completion of the command.			●	●	●
8	Q9STCTRO	The number of DB2 DISPLAY BUFFERPOOL commands issued. This includes normal and abnormal completion of the command.			●	●	●
9	Q9STCTRT	The number of DB2 DISPLAY GROUPBUFFERPOOL commands issued. This includes normal and abnormal completion of the command.			●	●	●
10	Q9STCTRX	The number of DB2 DISPLAY GROUP commands issued. This includes normal and abnormal completion of the command.			●	●	●
11	Q9STCTRU	The number of DB2 DISPLAY PROCEDURE commands executed. This includes normal and abnormal completion of the command.			●	●	●
12	Q9STCTRN	The number of DB2 ALTER BUFFERPOOL commands issued. This includes normal and abnormal completion of the command.	●		●	●	●
13	Q9STCTRS	The number of DB2 ALTER GROUPBUFFERPOOL commands issued. This includes normal and abnormal completion of the command.	●		●	●	●
14	Q9STCTR5	The number of DB2 START DATABASE commands issued to make a database available for use. This includes normal and abnormal completion of the command.			●	●	●
15	Q9STCTR6	The number of DB2 START TRACE commands issued to initiate a DB2 trace. This includes normal and abnormal completion of the command.	●		●	●	●
16	Q9STCTR7	The number of DB2 START DB2 commands issued to bring up a DB2 subsystem. This includes normal and abnormal completion of the command.			●	●	●
17	Q9STCTRE	The number of DB2 START RLIMIT commands issued to enable the DB2 resource limit facility. This includes normal and abnormal completion of the command.			●	●	●
18	Q9STCTRI	The number of DB2 START DDF commands issued to enable the DB2 distributed data facility. This includes normal and abnormal completion of the command.			●	●	●
19	Q9STCTRV	The number of DB2 START PROCEDURE commands issued. This includes normal and abnormal completion of the command.			●	●	●
20	Q9STCTR8	The number of DB2 STOP DATABASE commands issued to prevent access to a DB2 database. This includes normal and abnormal completion of the command.			●	●	●

Table 65. DB2 Commands (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
21	Q9STCTR9	The number of DB2 STOP TRACE commands issued to terminate one or more active DB2 traces. This includes normal and abnormal completion of the command.			●	●	●
22	Q9STCTRA	The number of DB2 STOP DB2 commands issued to terminate the DB2 subsystem. This includes normal and abnormal completion of the command.			●	●	●
23	Q9STCTRF	The number of DB2 STOP RLIMIT commands issued to disable the DB2 resource limit facility. This includes normal and abnormal completion of the command.			●	●	●
24	Q9STCTRJ	The number of DB2 STOP DDF commands issued to disable the DB2 distributed data facility. This includes normal and abnormal completion of the command.			●	●	●
25	Q9STCTRW	The number of DB2 STOP PROCEDURE commands issued. This includes normal and abnormal completion of the command.			●	●	●
26	Q9STCTRH	The number of DB2 MODIFY TRACE commands issued to alter trace events (IFCIDs) for an active trace. This includes normal and abnormal completion of the command.			●	●	●
27	Q9STCTRK	The number of DB2 CANCEL THREAD commands issued to cancel a thread. This includes normal and abnormal completion of the command.	●		●	●	●
28	Q9STCTRB	The number of DB2 TERM UTILITY commands issued to stop execution of a DB2 utility. This includes normal and abnormal completion of the command.			●	●	●
29	Q9STCTR3	The number of DB2 RECOVER BSDS commands issued to reestablish dual bootstrap data sets after one has been disabled by a data set error. This includes normal and abnormal completion of the command.			●	●	●
30	Q9STCTR4	The number of DB2 RECOVER INDOUBT commands issued to recover threads left indoubt because DB2 or a transaction manager could not automatically recover them. This includes normal and abnormal completion of the command.			●	●	●
31	Q9STCTRR	The number of DB2 RESET INDOUBT commands issued. This includes normal and abnormal completion of the command.			●	●	●
32	Q9STCTRD	The number of DB2 RESET GENERICLU commands issued. This includes normal and abnormal completion of the command.			●	●	●
33	Q9STCTRM	The number of DB2 ARCHIVE LOG commands issued. This includes normal and abnormal completion of the command.			●	●	●

Table 65. DB2 Commands (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
34	Q9STCTRP	The number of DB2 SET ARCHIVE commands issued. This includes normal and abnormal completion of the command.			●	●	●
35	Q9STEROR	The number of commands not recognized by DB2. The number is incremented if the command verb or primary keyword cannot be determined. For example: • ″-DIXXXX DATABASE(*)″ is an unknown verb • ″-DISPLAY XXXXXXXX(*)″ is an unknown primary keyword.			●	●	●
36	SDSTTOTL	The total number of DB2 commands issued, including unrecognized commands.	●		●	●	●
Note: All fields can be qualified by minute.							

Table 66. DB2 Instrumentation Record Counts

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	SDISRRW	The number of system-related records written.			●	●	●
2	SDISRRN	The number of system-related records not written. Ideally, this field should be 0 or very small.			●	●	●
3	SDIDRRW	The number of database-related records written.			●	●	●
4	SDIDRRN	The number of database-related records not written. Ideally, this field should be 0 or very small.			●	●	●
5	SDIACTW	The number of accounting records written.			●	●	●
6	SDIACTN	The number of accounting records not written. Ideally, this field should be 0 or very small.			●	●	●
7	SDISTRW	The number of start trace records written.			●	●	●
8	SDISTRN	The number of start trace records not written. Ideally, this field should be 0 or very small.			●	●	●
9	SDISTPW	The number of stop trace records written.			●	●	●
10	SDISTPN	The number of stop trace records not written. Ideally, this field should be 0 or very small.			●	●	●
11	SDIZPMW	The number of DB2 system parameter records written.			●	●	●
12	SDIZPMN	The number of DB2 system parameter records not written. Ideally, this field should be 0 or very small.			●	●	●
13	SDBSCRSW	The number of DB2 system parameter buffer pool records written.			●	●	●
14	SDBSCRNW	The number of DB2 system parameter buffer pool records not written. Ideally, this field should be 0 or very small.			●	●	●
15	SDIAUDW	The number of DB2 audit records written.			●	●	●

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
16	SDIAUDN	The number of DB2 audit records not written. Ideally, this field should be 0 or very small.			●	●	●
17	SDTSCRSW	The total number of B2 records written.	●		●	●	●
18	SDTSCRNW	The total number of DB2 records not written.	●		●	●	●

Table 67. DB2 Application Programming Interface

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QWSDSCA	The number of instrumentation facility interface (IFI) abends.	●		●	●	●
2	QWSDSCU	The number of calls made to IFI using a function that is not recognized by the interface.			●	●	●
3	QWSDSCCO	The number of calls made to IFI using the COMMAND function.			●	●	●
4	QWSDSCRA	The number of calls made to IFI using the READA (read asynchronous data) function.			●	●	●
5	QWSDSCRS	The number of calls made to IFI using the READS (read synchronous data) function.			●	●	●
6	QWSDSCWR	The number of calls made to IFI using the WRITE function.			●	●	●
7	SDIFITOT	The total number of calls made to IFI.	●		●	●	●
Note: All fields can be qualified by minute, thread, and commit.							

Table 68. DB2 Destination Data

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	SDISMFWR	The total number of SMF records successfully written.			●	●	●
2	SDISMFNW	The total number of SMF records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
3	SDISMFRA	The total number of SMF records not accepted. Ideally, this field should be 0 or very small.			●	●	●
4	SDISMFBF	The total number of SMF buffer overruns. Ideally, this field should be 0 or very small.	●		●	●	●
5	SDISMFWF	The total number of SMF write failures. Ideally, this field should be 0 or very small.			●	●	●
6	SDIGTFWR	The total number of GTF records successfully written.			●	●	●
7	SDIGTFNW	The total number of GTF records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
8	SDIGTFRA	The total number of GTF records not accepted. Ideally, this field should be 0 or very small.			●	●	●
9	SDIGTFWF	The total number of GTF write failures. Ideally, this field should be 0 or very small.			●	●	●

Table 68. DB2 Destination Data (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
10	SDIOP1WR	The total number of OP1 records successfully written.			●	●	●
11	SDIOP1NW	The total number of OP1 records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
12	SDIOP1RA	The total number of OP1 records not accepted. Ideally, this field should be 0 or very small.			●	●	●
13	SDIOP2WR	The total number of OP2 records successfully written.			●	●	●
14	SDIOP2NW	The total number of OP2 records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
15	SDIOP2RA	The total number of OP2 records not accepted. Ideally, this field should be 0 or very small.			●	●	●
16	SDIOP3WR	The total number of OP3 records successfully written.			●	●	●
17	SDIOP3NW	The total number of OP3 records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
18	SDIOP3RA	The total number of OP3 records not accepted. Ideally, this field should be 0 or very small.			●	●	●
19	SDIOP4WR	The total number of OP4 records successfully written.			●	●	●
20	SDIOP4NW	The total number of OP4 records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
21	SDIOP4RA	The total number of OP4 records not accepted. Ideally, this field should be 0 or very small.			●	●	●
22	SDIOP5WR	The total number of OP5 records successfully written.			●	●	●
23	SDIOP5NW	The total number of OP5 records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
24	SDIOP5RA	The total number of OP5 records not accepted. Ideally, this field should be 0 or very small.			●	●	●
25	SDIOP6WR	The total number of OP6 records successfully written.			●	●	●
26	SDIOP6NW	The total number of OP6 records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
27	SDIOP6RA	The total number of OP6 records not accepted. Ideally, this field should be 0 or very small.			●	●	●
28	SDIOP7WR	The total number of OP7 records successfully written.			●	●	●
29	SDIOP7NW	The total number of OP7 records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●

Table 68. DB2 Destination Data (continued)

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
30	SDIOP7RA	The total number of OP7 records not accepted. Ideally, this field should be 0 or very small.			●	●	●
31	SDIOP8WR	The total number of OP8 records successfully written.			●	●	●
32	SDIOP8NW	The total number of OP8 records not written. This field should be 0. Otherwise, records may have been lost.			●	●	●
33	SDIOP8RA	The total number of OP8 records not accepted. Ideally, this field should be 0 or very small.			●	●	●
34	SDIRTTWR	The total number of RES records successfully written.			●	●	●
35	SDTOTW	The total number of IFC records successfully written.	●		●	●	●
36	SDTOTNW	The total number of IFC records not written.	●		●	●	●
37	SDTOTNA	The total number of IFC records not accepted.	●		●	●	●
38	SDTOTWF	The total number of IFC write failures.	●		●	●	●

Table 69. Data Capture

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QWSDCDLC	The number of log records retrieved for which data capture processing was invoked.			●	●	●
2	QWSDCDLR	The total number of data capture log reads for processing IFI reads requests for IFCID 185.			●	●	●
3	QWSDCDRR	The total number of data capture log records returned.			●	●	●
4	QWSDCDDR	The total number of data capture data rows returned.		●	●	●	●
5	QWSDCDMB	The total number of data capture describes performed. A data capture describe is the process of getting descriptive information about a DB2 table from the catalog.			●	●	●
6	QWSDCDDD	The total number of data capture describes performed. A data capture describe is the process of getting descriptive information about a DB2 table from the catalog.			●	●	●
7	QWSDCDTB	The total number of data capture tables returned to the caller of the IFI reads call for IFCID 185.			●	●	●
Note: All fields can be qualified by minute, thread, and commit.							

Table 70. Miscellaneous

Ref No	Field ID	Description	Supported by		Applicable to DB2		
			Exc	Graph	V4	V5	V6
1	QWSDLR	The LOG RBA ADDRESS current when DB2 collected the statistics in the begin record.			●	●	●
2	QWSDRINV	The reason why statistics was invoked: • DB2 STARTUP • DB2 SHUTDOWN • COMMAND • TIMER • CHECKPOINT • ACCOUNTING • IFI READS			●	●	●
3	QISTCOLS	The total number of columns (rows x columns) for which an invalid select procedure was encountered. DB2 bypasses invalid select procedures which can cause some degradation in performance.			●	●	●
4	QVLSLC01	First of 32 servicability fields (QVLSLC01 through QVLSLC32). This field is internal to DB2.			●	●	●
5	QXCASDP	The maximum level of indirect SQL cascading. This includes cascading due to triggers, UDFs or stored procedures.	●				●
6	QXSTLOBV	Maximum storage used for LOB values.	●				●
7	QWSTLOBV	Maximum storage used for LOB values.	●				●

Chapter 36. The Statistics Save-File Utility

You use the DB2 PM Save-File utility to:

- Migrate Statistics Save data sets created using Version 5, into DB2 PM Version 6 record format with the MIGRATE function. The reformatted records (from the previous DB2 PM release) are loaded into a DB2 PM Version 6 Save data set. Version 4 or Version 5 Save data sets cannot be restored until migrated into DB2 PM Version 6 format.
- Convert Statistics Save data sets into sequential data sets with the CONVERT function, suitable for use by the DB2 load utility.

The function performed is specified in a parameter on the EXEC command.

How to Use the Save-File Utility

This section describes how to migrate and convert data using the Save-File utility.

Migrating Data

DB2 PM Version 6 provides stand-alone migration programs to migrate Version 5 Statistics Save data sets into a format suitable for DB2 PM Version 6.

There are only two steps in the migration:

1. Define a DB2 PM Version 6 VSAM data set using IDCAMS.
2. Migrate the data to DB2 PM Version 6 format using the MIGRATE function of the DB2 PM Version 6 Save-File utility.

The sample job, DGOPJSMI, is provided with DB2 PM Version 6 in the SDGOSAMP library for migrating Statistics Save data sets. This member is provided only as an example and can be modified as required by your installation.

Converting Data Sets

The sample job, DGOPJSCO, is provided with DB2 PM Version 6 in the SDGOSAMP library for converting Statistics Save data sets into sequential data sets suitable for use with the DB2 load utility. Note that this member is provided only as an example and can be modified as required by your installation.

Save-File Utility DD statements

This section lists the DD statements needed for migration and conversion. All of the DD statements described here are required.

Input

The DDNAME of the input data set. This can be a DB2 PM Version 4 or Version 5 Statistics Save data set for the MIGRATE function, or a DB2 Version 6 Statistics VSAM Save data set for the CONVERT function.

Output

The DDNAME of the output data set.

For CONVERT, allocate the data set with the following characteristics:

Table 71.

RECFM	VB
LRECL	9072
BLKSIZE	9076

For MIGRATE, use the name of the DB2 PM Version 6 VSAM Save data set.

DPMLOG

DB2 PM command processor messages and messages indicating exceptional processing conditions are written to DPMLOG. If DPMLOG is not specified, it is dynamically allocated to the SYSOUT message class of the job. Allocate the data set with the following attributes:

Table 72.

RECFM	FBA
LRECL	133
BLKSIZE	6251

Statistics Save-File Output Records

The converted Save data is written to a Save-File data set. The following types of records are created:

- General data records
- Buffer pool data records
- DDF data records
- Group buffer pool records

Descriptions of the layouts of these records can be found in the SDGOSAMP library under the following names:

DGOSDGEN
General data records

DGOSDBUF
Buffer pool data records

DGOSDDDF
DDF data records

DGOSDGBP
Group buffer pool records

Chapter 37. The Statistics File Data Set

You use the FILE subcommand to format DB2 Statistics records and write them to sequential data sets suitable for use by the DB2 load utility. You can place unreduced Statistics data into the DB2 PM performance database. Use the performance database to produce tailored reports using a reporting facility such as Query Management Facility (QMF). See "Part 8. The Performance Database" on page 557 for more information.

The format of the output data from the Statistics File data set is identical with that of the CONVERT function of the Save-File utility.

The Statistics File data set is produced when DB2 PM Statistics delta records are externalized using the FILE subcommand. Each such delta record represents the period of time between two pairs of DB2 Statistics delta records and can be represented in the File data set by up to 3 types of records:

- *General Statistics* records contain data from IFCID 1 and 2. One general Statistics record is produced for each Statistics *delta record*.
- *Buffer pool Statistics* records contain data derived from IFCID 2 records. One buffer pool record is produced for each buffer pool active at the start time of the corresponding *delta record*. Each DB2 PM Statistics delta record can produce up to 80 buffer pool Statistics records.
- *DDF Statistics* records contain DDF Statistics originating from IFCID 1. One DDF record is produced for each remote location that has interacted with the local DB2 subsystem using system-directed access method (as at the start of the corresponding delta record period). Another DDF record is produced for all remote locations that used the application-directed access method (where at least one location used this method at the start time of the delta record). Each DB2 PM Statistics *delta record* can produce several DDF Statistics records.
- *Group buffer pool Statistics* records contain data derived from IFCID 2 records. One group buffer pool record is produced for each group buffer pool active at the start time of the corresponding *delta record*. Each DB2 PM Statistics delta record can produce up to 80 group buffer pool Statistics records.

Statistics File Output Records

File data is written to a File data set. The following types of records are created:
- General data records
- Buffer pool data records
- DDF data records
- Group buffer pool records

Descriptions of the layouts of these records can be found in the SDGOSAMP library under the following names:

DGOSDGEN
　　General data records

DGOSDBUF
　　Buffer pool data records

DGOSDDDF
　　DDF data records

DGOSDGBP
Group buffer pool records

Part 8. The Performance Database

This part of the *DB2 PM Report Reference* describes the performance database. It is divided into the following chapters:

- "Chapter 38. Introduction to the Performance Database" on page 559 gives a brief overview of the Performance Database.

- "Chapter 39. Database Structure" on page 561 explains how the database is organized.

- "Chapter 40. Migrating the Performance Database" on page 569 shows how to migrate your DB2 PM Version 5 Performance Database to DB2 PM Version 6.

Performance Database

Chapter 38. Introduction to the Performance Database

You can load performance data into DB2 tables to create a performance database. With the performance data base you can:

- Perform additional performance evaluations. As an example you can examine the access paths of dynamic SQL statements.
- Collect historic data
- Use SQL for fast and easy retrieval of data.

The performance data can come from the following data groups:

- Accounting
- Audit
- Locking
- Record traces (IFCIDs 22, 63 and 125)
- Statistics
- Batch, periodic, and display exceptions.

The data can be aggregated or nonaggregated:

- In the case of aggregated data, several records are summarized by specific DB2 PM identifiers. In a report, each entry represents aggregated data. Use the SAVE subcommand to generate a VSAM data set containing the aggregated data. When the data has been saved, use the Save-File utility to generate a DB2 loadable data set.
- In the case of nonaggregated data, each record is listed in order of occurrence. In a trace, each entry represents nonaggregated data. Use the FILE subcommand to generate a data set containing the nonaggregated data.

For batch, periodic, and display exceptions, a DB2 loadable data set is generated automatically for each DB2 PM execution if EXFILDD1 is defined in your JCL. The generated data set is sequential variable-blocked and can be directly loaded into DB2.

The following figure shows how performance data is formatted and loaded for each data group.
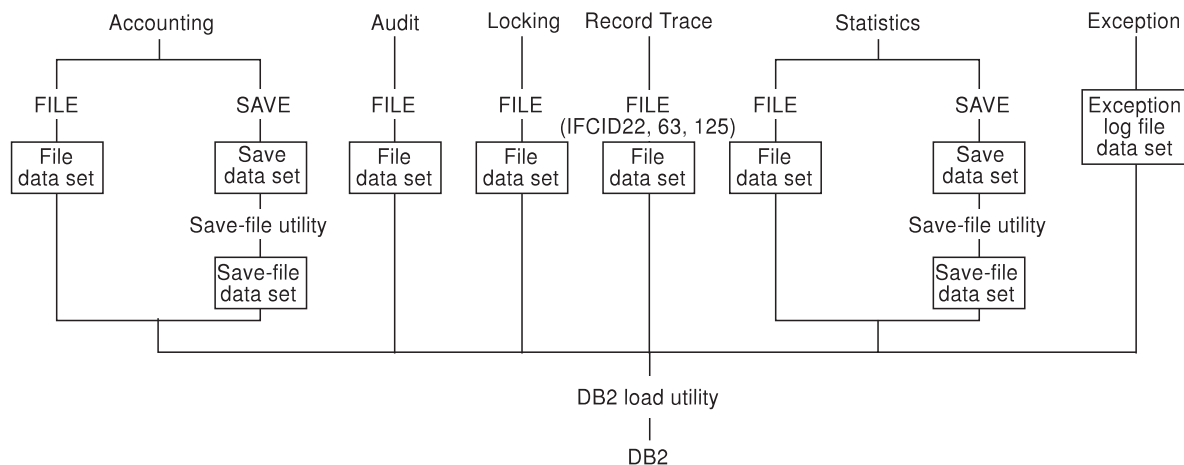
Figure 248. How Performance Data is Formatted and Loaded

Chapter 39. Database Structure

This section shows the structure of each of the tables in the performance database.

Accounting Table
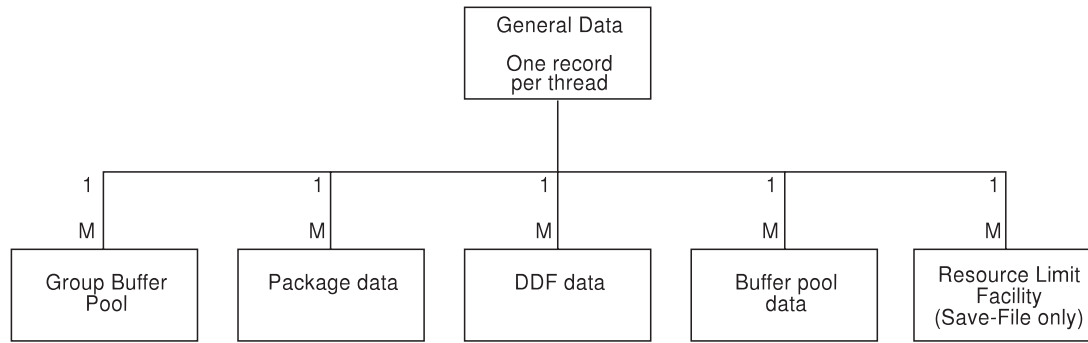
Figure 249. The Accounting Tables

The generated data set consists of the following records:

General
>One row per thread.

Group buffer pool
>One row per group buffer pool used.

Package data
>One row per package and DBRM executed.

DDF data
>One row per remote location participating in distributed activity.

Buffer pool data
>One row per buffer pool used.

RLF   One row per resource limit type encountered.

When parallel tasks are performed within a data-sharing group, the parallel task records are contained in the record of the originating task, regardless of whether the parallel tasks were performed on the same member as the originating task or on other members of the data sharing group.

Samples

The types of parts provided are:
- CREATE TABLE DDL, you can use this to build the DB2 tables into which Accounting File and Save-File data can be loaded.
- Load control statements for loading data into the DB2 tables.
- Flat files that describe the table columns. These files are in a format that allows them to be loaded into a table.

Accounting File

The parts provided for Accounting File are as follows:

Table 73. Parts for Accounting File Data. Description

Type of Data	Create Table Statements	Load Control	Table Description
General	DGOACFGE	DGOALFGE	DGOABFGE
Group Buffer Pool	DGOACFGP	DGOALFGP	DGOABFGP
Buffer Pool	DGOACFBU	DGOALFBU	DGOABFBU
DDF Records	DGOACFDF	DGOALFDF	DGOABFDF
Package Records	DGOACFPK	DGOACFPK	DGOABFPK

Examples of CREATE VIEW statements are supplied in the member DGOAVSAV.

Examples of SQL queries can be found in the member DGOAQSAV.

Accounting Save-File

The parts provided for Accounting Save-File are as follows:

Table 74. Parts for Accounting Save-File Data

Type of Data	Create Table Statements	Load Control	Table Description
General	DGOACSGE	DGOALSGE	DGOABSGE
Group Buffer Pool	DGOACSGP	DGOALSGP	DGOABSGP
Buffer Pool	DGOACSBU	DGOALSBU	DGOABSBU
DDF Records	DGOACSDF	DGOALSDF	DGOABSDF
Package Records	DGOACSPK	DGOALSPK	DGOABSPK
Resource Limit Facility (RLF) records	DGOACSRF	DGOALSRF	DGOABSRF

Save data sets must be converted to the Save-File layout before they can be loaded into tables. See "Chapter 28. The Accounting Save-File Utility" on page 359 for more information.

Examples of CREATE VIEW statements are supplied in the member DGOAVSAV.

Examples of SQL queries can be found in the member DGOAQSAV.

Note: These members are provided as examples and can be modified as required by your installation.

Audit Tables
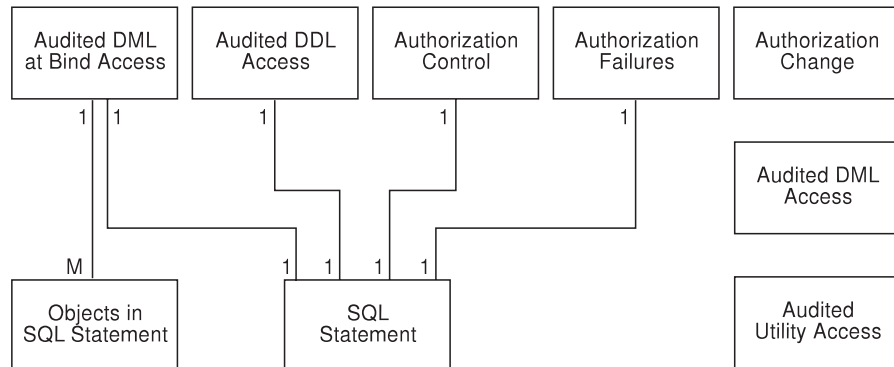
Figure 250. The Audit Tables

Authorization Failures
> One row for each authorization failure that occured

Authorization Control
> One row per authorization control issued

Authorization Change
> One row for each of the following events:
> - SET CURRENT SQLID issued
> - End of IDENTIFY
> - End of SIGNON
> - Inbound or outbound distributed translated

Audited DDL Access
> One row per CREATE or DROP against an Audited object, or ALTER
> TABLE which change the AUDIT option against an audited table.

Audited DML at Bind Access
> One row for each SQL statement that involves audited objects.

Objects in SQL statement
> One row for each object involved in the SQL statements recorded in
> Audited DML at Bind Access.

Audited DML Access
> One row for the first change (write) to an audited object in a unit of work

Audited Utility Access
> One row for each object and each phase accessed by a utility execution.

SQL Statement
> One row for the text of each SQL statement involved in
> - Authorization Failure
> - Authorization Control
> - Audited DDL Access
> - Audited DML at Bind Access.

Samples

Examples of CREATE TABLE DDL, and LOAD statements can be found in the SDGOSAMP library.

CREATE TABLE DDL examples can be used as models for building the DB2 tables into which the Audit File data sets can be loaded. LOAD utility control statements can be used as models for loading Audit File output records into DB2 tables. These sample members are:

Table 75. Parts for Audit File Data

Type of Data	Create Table Statements	Load Control Statements	Table Description
Bind	DGOXCBND	DGOXLBND	DGOXBBND
Auth Change	DGOXCCHG	DGOXLCHG	DGOXBCHG
Auth Control	DGOXCCNT	DGOXLCNT	DGOXBCNT
DDL	DGOXCDDL	DGOXLDDL	DGOXBDDL
DML	DGOXCDML	DGOXLDML	DGOXBDML
Auth Fail	DGOXCFAI	DGOXLFAI	DGOXBFAI
SQL	DGOXCSQL	DGOXLSQL	DGOXBSQL
Utility	DGOXCUTI	DGOXLUTI	DGOXBUTI

Locking Table

```
Locking

One record per
• lock request
• drain request
• claim request
• successful lock
  avoidance
```

Figure 251. The Locking Table

The table contains a row for each occurrence of the following events:
* A LOCK, UNLOCK, CHANGE, or QUERY request processed by DB2.
* A request to acquire a claim, change a claim duration, or release a claim.
* A request to release a drain on a claim class.
* A successful lock avoidance.

Samples

Examples of CREATE TABLE DDL, and LOAD statements can be found in the SDGOSAMP library.

The CREATE TABLE DDL example can be used as a model for building the DB2 tables into which the locking File data sets can be loaded.The DB2 LOAD utility control statements can be used as a model for loading locking File output records into DB2 tables.

Table 76. Parts for Locking File Data

Type of Data	Create Table Statements	Load Control Statements	Table Description
Bind	DGOLCFIL	DGOLLFIL	DGOXBFIL

Note: These members are provided only as examples and can be modified as required by your installation.

Record Trace Tables
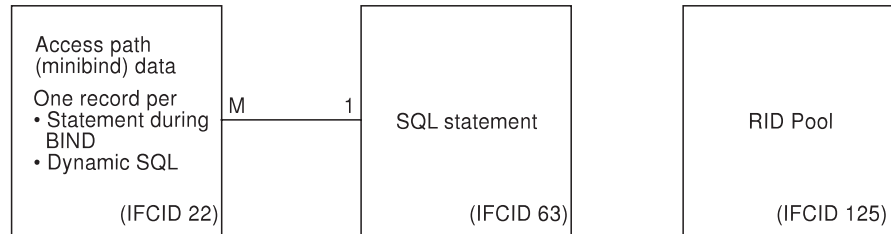
Figure 252. The Record Trace Data Set

The generated data set contains the following records:

Access path
> One row per IFCID 22.

SQL statement
> One row per SQL statement text record.

RID pool
> One row per multiple index access operation.

Samples

Examples of CREATE TABLE DDL, and LOAD statements can be found in the SDGOSAMP library.

The CREATE TABLE DDL example can be used as a model for building the DB2 tables into which record trace File data sets can be loaded.

The DB2 LOAD utility control statements can be used as a model for loading record trace File output records into DB2 tables.

Table 77. Parts for Record Trace File Data

Type of Data	Create Table Statements	Load Control Statements	Sample Query	Table Description
IIFCIDs 22, 63	DGONCMBI	DGONLMBI	DGONSMBI	DGONBMBI
IIFCID 125	DGONC125	DGONL125	DGONS125	DGONB125

Note: These members are provided only as examples and can be modified as required by your installation.

Statistics Tables
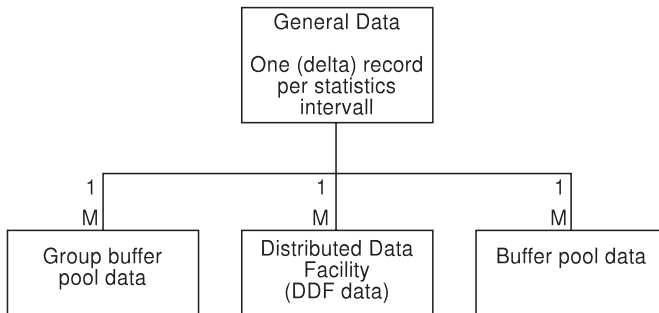
Figure 253. The Statistics Table

The generated table contains the following records:

General data

> **File data:**
>> One row for each statistics delta record, containing data from IFCID 1 and 2.
>>
>> A delta record is a set of counters describing the DB2 activity between two consecutive DB2 statistics records pairs. For more information, see "DB2 PM Delta Records" on page 372.
>
> **Save-File data**
>> One row for each statistics interval record, containg data from IFCID 1 and 2. A Statistics interval record is a set of counters describing the DB2 activity within the interval specified specified by the user. For more information on interval records, see "DB2 PM Interval Records" on page 372.

Buffer pool data
> One row per buffer pool active at the start of the corresponding delta record for File data, or interval record for Save-File Data.

Group buffer pool data
> One row per group buffer pool active at the start of the corresponding delta record for File data, or interval record for Save-File Data.

DDF For each delta record (File data) or interval record (Save-file data), one row per remote location participating in distributed activity using the system-directed access method and one for all remote locations that used the application-directed access method.

Samples

Examples of CREATE TABLE, LOAD statements, SQL queries, and descriptions of the statistics tables can be found in SDGOSAMP. The description files are in a format that can be loaded into DB2 tables.

CREATE TABLE DDL examples can be used for building the DB2 tables into which the Statistics File data sets and the converted statistics save records can be loaded. The DB2 load utility control samples can be used as models for loading Statistics File data sets and converted statistics save records into DB2 tables. These parts are supplied in:

Table 78. Parts for Statistics File and Save-File Data

Type of Data	Create Table Statements	Load Control Statements	Sample Query	Table Description
General Data	DGOSCGEN	DGOSLGEN	DGOSQGEN	DGOSBGEN
Buffer Pool	DGOSCBUF	DGOSLBUF	DGOSQBUF	DGOSBBUF
DDF	DGOSCDDF	DGOSLDDF	DGOSQDDF	DGOSBDDF
Group Buffer Pool	DGOSCGBP	DGOSLGBP	DGOSQGBP	DGOSBGBP

The sample query in DGOSQDDF uses the view defined in DGOSVDDF.

The samples provided are valid for Statistics File and Save-file data.

Save data sets must be converted to the Save-File layout before they can be loaded into tables. See "Chapter 36. The Statistics Save-File Utility" on page 553 for more information.

Note that these members are only provided as examples and can be modified as required by your installation.

Exceptions Table

```
Exceptions

One record per
• batch exception
• periodic exception
• display exception
```

The generated table contains a list of accounting and statistics exceptions:

Batch exceptions
    One row per exception

Periodic exceptions
    One row per exception

Display exceptions
    One row per exception

Samples

Examples of CREATE TABLE DDL, and LOAD statements can be found in the SDGOSAMP library.

The CREATE TABLE DDL example can be used as a model for building the DB2 tables into which File data sets can be loaded.

The DB2 LOAD utility control statements can be used as a model for File output records into DB2 tables.

Table 79. Parts for Exceptions File Data

Type of Data	Create Table Statements	Load Control Statements	Sample Query	Table Description
Exception	DGOECFIL	DGOELFIL	DGOEQFIL	DGOEBFIL

The query in DGOEQFIL uses the sample view defined in DGOEVFIL.

Note: These members are provided only as examples and can be modified as required by your installation.

Chapter 40. Migrating the Performance Database

If you already have a DB2 PM Version 5 Performance Data Base, you can adapt it for use with DB2 PM Version 6 by adding the new DB2 PM columns. These are listed in the following sections.

Views are provided for tables where the name of one or more V5 columns have been changed so that existing programs can still use the old Version 5 column names. These views are in the SDGOSAMP library. These members can be identified by the number 5 in the fifth position of the filename. The name of the Version 5 view of the Accounting General view, which maps to the table defined by DGOACSGE, for example, is DGOA5SGE.

Accounting

Accounting General Save-File Table

The following columns are added to the Accounting General table by Version 6

```
CLIENT_ENDUSER          CHAR(16)
CLIENT_WSNAME           CHAR(18)
CLIENT_TRANSACTION      CHAR(32)
CLASS1_EL_STPROC        DECIMAL(13,6)
CLASS1_EL_UDF           DECIMAL(13,6)
ELAPSED_TRIGGER         DECIMAL(13,6)
CLASS1_CPU_UDF          DECIMAL(13,6)
CPU_TRIGGER             DECIMAL(13,6)
CLASS2_EL_STPROC        DECIMAL(13,6)
CLASS2_EL_UDF           DECIMAL(13,6)
CLASS2_CPU_UDF          DECIMAL(13,6)
ENTRY_EXIT_UDF          DECIMAL(15,0)
DB_IO_SUSP              DECIMAL(15,0)
CLASS3_DB_IO            DECIMAL(13,6)
LOG_WRT_IO_SUSP         DECIMAL(15,0)
CLASS3_LOG_WRT_IO       DECIMAL(13,6)
UPD_COMMIT_SUSP         DECIMAL(15,0)
CLASS3_UPD_COMMIT       DECIMAL(13,6)
OPEN_CLOSE_SUSP         DECIMAL(15,0)
CLASS3_OPEN_CLOSE       DECIMAL(13,6)
SYSLOGR_REC_SUSP        DECIMAL(15,0)
CLASS3_SYSLOGR_REC      DECIMAL(13,6)
EXT_DEL_DEF_SUSP        DECIMAL(15,0)
CLASS3_EXT_DEL_DEF      DECIMAL(13,6)
OTHER_SERV_SUSP         DECIMAL(15,0)
CLASS3_OTHER_SERV       DECIMAL(13,6)
SCHEDUL_UDF_SUSP        DECIMAL(15,0)
CLASS3_SCHEDUL_UDF      DECIMAL(13,6)
SET_CURRENT_PATH        DECIMAL(15,0)
HOLD_LOCATOR            DECIMAL(15,0)
FREE_LOCATOR            DECIMAL(15,0)
CREATE_AUX_TABLE        DECIMAL(15,0)
CREATE_DIST_TYPE        DECIMAL(15,0)
DROP_DIST_TYPE          DECIMAL(15,0)
CREATE_FUNCTION         DECIMAL(15,0)
ALTER_FUNCTION          DECIMAL(15,0)
DROP_FUNCTION           DECIMAL(15,0)
CREATE_PROCEDURE        DECIMAL(15,0)
ALTER_PROCEDURE         DECIMAL(15,0)
DROP_PROCEDURE          DECIMAL(15,0)
CREATE_TRIGGER          DECIMAL(15,0)
DROP_TRIGGER            DECIMAL(15,0)
REFORM_PARAL_CONFG      DECIMAL(15,0)
```

```
                        REFORM_PARAL_NOBUF       DECIMAL(15,0)
                        UDF_EXECUTED             DECIMAL(15,0)
                        UDF_ABENDS               DECIMAL(15,0)
                        UDF_TIMEOUTS             DECIMAL(15,0)
                        UDF_REJECTED             DECIMAL(15,0)
                        STATEMENT_TRIGGER        DECIMAL(15,0)
                        ROW_TRIGGER              DECIMAL(15,0)
                        TRIGGER_SQL_ERROR        DECIMAL(15,0)
                        CL1_SU_CPU_UDF           DECIMAL(15,0)
                        SU_CPU_TRIGGER           DECIMAL(15,0)
                        CL2_SU_CPU_UDF           DECIMAL(15,0)
                        DIRECT_ACCESS            DECIMAL(15,0)
                        INDEX_USED               DECIMAL(15,0)
                        TS_SCAN_USED             DECIMAL(15,0)
                        LOG_RECS_WRITTEN         DECIMAL(15,0)
                        BYTES_PER_LOG_REC        DECIMAL(15,0)
```

The following columns are renamed in the Accounting General table by Version 6

OLD NAME	NEW NAME
CLASS1_TCB	CLASS1_CPU_NNESTED
CLASS1_TCB_STPROC	CLASS1_CPU_STPROC
CLASS2_TCB	CLASS2_CPU_NNESTED
CLASS2_TCB_STPROC	CLASS2_CPU_STPROC
STPRC_SUSP	SCHED_STPRC_SUSP
CLASS3_STPRC	CLASS3_SCHED_STPRC
CL1_SU_TCB	CL1_SU_CPU_NNESTED
CL1_SU_TCB_STPROC	CL1_SU_CPU_STPROC
CL1_SU_TCB_PARAL	CL1_SU_CPU_PARAL
CL2_SU_TCB	CL2_SU_CPU_NNESTED
CL2_SU_TCB_STPROC	CL2_SU_CPU_STPROC
CL2_SU_TCB_PARAL	CL2_SU_CPU_PARAL
SUSPEND_LATCH	SUSPEND_IRLM_LATCH

Accounting General File Table

The following columns are added to the Accounting General table by Version 6

```
                        CLIENT_ENDUSER          CHAR(16),
                        CLIENT_WSNAME           CHAR(18),
                        CLIENT_TRANSACTION      CHAR(32),
                        CLASS1_EL_STPROC        DECIMAL(13,6)
                        CLASS1_EL_UDF           DECIMAL(13,6)
                        ELAPSED_TRIGGER         DECIMAL(13,6)
                        CLASS1_CPU_UDF          DECIMAL(13,6)
                        CPU_TRIGGER             DECIMAL(13,6)
                        CLASS2_EL_STPROC        DECIMAL(13,6),
                        CLASS2_EL_UDF           DECIMAL(13,6),
                        CLASS2_CPU_UDF          DECIMAL(13,6),
                        ENTRY_EXIT_UDF          INTEGER,
                        DB_IO_SUSP              INTEGER,
                        CLASS3_DB_IO            DECIMAL(13,6),
                        LOG_WRT_IO_SUSP         INTEGER,
                        CLASS3_LOG_WRT_IO       DECIMAL(13,6),
                        UPD_COMMIT_SUSP         INTEGER,
                        CLASS3_UPD_COMMIT       DECIMAL(13,6),
                        OPEN_CLOSE_SUSP         INTEGER,
                        CLASS3_OPEN_CLOSE       DECIMAL(13,6),
                        SYSLOGR_REC_SUSP        INTEGER,
                        CLASS3_SYSLOGR_REC      DECIMAL(13,6),
                        EXT_DEL_DEF_SUSP        INTEGER,
                        CLASS3_EXT_DEL_DEF      DECIMAL(13,6),
                        OTHER_SERV_SUSP         INTEGER,
                        CLASS3_OTHER_SERV       DECIMAL(13,6),
                        SCHEDUL_UDF_SUSP        INTEGER,
                        CLASS3_SCHEDUL_UDF      DECIMAL(13,6),
```

```
          SET_CURRENT_PATH        INTEGER,
          HOLD_LOCATOR            INTEGER,
          FREE_LOCATOR            INTEGER,
          CREATE_AUX_TABLE        INTEGER,
          CREATE_DIST_TYPE        INTEGER
          DROP_DIST_TYPE          INTEGER
          CREATE_FUNCTION         INTEGER
          ALTER_FUNCTION          INTEGER
          DROP_FUNCTION           INTEGER
          CREATE_PROCEDURE        INTEGER
          ALTER_PROCEDURE         INTEGER
          DROP_PROCEDURE          INTEGER
          CREATE_TRIGGER          INTEGER
          DROP_TRIGGER            INTEGER
          REFORM_PARAL_CONFG      INTEGER,
          REFORM_PARAL_NOBUF      INTEGER,
          MAX_SQL_CASCAD_LVL      INTEGER
          UDF_EXECUTED            INTEGER,
          UDF_ABENDS              INTEGER,
          UDF_TIMEOUTS            INTEGER,
          UDF_REJECTED            INTEGER,
          STATEMENT_TRIGGER       INTEGER,
          ROW_TRIGGER             INTEGER,
          TRIGGER_SQL_ERROR       INTEGER,
          DIRECT_ACCESS           INTEGER,
          INDEX_USED              INTEGER,
          TS_SCAN_USED            INTEGER,
          LOG_RECS_WRITTEN        INTEGER,
          BYTES_PER_LOG_REC       INTEGER,
          MAX_STOR_LOB_VALUE      INTEGER,
          CL1_SU_CPU_UDF          INTEGER
          SU_CPU_TRIGGER          INTEGER
          CL2_SU_CPU_UDF          INTEGER
```

The following columns are renamed in the Accounting General table by Version 6

OLD NAME	NEW NAME
CLASS1_TCB	CLASS1_CPU_NNESTED
CLASS1_TCB_STPROC	CLASS1_CPU_STPROC
CLASS1_TCB_PARAL	CLASS1_CPU_PARAL
CLASS2_TCB	CLASS2_CPU_NNESTED
CLASS2_TCB_STPROC	CLASS2_CPU_STPROC
CLASS2_TCB_PARAL	CLASS2_CPU_PARAL
STPRC_SUSP	SCHED_STPRC_SUSP
CLASS3_STPRC	CLASS3_SCHED_STPRC
SET_CURRENT_RULE	SET_CURRENT_RULES
CL1_SU_TCB	CL1_SU_CPU_NNESTED
CL1_SU_TCB_STPROC	CL1_SU_CPU_STPROC
CL1_SU_TCB_PARAL	CL1_SU_CPU_PARAL
CL2_SU_TCB	CL2_SU_CPU_NNESTED
CL2_SU_TCB_STPROC	CL2_SU_CPU_STPROC
CL2_SU_TCB_PARAL	CL2_SU_CPU_PARAL
SUSPEND_LATCH	SUSPEND_IRLM_LATCH

The following columns are added to the Accounting Buffer Pool table by Version 6

Accounting DDF File and Save-File Tables

The following columns are added to the Accounting DDF tables by Version 6.

```
          CLIENT_ENDUSER          CHAR(16)
          CLIENT_WSNAME           CHAR(18)
          CLIENT_TRANSACTION      CHAR(32)
          DBAT_WAITING_TIME       DECIMAL(13,6)
```

Accounting Group Buffer Pool File and Save-File Tables

The following fields are added to the Accounting Group Buffer Pool tables by Version 6:

```
CLIENT_ENDUSER        CHAR(16)
CLIENT_WSNAME         CHAR(18)
CLIENT_TRANSACTION    CHAR(32)
EXPLICIT_X_INVALID    DECIMAL(15,0)
WRITE_TO_SEC_GBP      DECIMAL(15,0)
```

Accounting Package File and Save-File Tables

The following fields are added to the Accounting Package tables by Version 6:

```
CLIENT_ENDUSER        CHAR(16)
CLIENT_WSNAME         CHAR(18)
CLIENT_TRANSACTION    CHAR(32)
USED_BY_UDF           DECIMAL(15,0)
USED_BY_TRIGGER       DECIMAL(15,0)
STPROC_EXECUTED       DECIMAL(15,0)
UDF_EXECUTED          DECIMAL(15,0)
CLASS8_SCHEDUL_UDF    DECIMAL(15,0)
SCHEDUL_UDF_SUSP      DECIMAL(13,6)
```

The following columns are renamed:

```
OLD NAME              NEW NAME

CLASS7_TCB            CLASS7_CPU_AGENT
CLASS7_CPU_PARAL      CLASS7_CPU_PARAL
CLASS3_SCHED_STPRC    SCHED_STPRC_SUSP
STPROC_SUSP           CLASS8_SCHED_STPRC
CL7_SU_AGENT          CL7_SU_CPU_AGENT
CL7_SU_TCB_PARA       CL7_SU_CPU_PARAL
```

Accounting RLF Save-File Tables

The following fields must be added to the Accounting RLF Save-File table:

```
CLIENT_ENDUSER        CHAR(16)
CLIENT_WSNAME         CHAR(18)
CLIENT_TRANSACTION    CHAR(32)
```

Audit

To use your DB2 PM Version 5 tables with DB2 PM Version 6, you must add the following columns to each of the Audit tables.

```
ENDUSER               CHAR(16)
WSNAME                CHAR(18)
TRANSACT              CHAR(32)
```

The following tables are affected:

- Authorization Change
- Authorization Control
- Authorization Failure
- Bind Repeating Subtype
- Bind Nonrepeating Subtype
- DDL Access
- DML Access

- Statement Text
- Utility Access

Locking

The following fields must be added to the Locking table:

```
ENDUSER            CHAR(16)
WSNAME             CHAR(18)
TRANSACT           CHAR(32)
RES_ROWID          CHAR(17)
RES_VER#           SMALLINT
```

Statistics

Statistics General

The following fields must be added to the Statistics General table:

```
SET_CURRENT_PATH   DOUBLE PRECISION
HOLD_LOCATOR       DOUBLE PRECISION
CREATE_AUX_TABLE   DOUBLE PRECISION
CREATE_DIST_TYPE   DOUBLE PRECISION
CREATE_FUNCTION    DOUBLE PRECISION
CREATE_PROCEDURE   DOUBLE PRECISION
CREATE_TRIGGER     DOUBLE PRECISION
ALTER_FUNCTION     DOUBLE PRECISION
ALTER_PROCEDURE    DOUBLE PRECISION
DROP_DIST_TYPE     DOUBLE PRECISION
DROP_FUNCTION      DOUBLE PRECISION
DROP_PROCEDURE     DOUBLE PRECISION
DROP_TRIGGER       DOUBLE PRECISION
UDF_EXECUTED       DOUBLE PRECISION
UDF_ABENDED        DOUBLE PRECISION
UDF_TIMED_OUT      DOUBLE PRECISION
UDF_REJECTED       DOUBLE PRECISION
STATEMENT_TRIGGER  DOUBLE PRECISION
ROW_TRIGGER        DOUBLE PRECISION
TRIGGER_SQL_ERROR  DOUBLE PRECISION
MAX_SQL_CASCAD_LVL DOUBLE PRECISION
ROW_DIRECT_ACCESS  DOUBLE PRECISION
ROW_INDEX_USED     DOUBLE PRECISION
ROW_TS_SCAN_USED   DOUBLE PRECISION
MAX_STOR_LOB_VALUE DOUBLE PRECISION
REFORM_PARAL_CONFG DOUBLE PRECISION
REFORM_PARAL_NOBUF DOUBLE PRECISION
RTN_AUT_WO_CATALG  DOUBLE PRECISION
RTN_AUT_PUB_WO_CAT DOUBLE PRECISION
RTN_AUT_UNSUC_CACH DOUBLE PRECISION
RTN_CACHOWRT_AUTID DOUBLE PRECISION
RTN_CACHOWRT_ENTRY DOUBLE PRECISION
RTN_CACH_NOT_ADDED DOUBLE PRECISION
```

The following columns are renamed:

```
OLD NAME                NEW NAME
AUTH_ATTEMPTS           PLN_AUT_ATTEMPTS
AUTH_SUCCESSFUL         PLN_AUT_SUCCESSFUL
AUTH_SUCC_CACHE         PLN_AUT_WO_CATALG
AUTH_SUCC_EXE_PUBL      PLN_AUT_PUB_WO_CAT
AUTH_PKG_WO_CATALG      PKG_AUT_WO_CATALG
AUT_PKG_PUB_WO_CAT      PKG_AUT_PUB_WO_CAT
AUT_UNSUC_PKG_CACH      PKG_AUT_UNSUC_CACH
PKG_CACHOFLW_AUTID      PKG_CACHOWRT_AUTID
```

```
PKG_CACHOFLW_COLID        PKG_CACHOWRT_ENTRY
WRITE_NOWAIT              LOG_RECS_CREATED
SUSPENSION_LATCH         SUSP_IRLM_LATCH
```

Statistics Group Buffer PooL

The following fields must be added to the Statistics Group Buffer Pool table:

```
DB2_RELEASE_61       CHAR(1)
EXPLICIT_X_INVALID   DOUBLE PRECISION
WRITE_TO_SEC_GBP     DOUBLE PRECISION
WRITE_SGBP_FAILED    DOUBLE PRECISION
DEL_NAME_LIST_SGBP   DOUBLE PRECISION
DEL_PAGE_FROM_SGBP   DOUBLE PRECISION
READ_CSTOUT_S_SGBP   DOUBLE PRECISION
```

The following columns are renamed:

```
OLD NAME                 NEW NAME
ASYNC_READ_NORET         DASD_PGS_READ_RPL
```

Part 17. Appendixes

1269

Appendix A. The DPMOUT Record

The externalized DPMOUT data is a sequential data set with variable-length records. The following table outlines the format of the DPMOUT record. This record layout is not intended to be used as programming interface. Use these terms to interpret the table:

Offset The length from the beginning of the record to the start of the field.

Length
> The length of the field, in bytes.

Data Type
> The format of the value in the field:
>
> **CHAR** Character
>
> **INTEGER**
> > Integer
>
> **SMALLINT**
> > Small integer
>
> **BINARY**
> > Binary
>
> **POINTER**
> > Pointer

Layout of the DPMOUT Record

Table 142. Layout of the DPMOUT Record

Offset	Length	Data Type	Field Description
DPMOUT Header			
N/A	2	SMALLINT	Record length (LL)
N/A	2	SMALLINT	Binary zeros (ZZ)
0	3	CHAR	Literal identifier DPM
3	1	BINARY	DB2 PM release number
4	16	CHAR	Location. If the location name is not available, this field contains either the data sharing group name, if available, or the DB2 subsystem ID.
20	8	CHAR	Data sharing group name
28	4	CHAR	Subsystem ID
32	8	CHAR	DB2 member name
40	8	CHAR	Sort timestamp
48	1	CHAR	Destination code
49	4	CHAR	Destination sequence number
53	11	CHAR	Reserved (zeros)
64	4	BINARY	Reserved
68	8	CHAR	Timezone adjusted timestamp
76	8	CHAR	Correlation name (translated)
84	8	CHAR	Correlation number (translated)

Table 142. Layout of the DPMOUT Record (continued)

Offset	Length	Data Type	Field Description
92	8	CHAR	Connection type (translated)
100	1	CHAR	Record type flag
101	1	CHAR	Correlation data present flag
102	1	CHAR	CPU data present flag
103	1	CHAR	DDF data present flag
DPMOUT Header DBID/OBID Translation Section Definition			
104	4	POINTER	Offset of first DBID/OBID translation section
108	2	SMALLINT	Length of each DBID/OBID translation section
110	2	SMALLINT	Number of DBID/OBID translation sections
Product Section Instrumentation Header			
112	3	CHAR	Reserved
115	1	BINARY	Resource manager ID
116	2	SMALLINT	IFCID
118	1	BINARY	Number of self-defining areas
119	1	BINARY	DB2 release number
120	4	POINTER	ACE address
124	4	CHAR	Subsystem name (DB2ID)
128	8	CHAR	Store clock value of header
136	4	INTEGER	IFCID sequence number
140	4	INTEGER	Destination sequence number
144	4	INTEGER	Active trace number mask
148	16	CHAR	The name of the local location. If the location name is not available, this field contains the DB2 subsystem ID.
164	8	CHAR	Network ID
172	8	CHAR	LUNAME
180	6	CHAR	Instance number
186	2	CHAR	Commit count
Product Section Correlation Header			
188	8	CHAR	Authorization ID
196	12	CHAR	Correlation ID
208	8	CHAR	Connection ID
216	8	CHAR	Plan name
224	8	CHAR	Original authorization ID
232	4	INTEGER	Connecting system type code
236	22	CHAR	Accounting token
258	2	CHAR	Reserved
Product Section CPU Header			
260	8	CHAR	CPU time
268	4	CHAR	Reserved
Product Section DDF Header			

Table 142. Layout of the DPMOUT Record (continued)

Offset	Length	Data Type	Field Description
272	16	CHAR	Requesterlocation
288	8	CHAR	Store clock for DBAT trace records
296	16	CHAR	Server name
312	8	CHAR	EXCSAT PRDID parameter
320	8	CHAR	Reserved
Product Section Data Sharing Header			
328	8	CHAR	DB2 member name
336	8	CHAR	DB2 data sharing group
Product Section Original Authorization Header			
344	8	CHAR	Correlation name (translated)
352	8	CHAR	Correlation number (translated)
360	8	CHAR	Connection type (translated)
368	1	CHAR	Correlation data present flag
369	1	CHAR	DDF data present flag
370	2	CHAR	Reserved
372	8	CHAR	Network ID
380	8	CHAR	LUNAME
388	6	CHAR	Instance number
394	2	CHAR	Commit count
Product Section Original Correlation Header			
396	8	CHAR	Authorization ID
404	12	CHAR	Correlation ID
416	8	CHAR	Connection ID
424	8	CHAR	Plan name
432	8	CHAR	Original authorization ID
440	4	INTEGER	Connecting system type code
444	22	CHAR	Accounting token
466	2	CHAR	Reserved
Product Section Original DDF Header			
468	16	CHAR	Requester location
484	8	CHAR	Store clock for DBAT trace records
492	16	CHAR	Server name
508	8	CHAR	EXCSAT PRDID parameter
516	8	CHAR	Reserved
Self-Defining Sections			
524	4	POINTER	Offset to data section 1
528	2	SMALLINT	Length of each item
530	2	SMALLINT	Number of items
532	4	POINTER	Offset to data section 2
536	2	SMALLINT	Length of each item

Table 142. Layout of the DPMOUT Record (continued)

Offset	Length	Data Type	Field Description
538	2	SMALLINT	Number of items
540	4	POINTER	Offset to data section 3
544	2	SMALLINT	Length of each item
546	2	SMALLINT	Number of items
548	4	POINTER	Offset to data section 4
552	2	SMALLINT	Length of each item
554	2	SMALLINT	Number of items
556	4	POINTER	Offset to data section 5
560	2	SMALLINT	Length of each item
562	2	SMALLINT	Number of items
564	4	POINTER	Offset to data section 6
568	2	SMALLINT	Length of each item
570	2	SMALLINT	Number of items
572	4	POINTER	Offset to data section 7
576	2	SMALLINT	Length of each item
578	2	SMALLINT	Number of items
580	4	POINTER	Offset to data section 8
584	2	SMALLINT	Length of each item
586	2	SMALLINT	Number of items
588	4	POINTER	Offset to data section 9
592	2	SMALLINT	Length of each item
594	2	SMALLINT	Number of items
596	4	POINTER	Offset to data section 10
600	2	SMALLINT	Length of each item
602	2	SMALLINT	Number of items
604	4	POINTER	Offset to data section 11
608	2	SMALLINT	Length of each item
610	2	SMALLINT	Number of items
612	4	POINTER	Offset to data section 12
616	2	SMALLINT	Length of each item
618	2	SMALLINT	Number of items
620	4	POINTER	Offset to data section 13
624	2	SMALLINT	Length of each item
626	2	SMALLINT	Number of items
628	4	POINTER	Offset to data section 14
632	2	SMALLINT	Length of each item
634	2	SMALLINT	Number of items
636	4	POINTER	Offset to data section 15
640	2	SMALLINT	Length of each item
642	2	SMALLINT	Number of items

Table 142. Layout of the DPMOUT Record (continued)

Offset	Length	Data Type	Field Description
Data sections-variable number and length			
DBID/OBID translation section-variable number			
0	2	SMALLINT	DBID number
2	2	SMALLINT	OBID number
4	8	CHAR	Database name
12	8	CHAR	Table space name

Appendix B. DB2 PM VSAM Data Sets

DB2 PM uses the following VSAM data sets:

- Save data sets are written when the job stream contains a SAVE subcommand.
- Job summary data sets are written when new data is processed.
- Distribute data sets are written when the job stream contains a DISTRIBUTE command.

All VSAM data sets used in a DB2 PM job must exist before DB2 PM is executed. Preallocate the data sets using the IDCAMS command. You can run IDCAMS as an initial step in the DB2 PM job. The required attributes for VSAM data sets are shown in Table 143. An example of the required IDCAMS commands is shown in Figure 428. The job deletes the cluster if it already exists, then defines a new cluster with the specified attributes.

Refer to the *DFSMS/MVS Access Method Services for ICF* and the *DFSMS/MVS Access Method Services for VSAM* for more information about IDCAMS.

Notes:

1. When the SAVE subcommand is specified, the save data set should be empty. If it is not empty, all existing records are deleted. If save and restore use the same physical data set, the restored data is rewritten during save.
2. You do not need to prime DB2 PM VSAM data sets.

Table 143. Attributes for DB2 PM VSAM Data Sets

Data Set	Key Length (bytes)	Record Length (bytes)		Buffer Space (bytes)	Control Interval (bytes)	
		Maximum	Average		Data	Ind
Accounting SAVE (ACSAVDD)	284	3000	1500	40 960	8192	409
Statistics SAVE (STSAVDD)	92	5500	20000	40 960	8192	409
DISTRIBUTE (DISTDD)	158	234	234	40 960	8192	409
Job Summary (JSSRSDD)	52	2462	160	40 960	8192	409

Note: Buffer space and control interval size are suggestions only. You can modify them to suit the requirements of your installation.

```
//ALCVSAM  EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
  DELETE (cluster.name)
  DEFINE -
    CLUSTER ( -
      NAME (cluster.name) -
      TRACKS (as required) -
      VOLUMES (as required) -
      KEYS (keylength 0) -
      RECORDSIZE (average maximum) -
      BUFFERSPACE (40960) -
      REUSE -
      ) -
  DATA ( -
      CONTROLINTERVALSIZE (8192) -
      ) -
  INDEX ( -
      CONTROLINTERVALSIZE (4096) -
      )
 /*
```

Figure 428. IDCAMS Commands

Appendix C. Correlation Translation Record

This record layout is not intended to be used as programming interface.

Table 144. Correlation Translation Record

Offset	Length	Description
0	8	Connection ID
8	2	Correlation name offset
10	2	Correlation name length
12	2	Correlation number offset
14	2	Correlation number length
16	64	Reserved

Appendix D. Location Information Record

Table 145. Location Information Record Format

Offset	Length	Data Type	Field Description
0	16	CHAR	Location
16	2	CHAR	Reserved
18	1	CHAR	Local time relativity (E or W)
19	5	CHAR	Difference between local time and GMT (HH:MM)
24	1	CHAR	CPU time relativity (E or W)
25	5	CHAR	Difference between CPU time and GMT (HH:MM)
30	50	CHAR	Reserved

Appendix E. MAINPACK Definitions Record

This record layout is not intended to be used as programming interface.

Table 146. MAINPACK Definitions Record Format

Offset	Length	Data Type	Field Description
0	16	CHAR	Requester location
16	8	CHAR	Connection ID
24	8	CHAR	Plan name
32	1	CHAR	Code

Appendix F. Notices

This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
500 Columbus Avenue
Thornwood, NY 10594
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:
INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Deutschland
Informationssysteme GmbH
Department 3982
Pascalstrasse 100
70569 Stuttgart
Germany

1285

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this information and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement, or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrates programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

Trademarks and service marks

The following terms are trademarks of the IBM Corporation in the United States or other countries or both:

| APPN | CICS | DataHub | DATABASE 2 |

DB2	DFSMS/MVS	DFSORT	IBM
IMS/ESA	MVS	MVS/ESA	MVS/XA
OS/390	OS/2	QMF	RACF/2
SQLDS		VTAM	

Windows and Windows NT are trademarks of Microsoft Corporation.

Pentium is a trademark of Intel Corporation.

Other company, product, and service names may be trademarks or service marks of others.

Bibliography

IBM DB2 Performance Monitor for OS/390 Version 6 Report Reference Volume 1, SC26-9164

IBM DB2 Performance Monitor for OS/390 Version 6 Report Reference Volume 2, SC26-9165

IBM DB2 Performance Monitor for OS/390 Version 6 Online Monitor User's Guide, SC26-9168

IBM DB2 Performance Monitor for OS/390 Version 6 Batch User's Guide, SC26-9167

IBM DB2 Performance Monitor for OS/390 Version 6 Command Reference, SC26-9166

IBM DB2 Performance Monitor for OS/390 Version 6 Messages, SC26-9169

IBM DB2 Performance Monitor for OS/390 Version 6 Using the Workstation Online Monitor, SC26-9170

IBM DB2 Performance Monitor for OS/390 Version 6 Installation and Customization, SC26-9171

IBM DB2 Performance Monitor for OS/390 Version 6 General Information, GC26-9172

Program Directory for IBM DB2 UDB Server for OS/390 DB2 Performance Monitor DB2 Workstation Analysis and Tuning Version 6, GI10-8183

IBM DB2 Universal Database Server for OS/390 Version 6 Administration Guide, SC26-9003

IBM DB2 Universal Database Server for OS/390 Version 6 Command Reference, SC26-9006

IBM DB2 Universal Database Server for OS/390 Version 6 SQL Reference, SC26-9014

IBM DB2 Universal Database Server for OS/390 Version 6 Application Programming and SQL Guide, SC26-9004

IBM DB2 Universal Database Server for OS/390 Version 6 Data Sharing: Planning and Administration, SC26-9007

IBM DB2 Universal Database Server for OS/390 Version 6 Installation Guide, GC26-9008

IBM DB2 Universal Database Server for OS/390 Version 6 Utility Guide and Reference, SC26-9015

IBM DB2 Universal Database Server for OS/390 Version 6 Diagnosis Guide and Reference, LY36-3736

IBM DB2 Universal Database Server for OS/390 Version 6 Messages and Codes, GC26-9011

DSFSMS/MVS Macro Instruction for Data Set, SC26-4913

OS/390 MVS System Management Facilities (SMF), GC28-1783

DFSMS/MVS Access Method Services for ICF, SC26-4906

DFSMS/MVS Access Method Services for VSAM, SC26-4905

OS/390 MVS Initialization and Tuning Guide, SC28-1751

OS/390 MVS System Codes, GC28-1780

OS/390 MVS Programming: Authorized Assembler Services Guide, GC28-1763

OS/390 MVS Authorized Assembler Service Reference, GC28-1764 to GC28-1767

OS/390 MVS Writing Transaction Programs for APPC/MVS, GC28-1775

MVS/Extended Architecture Integrated Catalog Administration: Access Method Services Reference, GC26-4019

MVS/XA Data Administration Guide, GC26-4140

OS/390 ISPF Dialog Developer's Guide and Reference, SC28-1273

OS/390 ISPF Services Guide, SC28-1272

OS/390 ISPF User's Guide, SC28-1239

DFSORT Application Programming Guide, SC33-4035

OS/390 TSO/E Messages, GC28-1978

OS/390 TSO/E REXX Reference, SC28-1975

IBM TCP/IP for MVS - Application Programming Interface Reference Version 3 Release 2, SC31-7187

TCP/IP Tutorial and Technical Overview, GG24-3376

ITSC - A Beginner's Guide to MVS TCP/IP Socket Programming, GG24-2561

Graphic Data Display Manager/Presentation Graphics Feature: Interactive Chart Facility User's Guide, SC33-0111

IBM Dictionary of Computing, New York: McGraw-Hill, 1994

Readers' Comments — We'd Like to Hear from You

DB2 Performance Monitor for OS/390
Report Reference Volume 1
Version 6

Publication No. SC26-9164-00

Overall, how satisfied are you with the information in this book?

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Overall satisfaction	☐	☐	☐	☐	☐

How satisfied are you that the information in this book is:

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Accurate	☐	☐	☐	☐	☐
Complete	☐	☐	☐	☐	☐
Easy to find	☐	☐	☐	☐	☐
Easy to understand	☐	☐	☐	☐	☐
Well organized	☐	☐	☐	☐	☐
Applicable to your tasks	☐	☐	☐	☐	☐

Please tell us how we can improve this book:

Thank you for your responses. May we contact you?   ☐ Yes   ☐ No

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

Name _____   Address _____

Company or Organization _____

Phone No. _____

IBM ®