CA IDMS™ Performance Monitor

Performance Monitor User Guide

Release 18.5.00, 2nd Edition

CA Technologies Product References

This document references the following CA products:

- CA ADS for CA IDMS™
- CA ADS Database Universal Communication Facility Option (DC/UCF)

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Documentation Changes

The following documentation updates were made for the 18.5.00, 2nd Edition release of this documentation:

- Active User Task Detail (PF4) (see page 53)—Updated with information about the possibility to cancel tasks running on remote Central Versions.
- Control Keys and Commands (see page 20)—Updated information about monitoring systems remotely; monitored CVs must be running non-swappable.

The following documentation updates were made for the 18.5.00 release of this documentation:

- Control Keys and Commands (see page 20)—Updated the SYStem command details. Noted that the IDMSINFO address space must be running in order to remotely monitor a CV with Performance Monitor.
- Active System Summary (PF19) (see page 77)—Added this topic to explain a new screen.

Contents

Chapter 1: Introduction

This guide is intended to serve as a comprehensive reference on how to use CA IDMS Database Performance Monitor Option. This product is a performance and tuning tool you can use to monitor hardware and software resource utilization in a DC/UCF system.

This guide is intended for the following audiences:

- Data communications administrators (DCAs)
- Database administrators (DBAs)
- Operators
- System programmers
- Applications programmers

Syntax Diagram Conventions

The syntax diagrams presented in this guide use the following notation conventions:

`UPPERCASE OR SPECIAL CHARACTERS`

Represents a required keyword, partial keyword, character, or symbol that must be entered completely as shown.

`lowercase`

Represents an optional keyword or partial keyword that, if used, must be entered completely as shown.

`italicized lowercase`

Represents a value that you supply.

`lowercase bold`

Represents a portion of the syntax shown in greater detail at the end of the syntax or elsewhere in the document.

Points to the default in a list of choices.

Indicates the beginning of a complete piece of syntax.

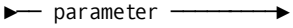
Indicates the end of a complete piece of syntax.

Indicates that the syntax continues on the next line.

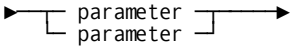
Indicates that the syntax continues on this line.

Indicates that the parameter continues on the next line.

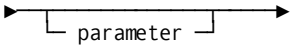
Indicates that a parameter continues on this line.



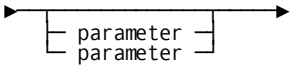
Indicates a required parameter.



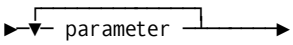
Indicates a choice of required parameters. You must select one.



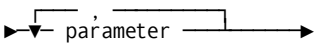
Indicates an optional parameter.



Indicates a choice of optional parameters. Select one or none.



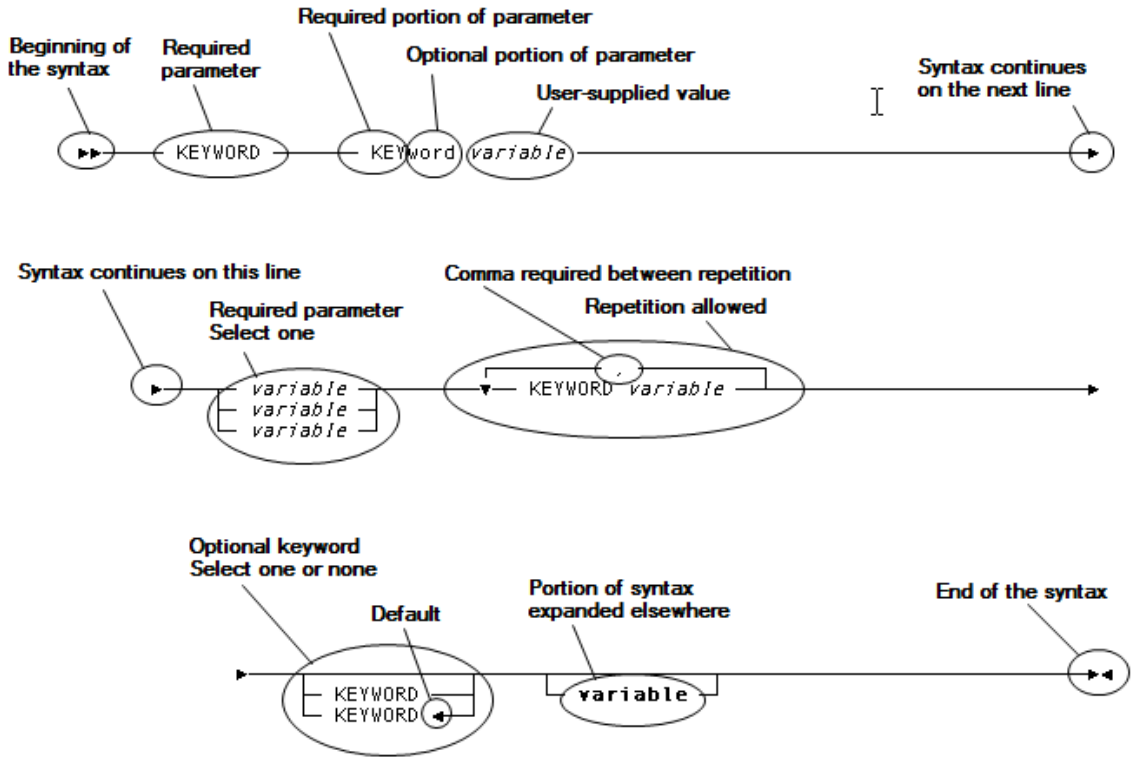
Indicates that you can repeat the parameter or specify more than one parameter.



Indicates that you must enter a comma between repetitions of the parameter.

Sample Syntax Diagram

The following sample explains how the notation conventions are used:



Chapter 2: Introduction to Performance Monitor

This section contains the following topics:

System Overview

The CA IDMS Performance Monitor is a performance and tuning tool you can use to monitor hardware and software resource utilization in a DC/UCF system.

Components

Performance Monitor includes the following components:

Component	User	Statistics Collected
Realtime Monitor	DCAs, DBAs, operators, system programmers	Specific system-resource statistics at the time of the request
Interval Monitor	DCAs, DBAs	System-wide, wait-time statistics for a unit of time (for example, five minutes), which are necessary to track bottlenecks in resource utilization
Application Monitor	Application programmers, DCAs, DBAs	Statistics about resource usage by individual programs and chargeback/billing information by group code

Windowing

All three Performance Monitor components are implemented through windowing. Windowing provides the following.

- Comprehensive online help. You can request help at any time by using the HELP command. The position of the cursor at the time of the request indicates the required level of information. Online help explains the meaning of each Performance Monitor field.
- The ability to control more data than can fit on the terminal screen. For example, you can scroll to the right to see additional columns of data.
- Flexible screen displays. You can edit and sort screens to display data in a more meaningful format.

What this Chapter Includes

The topics in this chapter describe how to:

- Access each Performance Monitor component
- End a session
- Get online help information
- Use windowing to manipulate windows and screens

The chapter also describes options that control processing during a Performance Monitor session.

Using Performance Monitor

To begin a Performance Monitor session, enter the task code for the monitor you want to use:

Monitor	Task Code
Realtime Monitor	**pmrm**
Interval Monitor	**pmim**
Application Monitor	**pmam**
Billing component of the Application Monitor	**pmbill**

Note: If your site uses different task codes, see your system administrator.

Monitor Menu

When you enter a task code, the menu for the appropriate monitor is displayed. Each option on the menu represents a specific monitor screen.

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 07:31:52.90
CMD-->                                                          Window : 01
                                                                Refresh: 10

  01 Realtime Monitor Menu

  PFkey  Description                        PFkey  Description
_  PF1   System Run Unit Summary        _  PF2   Scratch Manager Detail
_  PF3   Communication Line Detail      _  PF4   Active User Task Detail
_  PF5   Active System Task Detail      _  PF6   Transaction Detail
_  PF7   Lterm Resource Usage Summary   _  PF8   Buffer I/O Summary
_  PF9   Storage Pool Detail            _  PF10  Program Pool Detail
_  PF11  Database Overview              _  PF12  Transaction Overview
_  PF13  Task + Prog Pool Overview      _  PF14  Storage Pool Overview
_  PF15  Database I/O Driver Detail     _  PF16  Journal Detail
_  PF17  SQL Overview                   _  PF18  Active SQL Detail
_  PF19  Active System Summary
```

Information on the Screen

The first three lines on your terminal screen define the product, release, date, time of day, window number for the current window (see Windowing (see page 19)) and refresh interval (if installed with the refresh option). This area also provides a field for entering commands and a message area.

The rest of the terminal screen contains one or more windows. Each window displays a monitor screen. The default window is the window that is displayed in the upper-left corner of the terminal screen. Performance Monitor displays as many windows at a time as possible. Use the windowing facility to manipulate the window displays, as described under Windowing (see page 19).

Ending a Session

When you are ready to exit Performance Monitor:

1. Type **quit, bye,** or **end** following the CMD--> prompt
2. Press [Enter] to return to the ENTER NEXT TASK CODE prompt.

Note: You can also press [Clear] to exit Performance Monitor.

Getting Online Help

This section explains how you can get online help for the following:

- Performance Monitor in general
- Screens
- Fields
- Commands

Getting Help for Performance Monitor, Screens, and Fields

You can access comprehensive help text at any time by using the cursor to indicate the level of help information you want.

To display online help information, perform the following steps:

1. Type **help** or **?** at the CMD--> prompt. For example:

```
PM-Rnn.n SYSTEM71        CA, Inc.          V71     08.348 13:39:25.99
CMD--> help                                          Win.ct dow : 01
                  < < <  S c r e e n  H e l d  > > >        Refresh: 10
  01 Realtime Monitor Menu

  PFkey  Description                    PFkey  Description
_  PF1   System Run Unit Summary       _  PF2   Scratch Manager Detail
```

2. Position the cursor to indicate the required level of detail:

For help on	Position the cursor
Performance Monitor in general	In the first three screen lines of your terminal screen
A screen	On the title line for the window that displays the screen
A field	In the column or row that displays the field

For example, if you wanted information on the screen shown above, you would position the cursor to the left of 01 Realtime Monitor Menu.

3. Press [Enter] to display a screen containing help text.

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:48:09.25
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Help for Map - Realtime Monitor Menu                                  i
   The Realtime Monitor Menu allows you to view activity and resource
usage in your DC/UCF system as it happens; that is, in real time.

   You use the Realtime Monitor Menu to choose the category or categories
to monitor:

     o  To view a single category, either type a nonblank
        character in the entry field to the left of
        the category name and press ENTER, or press the
        appropriate PF key.

     o  To view multiple categories, type nonblank
        characters in the entry fields to the left of
        the category names and press ENTER.

   You can use CA IDMS Performance Monitor windowing capabilities to view
more than one category of information at a time.  For example, you might
want to have the Active User Task Detail window and the Lterm Resource
Usage Summary window up at the same time.  This enables you to know
what's going on in your system and who is using the resources.
```

[PF1] Field Help

As an alternative to the procedure already described, you can use [PF1] to get help for a specific field:

1. Position the cursor in the field.
2. Press [PF1].

For example, assume you want information on the Write Errors field in the following screen.

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:40:53.52
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Communication Line Detail                                           >
   Line       Write   Total    Read   Total   Line RPL    Waits Total RPLs
   Name      Errors  Writes  Errors   Reads Status Gen   On RPL  Requested
   CONSOLE        0       0       0       0 INSRVC   0        0          0
   UCFLINE        0       0       0       0 INSRVC   0        0          0
   VTAM71         0    1743       0    1738 INSRVC   5      532       3638
   DDSVTAM        0    5470       0    5470 INSRVC   0        0          0
   CCILINE        0       0       0       0 INSRVC   0        0          0
```

To get this help, you position the cursor in the Write Errors field and press [PF1]. This displays the help text shown in the following screen.

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:41:39.94
CMD-->                                                          Window : 03
                                                                Refresh: 10

  03 Help for Field - Write_Errors
   Write Errors indicates the number of errors encountered attempting to
write to a device assigned to the line.  If excessive errors occur,
identify the problem terminal and run a terminal trace to diagnose using
DCMT PTERM commands.

  02 Communication Line Detail                                           >
   Line       Write   Total    Read   Total   Line RPL    Waits Total RPLs
   Name      Errors  Writes  Errors   Reads Status Gen   On RPL  Requested
   CONSOLE        0       0       0       0 INSRVC   0        0          0
   UCFLINE        0       0       0       0 INSRVC   0        0          0
   VTAM71         0    1747       0    1742 INSRVC   5      532       3649
   DDSVTAM        0    5470       0    5470 INSRVC   0        0          0
   CCILINE        0       0       0       0 INSRVC   0        0          0
```

Note: You cannot use [PF1] to get menu-level help.

Screen Help

As an alternative to the first procedure described for getting help, you can also use H or ? to get online help for a specific screen:

1. Type **h** or **?** to the left of the window number.
2. Press [Enter] to display the help text for the screen.

Getting Help for Commands

Help for commands include information about syntax, synonyms, and any associated PF keys. To get help information about a specific Performance Monitor command:

1. Type **help** and a command name at the CMD--> prompt.
2. Press [Enter].

For example, to get information on the DELETE command, you enter:

```
CMD--> help delete
```

Closing a Help Window

To close a help window, position the cursor somewhere in the window and press [PF3].

Alternatively, you can:

1. Type **delete** at the CMD--> prompt.
2. Position the cursor somewhere in the help window.
3. Press [Enter].

If the window you want to close is the default window (explained later in this chapter under Windowing (see page 19)), you don't need to position the cursor.

Windowing

Windowing lets you view multiple monitor screens at one time. Each monitor screen is displayed in its own window.

Additionally, with windowing, you can scroll through a row of data that is wider or longer than your terminal screen.

Left Side of Window

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 13:41:14.64
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Communication Line Detail                                            >
   Line       Write   Total    Read   Total   Line RPL    Waits Total RPLs
   Name      Errors  Writes  Errors   Reads Status Gen   On RPL  Requested
   CONSOLE        0       0       0       0 INSRVC   0        0          0
   UCF95          0       0       0       0 INSRVC   0        0          0
   VTAM95         0     298       0     295 INSRVC  20        0        644
```

Right Side of Window

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 13:41:14.64
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Communication Line Detail                                            <
     Total   Line RPL    Waits Total RPLs Line       Term ACBname/ Compact
     Reads Status Gen   On RPL  Requested Type      Count DDname     Y/N
         0 INSRVC   0        0         0  WTO           1 CONSOLE     N
         0 INSRVC   0        0         0  UCF          10 RHDCFSTB    N
       295 INSRVC  20        0       644  VTAM 3270    43 SYSTEM95    Y
```

Window Display

The first line of each window displays a window number and window title. To the left of each window number is a single-character field (called the window command field) that you can use to type commands that apply to the window itself.

Default and Current Windows

The window in the upper-left corner of the window display area is the default window. If the cursor is positioned in the top three lines of the terminal screen, the default window is also the current window.

To make a window other than the default window current, position the cursor within the bounds of that window. All PF keys and top-line commands now apply to that window.

To establish a new default window, type the appropriate window number following the window prompt in the upper-right corner of the screen, and press [Enter]. Performance Monitor displays the window in the upper-left corner of the terminal screen, making it the new default window.

Note: Performance Monitor menu screens are always displayed in window 01.

Control Keys and Commands

You use control keys and commands to direct your session.

Control Keys

Use control keys to request help, scroll screen displays, and perform monitor-specific functions.

Control Key	What It Does
[Enter]	Processes user input
[PF1]	Displays a screen of help text appropriate to the current cursor position
[PF3]	Deletes a window
[PF6]	Displays the Active Windows screen
[PF7]	Scrolls up
[PF8]	Scrolls down
[PF10]	Scrolls left
[PF11]	Scrolls right

Control Key	What It Does
[Clear]	Exits Performance Monitor

Top-line Commands

Commands that you enter at the CMD--> prompt apply to the monitor session or to the current window, as appropriate to the command.

Command	What It Does
ADMIN	Displays the Active Windows screen.
BOTTOM	Scrolls a window to the last line.
BYE	Ends a Performance Monitor session and returns you to the DC/UCF system.
DELETE	Deletes a window.
DOWN [n]	Scrolls a window down n lines. If you do not specify n, scrolls as many lines as can fit in the window.
EDIT	Displays the Edit Window Format screen.
END	Ends a Performance Monitor session and returns you to the DC/UCF system.
EXIT	Ends processing for the Active Windows screen, the Edit Window Format screen, the Sort Selection screen, or the Window Manager Options screen.
FIRST	Scrolls a window to the first line.
FREEZE	Stops refresh processing for a window.
HELP or ?	Displays help text.
HOLD	Stops refresh processing for all windows.
LAST	Scrolls a window to the last line.
LEFT [n]	Scrolls a window to the left n columns. If you do not specify n, scrolls as many columns as can fit in the window.
OPTIONS	Displays the Window Manager Options screen.
QUIT	Ends a Performance Monitor session and returns you to the DC/UCF system.
REFRESH [n]	Changes the refresh interval to n seconds. N defaults to the interval set by the system administrator.
RELEASE	Resumes refresh processing for all windows.

Command	What It Does
RIGHT [n]	Scrolls a window to the right n columns. If you do not specify n, scrolls as many columns as can fit in the window.
SAVE	Saves changes to window formats.
SORT	Displays the Sort Selection screen.
SYSTEM [job name]	(z/OS only) Changes the central version currently being monitored. A central version is specified by its job name. To request a list of all active central versions, specify an asterisk in place of the job name. Request a filtered list by using an asterisk as a wildcard character in a given job name. Any characters following an asterisk are ignored. **Note:** For more information about monitoring CVs, see Active System Summary (PF19) (see page 77). To monitor a system remotely, ensure that: ■ The IDMSINFO address space is active. ■ The monitored central version is running non-swappable. **Note:** If you switch the CV currently being monitored, all "Specific System Run Unit Detail", "Lterm Resource Usage Detail", and "Specific Buffer I/O Detail" windows are closed. **Note:** For information about using the IDMSINFO address space, see the *CA IDMS System Operations Guide*.
THAW	Restarts refresh processing for a previously Frozen window.
TOP	Scrolls a window to the first line.
UP [n]	Scrolls a window up n lines. If you do not specify n, scrolls as many lines as can fit in the window.

Note: To specify a window that is not current, you can precede a window-level command entered here with the WINDOW command, as in **window 5 top**.

Window Commands

Commands that you enter in the single-character field to the left of the window number apply to that window only.

Command	What It Does
B	Scrolls the window to the last line
E	Displays the Edit Window Format screen
D or +	Scrolls the window down

Command	What It Does
H or ?	Displays help text for the window
L	Scrolls the window to the left
R	Scrolls the window to the right
S	Displays the Sort Selection screen
T	Scrolls the window to the top line
U or -	Scrolls the window up
X	Deletes the window

Scrolling

When there is more information for a monitor screen than can fit in a window, Performance Monitor displays indicators in the upper-right corner of that window.

This indicator	Means that more data appears
!	Above
i	Below
<	To the left
>	To the right

You can use PF keys and commands to scroll to see this information.

To scroll a noncurrent window or multiple windows, use the WINDOW command followed by the UP, DOWN, LEFT, or RIGHT command. For example, to scroll windows 06 and 07 to the left, type:

```
window 6 7 left
```

Scaled Statistics

Performance Monitor automatically scales statistics as follows:

- Times: seconds (S), minutes (M), and hours (H)
- Counters:
  - K = multiples of 1000
  - M = multiples of 1,000,000
  - G = multiples of 1,000,000,000

  For example,
  - 1023 = 1023
  - 5K = 5000
  - 3M = 3,000,000
  - 3G = 3,000,000,000
- Storage:
  - kB = multiples of 1024 bytes
  - mB = multiples of 1,048,576 bytes
  - gB = multiples of 1,073,741,824 bytes

  For example,
  - 1023 = 1023 bytes
  - 5kB = 5120 bytes
  - 3mB = 3,145,728 bytes
  - 3gB = 3,221,225,472 bytes

Closing Windows

The following table shows the different ways you can close windows.

To close	Do the following
The current window	Press [PF3] *or* 1. Type **delete** following the CMD--> prompt. 2. Press [Enter].

To close	Do the following
Any displayed window	1. Type **x** in the window command field of the window to be deleted. 2. Press [Enter]. You can mark as many windows as you want in this manner.
Up to five windows at a time	1. Type the WINDOW command and specify up to five window numbers. 2. Type the DELETE command. 3. Press [Enter]. For example, to delete windows 03, 05, 06, and 08, type: window 3 5 6 8 delete
Any number of windows	1. Type **admin** following the CMD--> prompt. 2. Press [Enter] to display the Active Windows screen. 3. Type **x** in the Delete column for each window you want to delete. 4. Press [Enter].

When you close a window, Performance Monitor makes its window number available to the next screen requested.

Displaying Active Windows

To display a list of active windows for your session, type **admin** following the CMD--> prompt, then press [Enter]. Performance Monitor creates a window for the Active Windows screen, then makes that window current:

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:43:12.84
CMD-->                                                          Window : 04
                                                                Refresh: 10
  04 Active Windows                                                      >

Window                                 Win Window Self              Window
Name                                   No. Format  Adj Freeze Delete Status
Active Windows                          04  VAR     Y     N      _    NORMAL
Buffer I/O Summary                      03  VAR     Y     N      _    NORMAL
Journal Detail                          02  VAR     Y     N      _    NORMAL
Realtime Monitor Menu                   01  FIXED   Y     N      _    NORMAL
Msgs Window                             99  VAR     Y     N      _    HIDDEN
```

By scrolling right, you can display the rest of the Active Windows screen:

Scrolling to Display All Fields in a Screen

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:43:23.22
CMD-->                                                          Window : 04
                                                                Refresh: 10
  04 Active Windows                                                   <  >
                                                 Current Current Minimum
 Window                                  Win Window    Size    Size    Size
 Name                                    No. Status     Row     Col     Row
 Active Windows                           04 NORMAL     8      80       5
 Buffer I/O Summary                       03 NORMAL     8      80       3
 Journal Detail                           02 NORMAL     4      80       4
 Realtime Monitor Menu                    01 NORMAL     6      80       4
 Msgs Window                              99 HIDDEN     1      80       1
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:43:23.22
 CMD-->                                                         Window : 04
                                                                Refresh: 10
   04 Active Windows                                                  <  >
                                          Minimum Minimum
   Window                                  Win    Size    Size No. of No. of
   Name                                    No.     Row     Col Lines  Fields
   Active Windows                           04     5      80    0       16
   Buffer I/O Summary                       03     3      40    6       9
   Journal Detail                           02     4      40    2       12
   Realtime Monitor Menu                    01     4      40    10      52
   Msgs Window                              99     1      80    1       3
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:43:23.22
 CMD-->                                                         Window : 04
                                                                Refresh: 10
   04 Active Windows                                                  <

   Window                                  Win No. of No. of          Auto
   Name                                    No. Lines  Fields Sorted Refresh
   Active Windows                           04  0       16      N      Y
   Buffer I/O Summary                       03  6       9       N      Y
   Journal Detail                           02  2       12      N      Y
   Realtime Monitor Menu                    01  10      52      N      N
   Msgs Window                              99  1       3       N      N
```

Fields in the Active Windows Screen

For each window, the Active Windows screen displays:

- The window format (Fixed or Variable):

Format	Attributes
Fixed	■ Fixed format; for example, the Realtime Monitor menu window ■ Columns cannot be sorted ■ Window cannot be edited except to change its displayable size and to eliminate fields
Variable	■ Variable number of rows depending on how much data can be displayed; for example, the Communication Line Detail screen ■ Columns can be sorted ■ Window can be edited ■ Window attribute (see below) is self-adjusting by default, but can also be fixed

You cannot change the fixed/variable characteristics of a window.

- The window attribute; that is, whether the window is self-adjusting or fixed. A self-adjusting window displays as much information as your terminal device permits. A fixed window always contains a fixed number of rows and columns.
- Whether the window is frozen or thawed. A frozen window cannot be refreshed. A thawed window can be refreshed.
- The window status (normal or hidden).
- The current window size (rows and columns).
- The minimum window size (rows and columns).
- The number of lines and fields in the window.
- Whether the window has been sorted.
- Whether the window can be refreshed.

There is also a Delete field, which you can use to delete a window, as described in the following table.

Using the Active Windows Screen

You can use the Active Windows screen to change the status of a window and to delete a window from your session:

Field	Information to enter
Self Adj	■ Y (yes) to specify that the window format can be adjusted as necessary to fit the screen ■ N (no) to specify that the window format cannot be adjusted
Freeze	■ Y (yes) to freeze the window so that it cannot be refreshed ■ N (no) to thaw the window so that it is refreshed at subsequent refresh intervals
Delete	X to delete the window

Press [Enter] to process the change requests. If you have marked any windows for deletion, Performance Monitor displays the Active Windows screen without the deleted windows. The window numbers of the deleted windows are available for new windows.

Windows You Cannot Delete

Each Active Windows screen lists the following windows, which you cannot delete or modify:

- Window 01—The menu screen
- Window 99—The window used internally by Performance Monitor for system messages

Example of Freezing a Window

The following is an example of using the Freeze field of the Active Windows screen to freeze window 03.

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:43:49.33
CMD-->                                                          Window : 04
                  < < <  S c r e e n  H e l d  > > >             Refresh: 10
  04 Active Windows                                                       >

Window                                  Win Window Self                 Window
Name                                    No. Format  Adj Freeze Delete Status
Active Windows                           04  VAR     Y     N       _   NORMAL
Buffer I/O Summary                       03  VAR     Y     y       _
NORMAL
Journal Detail                           02  VAR     Y     N       _   NORMAL
Realtime Monitor Menu                    01  FIXED   Y     N       _   NORMAL
Msgs Window                              99  VAR     Y     N       _   HIDDEN
```

Editing Windows

You can change the size, content, and order of the display for a monitor screen. These changes are temporary (for the current window display only). If the system administrator has given you authority, you can save changes made to monitor screens for use during subsequent sessions. You save the changes using the EDIT command.

Changing a Screen's Format

To change the format of a monitor screen displayed in a window:

- Type **edit** following the CMD--> prompt, and press [Enter] (for the current window). Use the WINDOW command to specify a noncurrent window or to specify multiple windows for editing.

  or

- Type **e** in the window command field of the window to be edited, and press [Enter]. You can select multiple windows in this manner.

Edit Window Format Screens

There are two Edit Window Format screens:

- The first screen allows you to change general information about the screen. For example, you can change the size of the window.
- The second screen allows you to change information for each field on the screen. For example, you can specify the column order.

Changing Screen Information

When you use the EDIT command, Performance Monitor displays the first Edit Window Format screen:

```
 PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:44:53.35
 CMD-->                                                          Window : 02
                                                                 Refresh: 10

   02 EDIT Window Format - PF6 for Window Fields
Buffer I/O Summary
     Map Name: PMRTMBUF                    Date Generated: 06/06/00
                                           Time Generated: 17:48
     Map Type: VARIABLE/COLUMN

     Current Window Size:  8 x  80     SELF-ADJUSTING
     Minimum Window Size:  3 x  40     THAWED

     Number of Fields in Map:      9
     Number of Data Lines:         6
```

Screen Information

The screen displays the following general information about the window:

- The name and type of map that is used to display the window
- The date and time the map was generated
- The current and minimum window sizes (number of rows and column positions)
- An indication of whether the window is Self-Adjusting or Fixed
- An indication of whether the window is Frozen or Thawed
- The number of fields (columns) and data lines currently in the map

Changing Information

You typically change information in the following fields:

Field	Information to enter
Current window size	Number of rows and columns. These considerations apply: ■ Column size must be a multiple of 40 ■ Number of rows cannot be less than that specified by Minimum Window Size, nor can it exceed number of rows available in window display area on your terminal screen ■ Number of columns cannot be less than that specified by Minimum Window Size, nor can it exceed column width of your screen When you change the column width, Performance Monitor automatically changes the Self-Adjusting/Fixed status for the window to FIXED.
Self-Adjusting/Fixed status	S (Self Adjusting) or F (Fixed).
Frozen/Thawed status	F (Frozen) or T (Thawed).

Changing Field Information

To edit individual window fields, press [PF6]. The Performance Monitor displays the second Edit Window Format screen:

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 13:45:01.29
CMD->                                                            Window : 02
                                                                 Refresh: 10

  02 EDIT Window Format - PF6 for Window Edit
          Field  Field                                    Required Displayable
 Command  Order Number Field Name                         Field    Field
    _         1      1 Select_Field                        YES      YES
    _         2      2 Buffer_Name                         YES      YES
    _         3      3 Found_In_Buffer                     NO       YES
    _         4      4 Reads                               NO       YES
    _         5      5 Writes                              NO       YES
    _         6      6 Forced_Writes                       NO       YES
    _         7      7 Bcr_Waits                           NO       YES
    _         8      8 Area_Count                          NO       YES
```

Field Information

This screen lists each field on the monitor screen being edited and provides the following information for each field:

- The display sequence number of the field, moving across the screen from left to right (Field Order)
- The internal field number (Field Number)
- The field name (Field Name)
- An indication of whether the field must be displayed or can be scrolled out of view (Required Field)
- An indication of whether the field is visible (Displayable Field)

Changing Information

To change the order of a field or whether it is to be displayed, enter this information:

Field	Information to enter
Command	1. **m** (move) in the row of the field whose display order you want to change 2. **a** (after) or **b** (before) in the row of the field after which or before which the field is to be moved. If necessary, scroll up or down to display all the fields before typing the commands.

Field	Information to enter
Required Field	■ **y** (yes) to specify that the field must remain on the screen during scrolling operations; ■ **n** (no) to specify that the field can be scrolled off the screen. If Required Field is Y (yes), Displayable Field must be Y (yes).
Displayable Field	■ **y** (yes) to specify that the field must be displayed ■ **n** (no) to specify that the field is hidden and is not displayed. For example, to specify a wide window, you may want to mark fields in which you have no interest with N so that all remaining fields can fit on the screen at one time.

Ending a Screen-Editing Session

When you are through using the Edit Window Format screen, do one of the following:

- Press [PF3].
- Type **exit** following the CMD--> prompt, then press [Enter]. The window for the Edit Window Format screen must be current when you do this.
- Type **x** in the window command field of the window for the Edit Window Format screen, then press [Enter].

Performance Monitor displays the original monitor screen. All editing changes are reflected in the display.

Saving an Edited Screen Format

You can save an edited screen format for use during subsequent Performance Monitor sessions:

- To save the changes for the current window, type **save** following the CMD--> prompt, then press [Enter].
- To save changes for multiple windows or for a window that is not current, use the WINDOW command with the SAVE command. For example, to save changes for screens in windows 02, 03, and 05, issue the following command:

  ```
  window 2 3 5 save
  ```

Required Authority for SAVE

You must have SITE SAVE or USER SAVE authority to use the SAVE command:

- SITE SAVE authority enables you to save version 1 of a load module in the data dictionary's load area. This module is used by Performance Monitor users who do not specify a test version.
- USER SAVE authority enables you to save load modules that use any version other than version 1. The load modules are saved in the data dictionary's load area. These modules are used by users who specify that test version number using the DCUF TEST command.

Note: For more information about the use of the SAVE command, see Performance Monitor Processing Options (see page 38).

Example of Changing Screen Width

The Storage Pool Detail screen below is 80 columns wide. To change the screen width, type **edit** following the CMD--> prompt, then press [Enter]:

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:45:21.56
CMD--> edit                                                    Window : 02
                                                               Refresh: 10
  02 Storage Pool Detail                                                  >
  Pool   Total Storage   High   SOS SOS  Cushn    Pages Release  Pages  Pfix
  ID   Storage  In_Use  Water Count Now   Size Released   Count Pfixed Count
   0    1476kB   620kB  704kB            53248    1536     933
   1     500kB   32768  98304            12288     982     936
   200   256kB   73728  81920             4096     255     251
```

Performance Monitor displays the Edit Window Format screen in the window area.

Change the column width of the window from 80 to 40 columns:

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:45:52.82
CMD-->                                                         Window : 02
                                                               Refresh: 10
  02 EDIT Window Format - PF6 for Window Fields
Storage Pool Detail
     Map Name: PMRTMSTO                    Date Generated: 06/06/00
                                           Time Generated: 12:54
     Map Type: VARIABLE/COLUMN

     Current Window Size:  5 x  40     FIXED SIZE
     Minimum Window Size:  3 x  40     THAWED

     Number of Fields in Map:     16
     Number of Data Lines:         3
```

To return the Storage Pool Detail screen, press [PF3]. The screen now looks like this:

```
PM Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:45:58.83
CMD-->                                                          Window : 02
                                                                Refresh: 10

  02 Storage Pool Detail            >
Pool   Total Storage   High   SOS SOS
ID   Storage  In_Use  Water Count Now
 0    1476kB   620kB  704kB
 1     500kB   32768  98304
 200   256kB   73728  81920
```

You might edit another monitor screen to be 40 columns wide. If you do, Performance Monitor displays the two screens side by side:

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 13:46:38.61
CMD-->                                                          Window : 03
                                                                Refresh: 10

  03 Communication Line Detail       >    02 Storage Pool Detail            >
 Line        Write    Total     Read    Pool   Total Storage   High   SOS SOS
 Name       Errors   Writes   Errors    ID   Storage  In_Use  Water Count Now
 CONSOLE         0        0        0     0    1476kB   620kB  704kB
 UCF95           0        0        0     1     500kB   32768  98304
 VTAM95          0      359        0     200   256kB   73728  81920
 DIALUP          0        0        0
```

Sorting Information

You can sort screens for the Realtime Monitor and the Interval Monitor based on the values in one or more screen fields.

Sorting a Single Field

To request sort processing for a single window field:

1. Type **sort** following the CMD--> prompt, followed by **a** (ascending) or **d** (descending) to specify the sequence of the sort.
2. Position the cursor anywhere in the field to be sorted.
3. Press [Enter].

Performance Monitor displays the sorted screen as requested.

Sorting Multiple Fields

To request sort processing for multiple window fields:

- Type **sort** following the CMD--> prompt, then press [Enter] for the current window. Use the WINDOW command to specify a noncurrent window.

  or

- Type **s** in the window command field of the window to be sorted, then press [Enter].

Sort Selection Screen

Performance Monitor displays the Sort Selection screen for the selected window:

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 13:47:31.35
CMD-->                                                            Window : 02
                                                                  Refresh: 10
  02 Sort Selection * CAUTION, May Be CPU Intensive                         i
     Sort    Field    Field                                      Sort
    Order    Order   Number   Field_Name                         Sequence
                1        1   Select_Field
                2        2   Buffer_Name
                3        3   Found_In_Buffer
                4        4   Reads
                5        5   Writes
                6        6   Forced_Writes
                7        7   Bcr_Waits
                8        8   Area_Count
```

The Sort Selection screen lists each field defined for the selected window. For each field, the Sort Selection screen displays:

- The display sequence number of the field, moving across the screen from left to right (Field Order)
- The internal field number (Field Number)
- The field name (Field Name)
- Existing sort criteria (Sort Order and Sort Sequence)

Specifying Sort Criteria

To specify sort criteria, enter information in the following fields:

Field	Information to enter
Sort Order	A sort order number for each field to be sorted: **1** for the primary sort field, **2** for the secondary sort field, and so forth.
Sort Sequence	**a** (ascending) or **d** (descending) to request that a field be sorted in ascending or descending order. Ascending order is the default.

Exiting a Sort Session

When you finish entering sort criteria, press [Enter].

The Sort Selection screen remains in the window until you return to the original monitor screen by performing one of the following steps:

- Press [PF3].
- Type **exit** following the CMD--> prompt, then press [Enter]. The window for the Sort Selection screen must be current.
- Type **x** in the window command field for the window, then press [Enter].

Performance Monitor displays the original monitor screen. The information in the screen is sorted according to the new criteria.

Saving a Sorted Screen Format

You can save a sorted screen format for use during subsequent Performance Monitor sessions. Use the method described for saving an edited window under Editing Windows (see page 29).

Example of Sorting a Field

The following I/O Detail screen is displayed during an Interval Monitor session. To sort the Write Waits field in descending sequence, type **sort d** on the command line and position the cursor in the Write Waits field:

```
PM-Rnn.n SYSQA03          CA, Inc.                  V105     08.348 11:35:34.80
CMD-->sort d                                                      Window : 02

  02 09:40 IODT IO Detail                                                 ! >
  Area Name                  File Name            Read    Read   Write   Write
                                                 Waits    Time   Waits    Time
  NETAPPL.DDLDML             NETAPPL.APPLDML        0  .0000S       0  .0000S
  NETAPPL.DDLDCLOD           NETAPPL.APPLLOD        4  .0683S       0  .0000S
  PROJSEG.PROJAREA           PROJSEG.PROJDEMO       0  .0000S       0  .0000S
  SQLAPPL.DDLCAT             SQLAPPL.APPLCAT        0  .0000S       0  .0000S
  SQLAPPL.DDLCATX            SQLAPPL.APPLCATX       0  .0000S       0  .0000S
  SQLAPPL.DDLCATLOD          SQLAPPL.APPLCATL       0  .0000S       0  .0000S
  SQLDEMO.EMPLAREA           SQLDEMO.EMPLDEMO       0  .0000S       0  .0000S
  SQLDEMO.INFOAREA           SQLDEMO.INFODEMO       0  .0000S       0  .0000S
  SQLDEMO.INDXAREA           SQLDEMO.INDXDEMO       0  .0000S       0  .0000S
  SYSLOC.DDLOCSCR            SYSLOC.DCLSCR          0  .0000S       0  .0000S
  SYSMSG.DDLDCMSG            SYSMSG.DCMSG           0  .0000S       0  .0000S
  SYSTEM.DDLDCLOD            SYSTEM.DCLOD           0  .0000S       0  .0000S
  SYSTEM.DDLDCLOG            SYSTEM.DCLOG           0  .0000S      54   2.25S
  SYSTEM.DDLDCRUN            SYSTEM.DCRUN           0  .0000S       0  .0000S
  SYSTEM.DDLDML              SYSTEM.DCDML           0  .0000S       0  .0000S
  SYSTEM.DDLDCSCR            SYSTEM.DCSCR           0  .0000S      17  .9603S
  SYSUSER.DDLSEC             SYSUSER.DCSEC          0  .0000S       0  .0000S
  TOOLDB.EMP-DEMO-REGION     TOOLDB.TOOLEMP         0  .0000S       0  .0000S
```

Press [Enter]. Performance Monitor redisplays the screen contents sorted as requested:

```
PM-Rnn.n SYSQA03          CA, Inc.                  V105      08.348 11:36:58.23
CMD-->                                                            Window : 02

  02 09:40 IODT IO Detail                                                    >
  Area Name                  File Name            Read    Read   Write   Write
                                                 Waits    Time   Waits    Time
  SYSTEM.DDLDCLOG            SYSTEM.DCLOG             0  .0000S      54   2.25S
  SYSTEM.DDLDCSCR            SYSTEM.DCSCR             0  .0000S      17  .9603S
  ASFNWK.DDLDML              ASFNWK.ASFDML            0  .0000S       0  .0000S
  ASFNWK.DDLDCLOD            ASFNWK.ASFLOD            0  .0000S       0  .0000S
  ASFNWK.IDMSR-AREA          ASFNWK.ASFDEFN           0  .0000S       0  .0000S
  ASFNWK.IDMSR-AREA2         ASFNWK.ASFDATA           0  .0000S       0  .0000S
  CATSYS.DDLCAT              CATSYS.DCCAT             0  .0000S       0  .0000S
  CATSYS.DDLCATX             CATSYS.DCCATX            0  .0000S       0  .0000S
  CATSYS.DDLCATLOD           CATSYS.DCCATL            0  .0000S       0  .0000S
  DIRLNWK.DDLDML             DIRLNWK.DIRLDML          0  .0000S       0  .0000S
  DIRLNWK.DDLDCLOD           DIRLNWK.DIRLLOD          0  .0000S       0  .0000S
  EMPDB.EMP-DEMO-REGION      EMPDB.EMPDEMO            0  .0000S       0  .0000S
  EMPDB.INS-DEMO-REGION      EMPDB.INSDEMO            0  .0000S       0  .0000S
  EMPDB.ORG-DEMO-REGION      EMPDB.ORGDEMO            0  .0000S       0  .0000S
  EVQA.QATS-RRDS1            EVQA.EVQA01              0  .0000S       0  .0000S
  EVQA.QATS-ESDS1            EVQA.EVQA01              0  .0000S       0  .0000S
  EVQA.QATS-ESDS2            EVQA.EVQA01              0  .0000S       0  .0000S
  EVQA.QATS-KSDS1            EVQA.EVQA01              0  .0000S       0  .0000S
```

Refreshing Windows

If the monitor you are using automatically refreshes window displays, you can stop refresh processing for a window.

Stopping Refresh for All Windows

To stop refresh processing for *all* windows:

1. Type **hold** at the CMD--> prompt.
2. Press [Enter].

To resume refresh processing:

1. Type **release** on the command line.
2. Press [Enter].

Note: Performance Monitor refreshes the windows before it stops refresh processing.

Alternatively, you can stop refresh processing by moving the cursor from the home position. Performance Monitor displays the message <<SCREEN HELD>>. To resume refresh processing, press [Enter].

Stopping Refresh for a Single Window

To stop refresh processing for *one* window:

1. Type **freeze** at the CMD--> prompt.
2. Press [Enter] (for the current window). Use the WINDOW command followed by the FREEZE command to stop refresh processing for noncurrent windows.

To resume refresh processing:

1. Type **thaw** at the CMD--> prompt.
2. Press [Enter] for the current window.

Note: Use the WINDOW command followed by the THAW command to thaw noncurrent windows.

Performance Monitor Processing Options

The following table shows the types of global options that control Performance Monitor processing.

Option Type	Established
Session option	At system installation; you can change these options during a Performance Monitor session.
Installation options	At system installation; the system administrator can change these options on a system-wide basis.
Task-code entry options	At runtime; these options override session and installation options when you initiate a Performance Monitor session.

Viewing Options

To view the options specified above:

1. Type **options** at the CMD--> prompt.
2. Press [Enter]. Performance Monitor creates a new window and displays the Window Manager Options screen.

Window Manager Options Screen

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 13:48:18.79
CMD-->                                                            Window : 02
                                                                  Refresh: 10

  02 Window Manager Options
Options in Effect  T  Alternate Choice
REFRESH            _  HOLD
24 PFKEYS          _  12 PFKEYS
SNAP               _  NO SNAP

Refresh Interval     10

Stae OFF           Datastream MODIFIED
Sort ALLOWED       Refresh Default ON
Edit ALLOWED       CONVERSATIONAL
Save SITE          Case UPLOW
```

Changing Session Options

You can change the following session options:

- The option to refresh screens or hold screens
- The option to use PF keys 1 through 12 or PF keys 1 through 24
- The option to take a system SNAP dump in the event of Performance Monitor abnormal termination processing (SNAP or NO SNAP)

There are two choices displayed for each option. The choice displayed to the left is the setting in effect (the current setting). To choose the setting on the right, type any nonblank character in the T (toggle) column that is represented as an underscore between the two options.

The screen refresh interval is also a session option, and is displayed below the toggle options. To change the refresh interval for the session (if it is installed for the monitor you are using), type the number of seconds for a new refresh interval in the REFRESH INTERVAL field.

Note: You can alternatively type **refresh** and a new refresh interval on the CMD--> line of any screen.

When you finish making session option changes, press [Enter] to display the new session option settings.

Changing Installation Options

At the bottom of the Window Manager Options screen are the installation options for your system. The option settings that can appear are listed below. For more information about each of the options, see the *CA IDMS Performance Monitor System Administration Guide*.

Option	Description
STAE ON/OFF	ON—The STAE option is enabled for your system OFF—The STAE option is disabled for your system
DATASTREAM MODIFIED/FULL	MODIFIED—Only modified fields are transmitted to and from the terminal FULL—All fields are transmitted, regardless of whether they have been modified
SORT ALLOWED/NOT ALLOWED	ALLOWED— Indicates that you can use the SORT command NOT ALLOWED—Indicates that you cannot use the SORT command
REFRESH DEFAULT ON/OFF	ON—Performance Monitor automatically refreshes thawed screens during processing. OFF—Performance Monitor does not refresh screens.
EDIT ALLOWED/NOT ALLOWED	ALLOWED—Indicates that you can use the EDIT command to change the format of a screen NOT ALLOWED—Indicates that you cannot use the EDIT command to change the format of a screen
PSEUDO CONVERSE/ CONVERSATIONAL	PSEUDO CONVERSE—Performance Monitor runs in pseudo-conversational mode. The Interval Monitor and the Application Monitor typically run in pseudo-conversational mode. CONVERSATIONAL—Performance Monitor runs in conversational mode. The Realtime Monitor typically runs in conversational mode.
SAVE SITE	Indicates that you can save changes to monitor screens in the data dictionary under any version, including version 1.
SAVE NOT ALLOWED	Indicates that you cannot use the SAVE command to save changes made to screens.
SAVE USER	Indicates that you can save changes to monitor screens in the data dictionary under a version other than version 1.

Option	Description
CASE UPLOW/UPPER	UPLOW—Performance Monitor does not translate text to uppercase letters. UPPER—Performance Monitor does translate text to uppercase letters.

Exiting the Window Manager Options Screen

Exit the Window Manager Options screen, by doing any of the following:

- Press [PF3]
- Type **x** in the window command field
- Make another window current for processing

Chapter 3: Using the Realtime Monitor

This section contains the following topics:

Overview

About this Chapter

This chapter introduces the Realtime Monitor and describes the screens that you can request through the monitor. During a Realtime Monitor session, use the windowing commands and control keys described in Introduction to Performance Monitor to manipulate your screen displays.

What the Realtime Monitor Does

The Realtime Monitor captures and displays information describing the use of system resources of the current or remote Central Version. The Central Version is specified by its job name. The following information is displayed:

- System and user transaction activity
- System and user task activity
- Database access activity
- Database I/O and journal driver activity
- Communication-line and terminal activity
- Buffer use
- Journal use
- Scratch area use
- Storage-pool use
- Program-pool use
- SQL activity

The Realtime Monitor is either a conversational or pseudo-conversational task. In either case, it automatically refreshes the screen with current statistics. This information is drawn directly from run-time control blocks maintained by the DC/UCF system at the time of the request.

Uses and Users

The Realtime Monitor is typically used by DCAs, DBAs, operators, and system programmers to isolate problem areas in system-resource utilization.

Problem-Solving

This chapter also provides information that you can use to help alleviate problems you detect by using the Realtime Monitor. If you detect a problem with your system, perform the following steps:

1. Try to isolate the applications that are heavy users of the problem resource. For example, storage-pool problems can be caused by an application that neglects to release acquired storage.
2. If Step 1 fails to correct the problem, increase the availability of the resource. For example, to solve storage-pool problems, you might need to expand the storage pool.

Getting Started

1. To request the Realtime Monitor, type the task code **pmrm** following the ENTER NEXT TASK CODE prompt:

```
V71  ENTER NEXT TASK CODE:
 pmrm
```

2. Press [Enter]. The Realtime Monitor displays the menu screen which lists all of the Realtime Monitor options.

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:49:03.02
 CMD-->                                                          Window : 01
                                                                 Refresh: 10

   01 Realtime Monitor Menu

   PFkey  Description                        PFkey  Description
_   PF1   System Run Unit Summary        _   PF2   Scratch Manager Detail
_   PF3   Communication Line Detail      _   PF4   Active User Task Detail
_   PF5   Active System Task Detail      _   PF6   Transaction Detail
_   PF7   Lterm Resource Usage Summary   _   PF8   Buffer I/O Summary
_   PF9   Storage Pool Detail            _   PF10  Program Pool Detail
_   PF11  Database Overview              _   PF12  Transaction Overview
_   PF13  Task + Prog Pool Overview      _   PF14  Storage Pool Overview
_   PF15  Database I/O Driver Detail     _   PF16  Journal Detail
_   PF17  SQL Overview                   _   PF18  SQL Detail
_   PF19  Active System Summary
```

3. Select the screen(s) you want to view first. Window 01 is reserved for the menu, should you need to select more screens later in the session.

Monitor Screens

The following table summarizes the Realtime Monitor screens. Each screen is described in more detail later in this chapter, in the order presented in this table:

Screen	PF Key	Display
Realtime Monitor Menu		The main menu for the Realtime Monitor
System Run Unit Summary	PF1	One line of information for each type of system run unit, including counts of transactions initiated since system startup and transactions currently active
Specific System Run Unit Detail		One line of information for each system run unit; this screen is requested from the System Run Unit Summary screen
Scratch Manager Detail	PF2	Information about scratch-area use, including read/write counts, buffer statistics, and page use statistics

Screen	PF Key	Display
Communication Line Detail	PF3	One line of information for each communication line, including read/write counts, error counts, and request parameter list (RPL) use
Active User Task Detail	PF4	One line of information for each active user task, including the current program, user information, the task status, and information about system resources used by the task
Active System Task Detail	PF5	One line of information for each active system task, including the current program, the task status, and information about system resources used by the task
Transaction Detail	PF6	One line of information for each active user transaction, including the associated task ID, the name of the subschema to which the transaction is bound, and statistics of database access requests by the transaction
LTERM Resource Usage Summary	PF7	One line of information for each logical terminal ID, including the associated task name and user ID, and information about the system resources used by the task
LTERM Resource Usage Detail		Storage information about a specific logical terminal
Buffer I/O Summary	PF8	One line of information for each buffer defined in the DMCL, including read/write statistics, the number of areas assigned to the buffer, and the buffer size
Specific Buffer I/O Detail		One line of information for each file/area combination assigned to a specific buffer, including a count of page requests and read/write statistics; this screen is requested from the Buffer I/O Summary screen
Storage Pool Detail	PF9	One line of information for each storage pool defined to the system, including the pool size, usage statistics, and statistics about short-on-storage conditions
Program Pool Detail	PF10	One line of information for each program pool defined to the system, including the pool size, usage statistics, and statistics about load activity in the pool

Screen	PF Key	Display
Database Overview	PF11	Summary information about database access activity, including record access activity and page I/O activity
Transaction Overview	PF12	Summary information about system run units and external request units, including counts of transactions processed, the number of active transactions, and the number of transactions that terminated normally
Task and Program Pool Overview	PF13	Summary information about task activity and program-pool activity, including counts of tasks processed, and counts of waits and loads for each program pool
Storage Pool Overview	PF14	Summary information about storage use, including counts of short-on-storage conditions and task waits for storage
Database I/O Driver Detail	PF15	One line of information for each database I/O and journal driver activated for the DC/UCF system, including the number of reads, writes, and posts
Journal Detail	PF16	One line of information for each disk journal, including whether the journal is full or being offloaded
SQL Overview	PF17	Summary SQL information for the system since startup
SQL Detail	PF18	One line of information about each SQL transaction
Active System Summary	PF19	Summary of all central versions running on the same LPAR

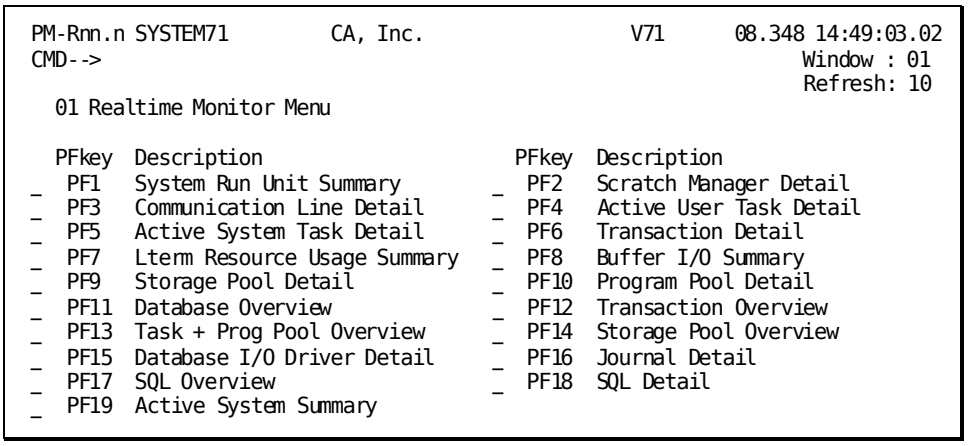
Control Keys

The following table summarizes the control keys you can use with the Realtime Monitor.

Control key	What it does
ENTER	Processes user input
PF1	Displays a screen of help text appropriate to the current cursor position
PF3	Deletes the current window

Control key	What it does
PF6	Displays the Active Windows screen
PF7	Scrolls up
PF8	Scrolls down
PF10	Scrolls left
PF11	Scrolls right
CLEAR	Exits the monitor

Realtime Monitor Menu



Menu Description

The Realtime Monitor Menu screen is the entry-level menu for the Realtime Monitor. Use this screen to request the next screen(s) for display.

To the left of each screen name is a single-character select field and a PF-key name. To select a screen:

- Type any nonblank character in the select field, then press [Enter]

  or

- Press the indicated PF key

To select multiple screens, mark as many select fields as you want and press [Enter].

System Run Unit Summary (PF1)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:49:12.72
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 System Run Unit Summary                                             >
    Run Unit  Sysgen     Total   Total  Current  Current
        Type  Number     Alloc  Ovrflw    Alloc   Ovrflw    Dbname  Nodename
 _  SIGNON        2      1605       0        2        0
 _  MESSAGE       2     20141      15        2        0
 _  LOADER        2      2517       5        2        0
 _  QUEUE         3      5343      24        3        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:49:12.72
 CMD-->                                                         Window : 02
                                                                Refresh: 10
   02 System Run Unit Summary                                            <
    Run Unit  Total Current Current                                    RUH
        Type Ovrflw   Alloc  Ovrflw   Dbname Nodename Subschema_Name  Address
 _ SIGNON        0       2        0                      IDMSNWKS    000422AC
 _ MESSAGE      15       2        0                      IDMSNWKS    00042258
 _ LOADER        5       2        0                      IDMSNWKS    00042204
 _ QUEUE        24       3        0                      IDMSNWKS    000421B0
```

Screen Description

The System Run Unit Summary screen displays a line of information for each of these types of system transactions:

Run Unit Type	Associated Dictionary Area
SIGNON	DDLSEC
MESSAGE	DDLDCMSG
LOADER	DDLDCLOD
QUEUE	DDLDCRUN or DDLDCQUE
SECURITY	DDLDML
SQL LOADER	DDLCATLOD
SQL SECURITY	DDLCAT

You can request a detailed display for a specific run unit. Type any nonblank character in the select field to the left of a run unit type, then press [Enter]. The Realtime Monitor displays the Specific System Run Unit Detail screen.

What To Look for

If the number of overflow run units (Total Ovrflw) is a high percentage of the total number of run units (Total Alloc) for the same run unit type, you should consider increasing the number of run units specified in the appropriate RUNUNITS FOR parameter of the system generation SYSTEM statement. The current RUNUNITS FOR parameter specification appears in the Sysgen Number column.

Overflow run units may be high for LOADER run units. This typically occurs when the DC/UCF system accesses the load areas of alternate dictionaries. In this case, increasing the RUNUNITS FOR parameter will not reduce the number of run units. Users who specify an alternate dictionary (using the DCUF SET DICTNAME command) must be careful to reset the dictionary specification when they are finished (using the DCUF SET DICTNAME '' command).

Specific System Run Unit Detail

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 14:49:33.53
CMD-->                                                            Window : 03
                                                                  Refresh: 10
  03 Specific System Run Unit Detail
  Run Unit Sysgen    Times                                              RUH
      Type Number    Alloc   Type   Dbname Nodename Subschema_Name  Address
  SIGNON       2      1599 SYSGEN                      IDMSNWKS    000422AC
  SIGNON       2         9 SYSGEN                      IDMSNWKS    000422AC
  02 System Run Unit Summary                                               <
   Run Unit  Total Current Current                                      RUH
       Type Ovrflw   Alloc  Ovrflw   Dbname Nodename Subschema_Name  Address
 _ SIGNON        0       2       0                      IDMSNWKS    000422AC
```

Screen Description

To request the Specific System Run Unit Detail screen, enter a nonblank character next to a run unit type in the System Run Unit Summary screen. The Specific System Run Unit Detail screen displays a line of information for each run unit currently allocated of a specific type.

What To Look For

Request this screen to investigate overflow run units.

Scratch Manager Detail (PF2)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:42:19.83
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Scratch Manager Detail                                              >
   Pages   Pages  Fnd-In  Fnd-In   Pages  Getscr  Putscr       Pct     Pages
 Written    Read  Buffer   Cache  Stolen   Count   Count Allocated Allocated
     114      94     739       0     114     248     452       5         100
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:42:32.20
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Scratch Manager Detail                                             <
    Pages  Getscr  Putscr       Pct     Pages    Pages HWM-Pages Allocation
   Stolen   Count   Count Allocated Allocated     Free Allocated      Count
      114     248     452       5         100     1900       106        184
```

Screen Description

The Scratch Manager Detail screen displays information about scratch area activity, including access statistics and page-use statistics.

You can determine the number of pages assigned to the scratch area by adding the number of pages currently in use (Pages Allocated) to the number of pages available (Pages Free).

When the scratch is assigned to storage, some output fields will display a 0 value. For more information, see the *CA IDMS System Generation Guide*.

What To Look For

Add the number of pages read (Pages Read) to the number of times a requested page was found in the scratch area buffer (Found in Buffer). Compare this sum with the number of times a page was forced out of the buffer for another task I/O (Pages Stolen). If Pages Stolen is high compared to this sum (greater than 50%, for example), you should increase the size of the scratch area buffer in the DMCL.

The following entities may show up as frequent users of the scratch area:

- CA ADS (when relocatable storage is turned on)
- Line mode I/O
- Pageable maps
- The Interval Monitor and the Application Monitor

Communication Line Detail (PF3)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:50:06.43
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Communication Line Detail                                           >
   Line       Write   Total    Read   Total   Line RPL    Waits Total RPLs
   Name      Errors  Writes  Errors   Reads Status Gen   On RPL  Requested
   CONSOLE        0       0       0       0 INSRVC   0        0          0
   VTAM16         0   82015       3   67637 INSRVC  25        0     162354
   PRINT16        8    1057       2       0 INSRVC  40        0       1315
   DIAL16        25   24899       6    1144 INSRVC   0        0          0
   UCF16          0     159       0     178 INSRVC   0        0          0
   S16VTM         0       0       0       0 INSRVC   0        0          0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:50:06.43
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Communication Line Detail                                           <
     Total   Line RPL    Waits Total RPLs Line       Term ACBname/ Compact
     Reads Status Gen   On RPL  Requested Type       Count DDname   Y/N
         0 INSRVC   0        0          0 WTO            1 CONSOLE     N
     67637 INSRVC  25        0     162354 VTAM 3270    250 SYSTEM16    Y
         0 INSRVC  40        0       1315 VTAM 3270     79 PRINT16     N
      1144 INSRVC   0        0          0 START STP      6 S16DIAL     N
       178 INSRVC   0        0          0 UCF           10 RHDCFSTB    N
         0 INSRVC   0        0          0 DDS VTAM       2 DDSVTM57    N
```

Screen Description

The Communication Line Detail screen displays a line of information about the activity on each teleprocessing line. Since line speed is slower than processor speed, online, tasks should minimize I/O requests. In addition, applications should be designed to transmit only modified fields.

What To Look For

- Look for a high number of request parameter list (RPL) waits for each VTAM or DCAM line, shown in the Waits On RPL field. A high number can indicate a problem, especially for a line that contains one or more printers. There should never be an RPL wait for a printer.

  The optimal number of entries in the RPL for a line should be 15% to 20% of the number of physical terminals in the line group, plus the actual number of printers in the group. Specify this number in the RPL COUNT IS parameter in the system generation LINE statement for the VTAM line (VTAMLIN), or in the RPB COUNT IS parameter for the DCAM line (DCAMLIN).

- Look for a high value in the Write Errors or Read Errors fields. I/O errors occur when the system attempts to write to or read from a device assigned to the communication line. Identify the problem terminal and run a terminal trace to diagnose the problem by issuing a DCMT PTERM command.

Active User Task Detail (PF4)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 12:43:00.30
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active User Task Detail                                              >
  Task       Task      Current Task  Link                     Task  Ecblist
  Number     Code      Program  Pri Level User_ID  Lterm_ID Status  Address
  1819       PMRM     PMWNDRVR  252               VL71001  RUN    00000000
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 12:43:00.30
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active User Task Detail                                          <  >
 Task       Task      Current  Ecblist First    Second   Third    Stor  Shrd
 Number     Code      Program  Address ECB      ECB      ECB      #RCE Below
 1819       PMRM     PMWNDRVR 00000000                             9     0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 12:45:26.60
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active User Task Detail                                          <  >
 Task       Task      Current  Shrd  Shrd  Priv  Priv  Priv  Pgm   Pgm   Pgm
 Number     Code      Program Below    XA Below    XA  Aloc #RCE 24bit 31bit
 1819       PMRM     PMWNDRVR     0  3584   512  43kB  47kB   10     0  49kB
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 12:45:26.60
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active User Task Detail                                          <  >
   Task       Task      Current   Pgm   RU  Oth System   User    Waited_On
   Number     Code      Program 31bit #RCE #RCE   Time   Time        Dbkey
   1819       PMRM     PMWNDRVR  49kB    0    0 .0448S .0620S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 12:45:26.60
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active User Task Detail                                          <  >
Task       Task      Current    Waited_On Dbkey    Default  Default  Default
Number     Code      Program        Dbkey Holder   Dictnode Dictname Dbnode
1819       PMRM     PMWNDRVR
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 12:45:26.60
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active User Task Detail                                          <
   Task       Task      Current Default  Default  Default  Default  Default
   Number     Code      Program Dictnode Dictname Dbnode   Dbname   Version
   1819       PMRM     PMWNDRVR
```

Screen Description

The Active User Task Detail screen displays a line of information for each user task in the dispatch chain. The tasks are sorted by task dispatching priority, from lowest to highest. This screen helps you determine why the system is slow.

If you have the appropriate DCMT discrete security, you can use this screen:

- to change the dispatching priority for a task
- to terminate an active task on the local system

This screen can also be used to terminate an active task executing on a remote Central Version (z/OS only). Canceling tasks running on a remote Central Version is controlled by your external security system. For more information, see the chapter Installation and Customization in the *CA IDMS Performance Monitor System Administration Guide*.

To do so, type over the existing value in the appropriate column for the task and press ENTER:

Field	Type
Task Pri	A number between 0 and 240 to define the new dispatching priority for the task.
Task Status	CANCEL to abend the task. No dump is taken during abend processing.

Important! You cannot change the task priority for a system that is being monitored remotely.

What To Look For

- Look for a task that is in a wait status (Task Status is WAIT) for a long time. If you know that the resource for which the task is waiting will not be available in the appropriate amount of time, you can terminate the task as described above.

  Event control blocks (ECBs) define what a task is waiting on. For example, an ECB of LMGR indicates that the task is waiting on a lock that is managed by the database lock manager. For more information about ECBs, see the *CA ADS DSECT Reference Guide*.

- When storage protection is on, look for a number in the Priv Aloc field that is much higher than the sum of the Priv Below and Priv XA fields. This indicates that the task is allocating more storage than it is actually using. In a CA ADS application, this situation can result from incorrect sizing of the record buffer blocks (RBBs). In a non CA ADS environment, examine the application for poor storage allocation.

Active System Task Detail (PF5)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:39:24.33
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active System Task Detail                                           >
Task       Task      Current  Link           Task  Ecblist First    Second
Number     Code      Program Level Lterm_ID Status  Address ECB      ECB
0          *SYSTEM* MASTER       0          WAIT   063F5010 EXT ECB  LTTMSECB
1          *SYSTEM* *DBRC*       0          WAIT   0667EB48 DBRCWTOR ESEECB
2          SRVCDRVR RHDCRUSD     0          WAIT   0642E710 SDCSECB  *TIMER*
3          SRVCDRVR RHDCRUSD     0          WAIT   0642FB10 SDCSECB  *TIMER*
4          SRVCDRVR RHDCRUSD     0          WAIT   06430F10 SDCSECB  *TIMER*
5          SRVCDRVR RHDCRUSD     0          WAIT   06431C10 SDCSECB  *TIMER*
6          SRVCDRVR RHDCRUSD     0          WAIT   06432910 SDCSECB  *TIMER*
7          SRVCDRVR RHDCRUSD     0          WAIT   06433610 SDCSECB  *TIMER*
8          SRVCDRVR RHDCLGSD     0          WAIT   00058830 SDCSECB
9          SRVCDRVR RHDCLGSD     0          WAIT   00058880 SDCSECB
10         SRVCDRVR RHDCLGSD     0          WAIT   000588D0 SDCSECB
11         SRVCDRVR PMONCIOD     0          WAIT   0668F7DC SDCSECB  PM DRVR
12         SRVCDRVR PMONCROL     0          WAIT   066912A4 ICEECB   ICEECB
13         SRVCDRVR RHDCDEAD     0          WAIT   06692E0C ICEECB   SDCSECB
14         *DRIVER* UCFLINE      0          WAIT   063F7E08 PLE      ESECKECB
15         *DRIVER* VTAM71       0          WAIT   064457FC PLE      VTM READ
16         *DRIVER* DDSVTAM      0          WAIT   06449088 PLE      DDS READ
17         *DRIVER* CCILINE      0          WAIT   06451A08 PLE      DDS READ
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:39:37.24
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active System Task Detail                                         <  >
 Task       Task      Current Second   Third    Stor  Shrd  Shrd  Priv  Priv
 Number     Code      Program ECB      ECB      #RCE Below    XA Below    XA
 0          *SYSTEM* MASTER   LTTMSECB            2  5120   128     0     0
 1          *SYSTEM* *DBRC*   ESEECB   CCEECB     1   128     0     0     0
 2          SRVCDRVR RHDCRUSD *TIMER*             4     0  15kB     0     0
 3          SRVCDRVR RHDCRUSD *TIMER*             4     0  16kB     0     0
 4          SRVCDRVR RHDCRUSD *TIMER*             4     0  14kB     0     0
 5          SRVCDRVR RHDCRUSD *TIMER*             4     0  16kB     0     0
 6          SRVCDRVR RHDCRUSD *TIMER*             4     0  24kB     0     0
 7          SRVCDRVR RHDCRUSD *TIMER*             4     0  24kB     0     0
 8          SRVCDRVR RHDCLGSD                     3     0  12kB     0     0
 9          SRVCDRVR RHDCLGSD                     3     0  12kB     0     0
 10         SRVCDRVR RHDCLGSD                     3     0  12kB     0     0
 11         SRVCDRVR PMONCIOD PM DRVR  PM DRVR   21   512  52kB     0     0
 12         SRVCDRVR PMONCROL ICEECB   PM DRVR    0     0     0     0     0
 13         SRVCDRVR RHDCDEAD SDCSECB             0     0     0     0     0
 14         *DRIVER* UCFLINE  ESECKECB            1     0   128     0     0
 15         *DRIVER* VTAM71   VTM READ             1     0  6016     0     0
 16         *DRIVER* DDSVTAM  DDS READ *LOGON*    0     0     0     0     0
 17         *DRIVER* CCILINE  DDS READ            0     0     0     0     0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:39:37.24
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active System Task Detail                                          <  >
  Task       Task      Current  Priv  Priv  Pgm   Pgm   Pgm   RU  Oth System
  Number     Code      Program    XA  Aloc #RCE 24bit 31bit #RCE #RCE   Time
  0          *SYSTEM* MASTER       0  5248    0     0     0    0    2  3.77S
  1          *SYSTEM* *DBRC*       0   128    0     0     0    0    1  1.15S
  2          SRVCDRVR RHDCRUSD     0  15kB    2     0  3776    2    0 .0093S
  3          SRVCDRVR RHDCRUSD     0  16kB    2     0  8224    2    0 .0100S
  4          SRVCDRVR RHDCRUSD     0  14kB    6     0  9584    2    0 .0021S
  5          SRVCDRVR RHDCRUSD     0  16kB    2     0  7808    2    0 .0096S
  6          SRVCDRVR RHDCRUSD     0  24kB    6     0  35kB    2    0 .0109S
  7          SRVCDRVR RHDCRUSD     0  24kB    6     0  15kB    2    0 .0105S
  8          SRVCDRVR RHDCLGSD     0  12kB    1     0   736    1    0 .2113S
  9          SRVCDRVR RHDCLGSD     0  12kB    1     0   736    1    0 .1470S
  10         SRVCDRVR RHDCLGSD     0  12kB    1     0   736    1    0 .0231S
  11         SRVCDRVR PMONCIOD     0  52kB    0     0     0    0    1 .8803S
  12         SRVCDRVR PMONCROL     0     0    0     0     0    0    1 .0175S
  13         SRVCDRVR RHDCDEAD     0     0    0     0     0    0    1  4.35S
  14         *DRIVER* UCFLINE      0   128    0     0     0    0    0 .0006S
  15         *DRIVER* VTAM71       0  6016    0     0     0    0    0  1.21S
  16         *DRIVER* DDSVTAM      0     0    0     0     0    0    0  5.08S
  17         *DRIVER* CCILINE      0     0    0     0     0    0    0 .0138S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:39:37.24
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Active System Task Detail                                          <
 Task       Task      Current  Priv  Pgm   Pgm   Pgm   RU  Oth System   User
 Number     Code      Program  Aloc #RCE 24bit 31bit #RCE #RCE   Time   Time
 0          *SYSTEM* MASTER    5248    0     0     0    0    2  3.77S .0000S
 1          *SYSTEM* *DBRC*     128    0     0     0    0    1  1.15S .0000S
 2          SRVCDRVR RHDCRUSD  15kB    2     0  3776    2    0 .0093S .0000S
 3          SRVCDRVR RHDCRUSD  16kB    2     0  8224    2    0 .0100S .0000S
 4          SRVCDRVR RHDCRUSD  14kB    6     0  9584    2    0 .0021S .0000S
 5          SRVCDRVR RHDCRUSD  16kB    2     0  7808    2    0 .0096S .0000S
 6          SRVCDRVR RHDCRUSD  24kB    6     0  35kB    2    0 .0109S .0000S
 7          SRVCDRVR RHDCRUSD  24kB    6     0  15kB    2    0 .0105S .0000S
 8          SRVCDRVR RHDCLGSD  12kB    1     0   736    1    0 .2113S .0000S
 9          SRVCDRVR RHDCLGSD  12kB    1     0   736    1    0 .1470S .0000S
 10         SRVCDRVR RHDCLGSD  12kB    1     0   736    1    0 .0231S .0000S
 11         SRVCDRVR PMONCIOD  52kB    0     0     0    0    1 .8803S .0000S
 12         SRVCDRVR PMONCROL     0    0     0     0    0    1 .0175S .0000S
 13         SRVCDRVR RHDCDEAD     0    0     0     0    0    1  4.35S .0000S
 14         *DRIVER* UCFLINE    128    0     0     0    0    0 .0006S .0000S
 15         *DRIVER* VTAM71    6016    0     0     0    0    0  1.21S .0000S
 16         *DRIVER* DDSVTAM      0    0     0     0    0    0  5.08S .0000S
 17         *DRIVER* CCILINE      0    0     0     0    0    0 .0138S .0000S
```

Screen Description

The Active System Task Detail screen displays a line of information for each active system task.

What To Look For

Look at the ECB fields. For more information about ECBs, see the *CA ADS DSECT Reference Guide*.

Transaction Detail (PF6)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 10:40:20.69
CMD-->                                                            Window : 02
                                                                  Refresh: 10
  02 Transaction Detail                                                    >

  Task       Task        Bound    Task Subschma Transaction  DBMS Pages Pages
  Number     Code      Program Status Acc_Mod  Status      Calls Writn  Read
  2                  RHDCRUAL WAIT   IDMSNWK7       H        113     0  1002
  2                  RHDCRUAL WAIT   IDMSNWK7       H          9     0     0
  3                  RHDCRUAL WAIT   IDMSNWKL       H        314     0    21
  3                  RHDCRUAL WAIT   IDMSNWKL       A          3     0     0
  4                  RHDCRUAL WAIT   IDMSNWK6       A        731     0    33
  4                  RHDCRUAL WAIT   IDMSNWK6       A          3     0     0
  5                  RHDCRUAL WAIT   IDMSSECU       H        165     0     3
  5                  RHDCRUAL WAIT   IDMSSECU       H          9     0     0
  6                  RHDCRUAL WAIT   IDMSNWK8       A          3     0     0
  6                  RHDCRUAL WAIT   IDMSNWK8       A          3     0     0
  7                  RHDCRUAL WAIT   IDMSSECS       A        141     0     2
  7                  RHDCRUAL WAIT   IDMSSECS       A          3     0     0
  8                  RHDCLGSD WAIT   IDMSNWK9       A          3     0     0
  9                  RHDCLGSD WAIT   IDMSNWK9       A          3     0     0
  10                 RHDCLGSD WAIT   IDMSNWK9       A          3     0     0
```

```
PM-Rnn.n SYSTEM71          CA, Inc.                    V71      08.348 10:40:20.69
CMD-->                                                              Window : 02
                                                                    Refresh: 10
  02 Transaction Detail                                                    <  >
                                                                          Calc
 Task       Pages Pages Rcrds Rcrds Frags Updat Selct Locks Bfore After Store
 Number      Read Reqst Reqst Curnt Stord Locks Locks Reqst Image Image Noovr
 2           1002  1023    24     0     0     1     0    25     0     0     0
 2              0     1     1     0     0     1     0     2     0     0     0
 3             21    90    95    26     0     1     0    86     0     0     0
 3              0     0     0     0     0     1     0     1     0     0     0
 4             33   357   560   357     0     0     1     1     0     0     0
 4              0     0     0     0     0     0     1     1     0     0     0
 5              3    32    32     0     0     1     0    33     0     0     0
 5              0     1     1     0     0     1     0     2     0     0     0
 6              0     0     0     0     0     0     1     1     0     0     0
 6              0     0     0     0     0     0     1     1     0     0     0
 7              2    26    26     0     0     0     1     1     0     0     0
 7              0     0     0     0     0     0     1     1     0     0     0
 8              0     0     0     0     0     0     1     1     0     0     0
 9              0     0     0     0     0     0     1     1     0     0     0
 10             0     0     0     0     0     0     1     1     0     0     0
```

```
PM-Rnn.n SYSTEM71          CA, Inc.                    V71      08.348 10:40:20.69
CMD-->                                                              Window : 02
                                                                    Refresh: 10
  02 Transaction Detail                                                    <  >
             Calc  Calc   Via   Via                                      Lvls
 Task       Store Store Store Store   New  SR8s  SR8s Orphs  Levl   SR8 Srch
 Number     Noovr Ovrfl Noovr Ovrfl Index Erasd Stord Adopt Spawn Split Wrst
 2              0     0     0     0     0     0     0     0     0     0    0
 2              0     0     0     0     0     0     0     0     0     0    0
 3              0     0     0     0     0     0     0     0     0     0    0
 3              0     0     0     0     0     0     0     0     0     0    0
 4              0     0     0     0     0     0     0     0     0     0    0
 4              0     0     0     0     0     0     0     0     0     0    0
 5              0     0     0     0     0     0     0     0     0     0    0
 5              0     0     0     0     0     0     0     0     0     0    0
 6              0     0     0     0     0     0     0     0     0     0    0
 6              0     0     0     0     0     0     0     0     0     0    0
 7              0     0     0     0     0     0     0     0     0     0    0
 7              0     0     0     0     0     0     0     0     0     0    0
 8              0     0     0     0     0     0     0     0     0     0    0
 9              0     0     0     0     0     0     0     0     0     0    0
 10             0     0     0     0     0     0     0     0     0     0    0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 15:49:30.57
CMD-->                                                           Window : 02
                                                                 Refresh: 10
  02 Transaction Detail                                                   <
                       Lvls Lvls Last
Task        Levl   SR8 Srch Srch Verb   Current           Current
Number     Spawn Split Wrst Best Num    Area_Name         Record_Name
2              0     0    0    0 005F   DDLDCRUN
2              0     0    0    0 0036
3              0     0    0    0 005F
3              0     0    0    0 0036
4              0     0    0    0 005F   DDLDCMSG
4              0     0    0    0 0036
5              0     0    0    0 005F   DDLSEC
5              0     0    0    0 005F   DDLSEC
6              0     0    0    0 0036
6              0     0    0    0 0036
7              0     0    0    0 005F   DDLDML
7              0     0    0    0 005F   DDLDML
8              0     0    0    0 0038   DDLDCLOG          LOGREC-143
9              0     0    0    0 0038   DDLDCLOG          LOGREC-143
10             0     0    0    0 0038   DDLDCLOG          LOGREC-143
```

Screen Description

The Transaction Detail screen displays a line of information for each active transaction.

What To Look For

- Look for a high number in the Frags Stord, Calc Store Ovrfl, and Via Store Ovrfl fields. A high number in any of these fields indicates that target pages for records stored by a transaction were full, forcing CA IDMS to store the records on other pages. This situation can degrade access efficiency for the database.
- Look for information on index levels on this screen.
- Look for information on implied locks maintained by each active transaction on this screen. Too many locks can cause a task to use a lot of storage. Use COMMITs to release locks. The task should release explicitly locked records as soon as possible.

You can also use the Application Monitor (see Using the Application Monitor (see page 147)) to view transaction activity through a period of time and to identify transactions causing overflow problems. In addition, you can use the IDMSDBAN utility to analyze space availability for database pages. If a large number of pages in the database are full, you should consider increasing the database page size or the number of pages in the database.

LTERM Resource Usage Summary (PF7)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:51:28.48
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Lterm Resource Usage Summary                                        >
           Task     Current           Stor  Shrd  Shrd  Priv  Priv  Priv  Pgm
  Lterm_ID Code     Program  User_ID  #RCE Below    XA Below    XA  Aloc #RCE
_ LV72001  PMRM     PMWNDRVR LHN        18  2048     0  64kB     0  72kB   10
_ LV72002                    MHH        14  9664     0  17kB     0  20kB    0
_ LV72003                    JLR         7  8128     0  15kB     0  16kB    0
_ LV72004                    PHM         6  2432     0  15kB     0  16kB    0
_ LV72005                    RXM         7  7040     0  15kB     0  16kB    0
_ LV72007                    TKM         9  8576     0  15kB     0  16kB    0
_ LV72008                    SJU         6  1728     0  14kB     0  16kB    0
_ LV72009                    IST        13  8512     0  16kB     0  20kB    0
_ LV72010                    SKC        12  9152     0  16kB     0  20kB    0
_ LV72011                    GAD        13  2688     0  14kB     0  16kB    0
_ LV71003                    KJM         6  3200     0  1024     0  4096    0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:51:28.48
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Lterm Resource Usage Summary                                      <  >
              Pgm   Pgm   Pgm   Ru  Oth  Default Default  Default  Default
    Lterm_ID #RCE 24bit 31bit #RCE #RCE Loadlist Dictnode Dictname Dbnode
  _ LV72001    10     0  49kB    0    0 A16LIST1
  _ LV72002     0     0     0    0    3 A16LIST1
  _ LV72003     0     0     0    0    0 A16LIST1
  _ LV72004     0     0     0    0    0 A16LIST1
  _ LV72005     0     0     0    0    0 A16LIST1
  _ LV72007     0     0     0    0    1 A16LIST1
  _ LV72008     0     0     0    0    0 A16LIST1
  _ LV72009     0     0     0    0    3 A16LIST1
  _ LV72010     0     0     0    0    2 A16LIST1
  _ LV72011     0     0     0    0    2 A16LIST1
  _ LV71003     0     0     0    0    4 SYSLOAD
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:51:28.48
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Lterm Resource Usage Summary                                      <
             Default Default  Default  Default  Default  Default       Lterm
    Lterm_ID Loadlist Dictnode Dictname Dbnode   Dbname   Version     Address
  _ LV72001  A16LIST1                                                 00046418
  _ LV72002  A16LIST1                                                 00046518
  _ LV72003  A16LIST1                                                 00046618
  _ LV72004  A16LIST1                                                 00046718
  _ LV72005  A16LIST1                                                 00046818
  _ LV72007  A16LIST1                                                 00046A18
  _ LV72008  A16LIST1                                                 00046B18
  _ LV72009  A16LIST1                                                 00046C18
  _ LV72010  A16LIST1                                                 00046D18
  _ LV72011  A16LIST1                                                 00046E18
  _ LV71003  SYSLOAD                                                  000525B4
```

Screen Description

The Lterm Resource Usage Summary screen displays a line of information for each logical terminal ID. The screen displays:

- The amount of shared storage being used by the task.
- The amount of private storage being used by the task. The DC/UCF system assigns storage in 128-byte increments. When storage protect is on and a program requests 10 bytes of storage, the DC/UCF system allocates 128 bytes of storage, of which all 128 bytes are private.
- Storage field values are scaled in these increments:
  - Bytes
  - 1 KB increments
  - 1 MB increments
  - 1 GB increments

You can request a detailed display for a specific LTERM. Type any nonblank character in the select field to the left of the LTERM ID, then press [Enter]. The Realtime Monitor displays the Lterm Resource Usage Detail screen, which shows resources held by a specific terminal.

What To Look For

- Look for the use of an alternate dictionary by a task, indicated by a value in the Default Dictname field. A task that uses an alternate dictionary can increase LOADER activity. This can result in a high overflow run unit count in the Total Ovrflw field on the System Run Units screen.
- Look for the use of a test version (other than version 1) by a task, indicated by a value in the Default Version field. A task that uses a test version increases the search path for LOADER. You should not use test versions in a production environment.
- Look at the difference between the sum of the Priv Below plus the Priv XA fields and the Priv Aloc field. The difference indicates the amount of storage a task has tied up that is not being used. In a CA ADS environment, this situation can result from incorrect sizing of record buffer blocks (RBBs). In a non CA ADS environment, examine specific applications for poor storage allocation. You can use the Performance Monitor's Application Monitor to examine specific applications for this discrepancy.

LTERM Resource Usage Detail

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 07:36:13.99
CMD-->                                                         Window : 03
                                                               Refresh: 10
  03 Lterm Resource Usage Detail                                          >
                                RLE          RCE  Resource  Usage      Task
  Lterm_ID  User_ID          Address      Address      Type  Count        ID
  VL71001   DEKD001       B70691B4      37072280  STORAGE      1        74
                           37069154      37073140  STORAGE      1        74
                           3706919C      370731C0  STORAGE      1        74
                           37069178      37073180  STORAGE      1        74
                           37069130      37073100  STORAGE      1        74
                           370690B8      370723C0  STORAGE      1        74
                           37069094      37072440  STORAGE      1        74
                           370690DC      37072420  STORAGE      1        27
                           370690C4      37073080  STORAGE      1        74
                           37068A88      37073020  STORAGE      1        74
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 07:36:50.00
CMD-->                                                         Window : 03
                                                               Refresh: 10
  03 Lterm Resource Usage Detail                                        <
               Task          Word         Word         Word         Word
 Lterm_ID        ID           One          Two        Three         Four
 VL71001         74      00009C80     371D2D80     3705D04C     3705CF88
                 74      00000180     371D2C00     3705D04C     3705CF88
                 74      00007A00     371CAF80     3705D02C     3705CF88
                 74      00000500     371CAA80     3705D02C     3705CF88
                 74      00000500     371CA400     3705D02C     3705CF88
                 74      00000200     00183000     3705A330     3705A288
                 74      00000E80     39969300     37064DE8     37064B08
                 27      00000100     38F3A800     3705A8BC     3705A788
                 74      00000380     371C9080     3705D028     3705CF88
                 74      00001000     371C9400     3705D028     3705CF88
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 07:37:26.05
CMD-->                                                         Window : 03
                                                               Refresh: 10
  03 Lterm Resource Usage Detail                                    <

               Word         Word         Word         Word         Word
 Lterm_ID       Two        Three         Four         Five          Six
 VL71001    371D2D80     3705D04C     3705CF88     80000000     00000000
            371D2C00     3705D04C     3705CF88     00000000     00000000
            371CAF80     3705D02C     3705CF88     00000000     00000000
            371CAA80     3705D02C     3705CF88     80000000     00000000
            371CA400     3705D02C     3705CF88     80000000     00000000
            00183000     3705A330     3705A288     80000000     00000000
            39969300     37064DE8     37064B08     00000000     00000000
            38F3A800     3705A8BC     3705A788     00000000     00000000
            371C9080     3705D028     3705CF88     00000000     C4D9E5D9
            371C9400     3705D028     3705CF88     00000000     E2E3C3D2
```

Screen Description

To request the Lterm Resource Usage Detail screen, enter a nonblank character next to an Lterm_ID field in the Lterm Resource Usage Summary screen. The Lterm Resource Usage Detail screen displays a line of information for each resource allocated to a logical terminal.

What To Look For

Request this screen when you notice a problem associated with a particular LTERM; for example, the number of RCEs held by the terminal. The screen displays internal information that can help you determine the number of resources used by the terminal and their size.

Buffer I/O Summary (PF8)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 10:44:07.23
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Buffer I/O Summary                                                   >
                          Fnd_In     Read    Fnd_In    Write   Forced Prefetch
           Buffer_Name    Buffer    Count    Cache    Count    Write     Hits
  _ DBCR_BRCH_BUFFER         942        5                1
  _ DBCR_ACCT_BUFFER         285      190       75        1
  _ LOG_BUFFER
  _ DEFAULT_BUFFER           541     1097               22
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 10:44:29.43
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Buffer I/O Summary                                                 <
                        Write   Forced Prefetch      Bcr   Page  Buffer
         Buffer_Name    Count    Write     Hits     Waits   Size   Pages #Areas
  _ DBCR_BRCH_BUFFER         1                              4000     200      4
  _ DBCR_ACCT_BUFFER         1                              2932     200      5
  _ LOG_BUFFER                                              4276              1
  _ DEFAULT_BUFFER          22                              4276      30     24
```

Screen Description

The Buffer I/O Summary screen displays a line of information for each buffer defined to DC/UCF.

You can request a detailed display for a specific buffer, which breaks down the information for each file/area combination assigned to the buffer. Type any nonblank character in the select field to the left of the buffer name, then press [Enter]. The Realtime Monitor displays the Specific Buffer I/O Detail screen for each selected buffer.

What To Look For

- Look for a high number of read-request I/Os (Read Count) for a particular buffer, compared to the number of requested pages found in the buffer (Found In Buf). If this occurs, consider modifying the buffer's DMCL definition to:
  - Increase the number of pages in the buffer
  - Reassign areas to buffers based on their usage

  Note: By increasing the number or size of buffers, you decrease the amount of storage available to the DC/UCF system and may cause an increase in paging. If paging increases, decrease the size of the buffer.
- Look for a high value in the Forced Write field. A forced write occurs when the system must write a buffer page in order to read a database page. A high value means one of these conditions exist:
  - A long-running update job is not issuing COMMIT statements frequently enough
  - Buffer activity is excessive
- Look for a non-zero number in the BCR Waits field. A value in this field indicates a serious problem that can be remedied by increasing the number of pages in the buffer. The field is incremented when IDMSDBIO determines that all the pages in the buffer are exclusively held and must therefore wait until a buffer page becomes available.

You can determine if one file is responsible for a large percentage of buffer activity by requesting the Specific Buffer I/O Detail screen for the buffer.

Specific Buffer I/O Detail

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 10:46:43.34
CMD-->                                                           Window : 03
                                                                 Refresh: 10
  03 Specific Buffer I/O Detail                                           >
                                                                Fnd_In      Read
 File_Name                    Area_Name                        Buffer     Count
 DBCR.BRANCHA                 DBCR.BRNCHTEL                       257         2
 DBCR.BRANCHB                 DBCR.BRNCHTEL
 DBCR.BRANCHC                 DBCR.BRNCHTEL                       193         1
 DBCR.BRANCHD                 DBCR.BRNCHTEL                       492         2
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:46:56.23
 CMD-->                                                          Window : 03
                                                                 Refresh: 10
   03 Specific Buffer I/O Detail                                        <  >
                                      Read     Fnd_In      Write   Prefetch
    File_Name                        Count      Cache      Count       Hits
    DBCR.BRANCHA                         2                      1
    DBCR.BRANCHB
    DBCR.BRANCHC                         1
    DBCR.BRANCHD                         2
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:47:10.13
 CMD-->                                                          Window : 03
                                                                 Refresh: 10
   03 Specific Buffer I/O Detail                                        <
                                  Fnd_In    Write Prefetch
   File_Name                       Cache    Count     Hits Buffer_Name
   DBCR.BRANCHA                                1          DBCR_BRCH_BUFFER
   DBCR.BRANCHB
   DBCR.BRANCHC
   DBCR.BRANCHD
```

Screen Description

To request the Specific Buffer I/O Detail screen, enter a nonblank character next to a buffer name in the Buffer I/O Summary screen. The Specific Buffer I/O Detail screen displays a line of information for each file/area combination assigned to the buffer.

What To Look For

Request this screen when you notice a problem related to the associated buffer on the Buffer I/O Summary screen. For example, the Buffer I/O Summary screen may indicate that too many I/Os are being performed for requested pages. Use the Specific Buffer I/O Detail screen to determine which files have the highest activity in the selected buffer.

Storage Pool Detail (PF9)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 07:38:25.03
CMD-->                                                           Window : 02
                                                                 Refresh: 10
  02 Storage Pool Detail                                                 >
  Pool   Total Storage   High   SOS SOS  Cushn    Pages Release  Pages  Pfix
  ID   Storage  In_Use  Water Count Now   Size Released   Count Pfixed Count
   0    1208kB   124kB  128kB                       19      19
   120  1000kB   12288  20480             4096      29      28
   150    29mB   45056  81920             4096      87     173
   254    10mB   152kB  164kB             4096      87      33
   255    10mB   584kB  588kB                       46      46
   255  2960kB  2960kB 2960kB
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 07:38:45.04
 CMD-->                                                          Window : 02
                                                                 Refresh: 10
   02 Storage Pool Detail                                                 <
  Pool SOS   SOS  Cushn  Pages Release Pages  Pfix Pages Pfree Scan1 Scan2
  ID   Count Now  Size Released Count Pfixed Count Freed Count Count Count
   0                    19      19                            66   163
   120           40960  29      28                            96    27
   150           40960 187     173                           346   169
   254           40960  87      33                           101   142
   255                  46      46                           383    95
   255                                      1
```

Screen Description

The Storage Pool Detail screen displays a line of information for each storage pool defined to the DC/UCF system.

What To Look For

Look for any of the following situations that can indicate storage-use problems:

- The largest amount of storage in use at one time, shown in the High Water field, is close to the size of the storage pool, shown in the Total Storage field.
- There is a high number in the SOS Count field or a Y (yes) in the SOS Now field.
- Whether the amount of storage available, determined by subtracting the value in the Storage In Use field from the value in the Total Storage field, is less than the size of the cushion shown in the Cushn Size field. Regular use of the storage cushion can impede system performance because the DC/UCF system does not dispatch tasks when the cushion is being used.

Note: To identify programs that are not releasing storage or which are acquiring large amounts of storage, look at the LTERM Resource Usage Detail screen.

If any of these situations occur regularly, you should increase the size of the storage pool:

- For storage pool 0, which is the primary storage pool, increase the size specified by the STORAGE POOL parameter of the system generation SYSTEM statement. When no storage pools are defined, all storage required by the Lock Manager is acquired form storage pool 0. This amount of storage is based on the SYSLOCKS parameter of the system generation SYSTEM statement.
- For storage pool 255, which is the primary XA storage pool, increase the size specified by the XA STORAGE POOL parameter of the system generation SYSTEM statement.
- For any other storage pool, increase the SIZE parameter in the appropriate system generation STORAGE POOL statement.

If you don't have enough space to increase the storage pool, reduce the value assigned to MAX TASKS and MAX ERUS parameters. Use relocatable storage for CA ADS, and monitor scratch usage.

Program Pool Detail (PF10)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 14:53:43.90
CMD-->                                                          Window : 02

                                                                Refresh: 10
 02 Program Pool Detail                                                    >
Pool            Total Storage   High Ovrlay   Ovrlay Novrlay  Times  Pages
Type          Storage  In Use  Water In Use Not Used   Loads Waited Loaded
PROG POOL       53248   20480  53248                       3             21
REENT POOL    2456kB   488kB  488kB                      42            976
XA PROG POOL   200kB       0      0
XA REENT POOL 2640kB  1592kB 1592kB                     112           3184
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 14:53:43.90
CMD-->                                                          Window : 02
                                                                Refresh: 10
 02 Program Pool Detail                                                    <
 Pool          Storage   High Ovrlay   Ovrlay Novrlay  Times  Pages   Load
 Type           In Use  Water In Use Not Used   Loads Waited Loaded  Count
 PROG POOL       20480  53248                       3             21      3
 REENT POOL      488kB  488kB                      42            976     42
 XA PROG POOL        0      0
 XA REENT POOL  1592kB 1592kB                     112           3184    112
```

Screen Description

The Program Pool Detail screen displays a line of information for each type of program pool defined to the system:

- 24-bit, nonreentrant program pools (PROG POOL)
- 24-bit, reentrant program pools (REENT POOL)
- 31-bit, nonreentrant program pools (XA PROG POOL)
- 31-bit, reentrant program pools (XA REENT POOL)

If your system has no reentrant pool, the DC/UCF system assigns reentrant programs to the program pool.

What To Look For

- Look at the number of times the system had to overlay active programs (Ovrlay In Use) and the number of waits (Times Waited). Any number in the Ovrlay In Use field or a large number in the Times Waited field indicates a problem with the size of the program pool. Try the options listed below to alleviate the problem:
  - Increase the size of the pool. If you must increase the size of one pool, try decreasing the size of a pool that is not experiencing waits. If space is too tight to increase the size of the pool, try reducing the value assigned to the MAX TASKS and MAX ERUS parameters. This reduces concurrent demand on the program pool.
  - Define heavily used, reentrant, or quasireentrant programs as resident.
  - Decrease the size of frequently used programs by creating application-specific subschemas to avoid using large, global subschemas, or by segregating logical threads in applications by module.
- Compare the number of pages loaded (Pages Loaded) to the total number of loads (Load Count). If there are many pages loaded for only a few program loads, consider increasing the block size for the program load libraries and load areas. For example, a block size of 10Kb requires 20 I/Os to load a 200Kb program; a block size of 1Kb requires 200 I/Os to load the same program.

Database Overview (PF11)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 14:53:56.39
CMD-->                                                           Window : 02
                                                                 Refresh: 10

  02 Database Overview
      _ Database Record Summary
Requested   Current    Fragmented
5691738     1303479    405
   Overflow            On Target
Calc     Via        Calc     Via
48       6758       1349     21782
DB Calls    DB Req     Relocated
3397293     3850790    0

  _ Database Page I/O Summary
 Pages Read Written    Requested
 563146     49946      5364718
```

Screen Description

The Database Overview screen displays summary information about database access. The screen is divided into two parts:

- Record access activity
- Page I/O activity

To view detailed information about active transactions and buffer use, you can request the Transaction Detail and Buffer I/O Summary screens directly from the Database Overview screen:

- To request the Transaction Detail screen, type any nonblank character in the select field to the left of the Database Record Summary field.
- To request the Buffer I/O Summary screen, type any nonblank character in the select field to the left of the Database Page I/O Summary field.

When you have selected one or both screens, press [Enter]. The Realtime Monitor creates a new window for each screen requested.

What To Look For

- Look for a high number of stored record fragments, which can indicate that:
  - Many database pages are full
  - Size specifications for variable-length records are inefficient

  Use the IDMSDBAN utility to analyze the space available in the database. As necessary, increase the database page size or the number of pages in the database, or change variable-length record-size specifications using the MINIMUM ROOT and MINIMUM FRAGMENT parameters of the schema compiler RECORD statement.
- Look at the ratio of CALC records stored on target pages relative to the sum of these records plus overflow CALC records. The ratio, which indicates how well the CALC algorithm works, should be 1. A ratio less than 1 indicates that space utilization is high. Use the Interval Monitor to track this ratio over time. Use the IDMSDBAN utility to analyze space utilization in the database.
- Look at the ratio of VIA records stored on target pages relative to the sum of these records plus overflow VIA records. The ratio, which indicates how well VIA records cluster around their owner, should be 1. A ratio less than 1 indicates one of these conditions exist:
  - Large data clusters
  - High space utilization
  - Small page sizes

  Use the Interval Monitor to track this ratio over time. Use the IDMSDBAN utility to analyze space utilization in the database.
- Look at the ratio of database pages requested to pages read. The ratio indicates how well the buffer is sized and how well the database is designed. Low ratios could indicate that the buffer is too small or that database I/O needs to be tuned.

Transaction Overview (PF12)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:55:08.26
CMD-->                                                          Window : 02
                                                                Refresh: 10

  02 Transaction Overview
      _ Transaction Summary
Active    Processed Normal    Max Conc
14        89775     89725     26
        External Request Unit Summary
Active    Processed Normal    Max Conc
0         324       323       2
```

Screen Description

The Transaction Overview screen displays summary information about transaction activity. The screen is divided into two parts:

- Transaction activity
- External request unit activity

To view detailed information about active transactions, you can request the Transaction Detail screen directly from the Transaction Overview screen. Type any nonblank character in the select field to the left of the Transaction Summary field, then press [Enter]. The Realtime Monitor creates a new window and displays the Transaction Detail screen.

What To Look For

A low value for Max Conc indicates a low level of concurrency in the system. Concurrency is affected by large numbers of deadlocks, storage and program pool shortages, and generally, anything that forces tasks into a wait state.

Task and Program Pool Overview (PF13)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 14:56:05.36
CMD-->                                                           Window : 02
                                                                 Refresh: 10

  02 Task + Prog Pool Overview
       _ Task Activity Summary
Active    Processed Runaway   Aborted
19        82481     0         1
_ System Task      Genned    Times At
Active    Procesd  Max #     Max #
17        11515    47        0

       _ Program Pool Summary
Program   Reentrnt  XA Prog   XA Reent
Waits     Waits     Waits     Waits
0         0         0         0
Loads     Loads     Loads     Loads
17        131       0         338
```

Screen Description

The Task and Program Pool Overview screen displays summary information about both task and program activity. The screen is divided into two parts:

- Task activity
- Program-pool activity

You can request detailed information about user tasks, system tasks, and program-pool activity, as follows:

- To request the Active User Task Detail screen to view detailed information about the system resources used by active user tasks, type any nonblank character in the select field to the left of Task Activity Summary.
- To request the Active System Task Detail screen to view detailed information about the system resources used by active system tasks, type any nonblank character in the select field to the left of System Task.
- To request the Program Pool Detail screen to view detailed information about program-pool use, type any nonblank character in the select field to the left of Program Pool Summary.

When you have selected the screens you want, press [Enter]. The Realtime Monitor creates a new window for each screen requested.

What To Look For

- Look for a non-zero number in the Wait fields in the Program Pool Summary. A non-zero number indicates programs have to wait for space in the program pool. Investigate this condition further by displaying the Program Pool Detail screen.
- Look for high values in the Aborted task count field. Lower abort numbers are preferable for a production system while higher abort numbers may be okay for a development system.
- Look for Times at Max # values that are close to the Genned Max # value. This indicates that the concurrency level is limited by the MAX TASK value specified in the system generation SYSTEM statement.

Storage Pool Overview (PF14)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:57:02.63
CMD-->                                                          Window : 02
                                                                Refresh: 10

  02 Storage Pool Overview
   _ Storage Pool Summary
Pools     # Times   Pools
Genned    Sys SOS   SOS
1         0         0
          Genned    HWM
RLE       4000      2659
RCE       4000      2536
DPE       1000      547
Stack     1200      467
```

Screen Description

The Storage Pool Overview screen displays summary information about storage use since DC/UCF system startup.

To view detailed information about each storage pool, you can request the Storage Pool Detail screen directly from the Storage Pool Overview screen. Type any nonblank character in the select field to the left of Storage Pool Summary, then press [Enter]. The Realtime Monitor creates a new window for the requested screen.

What To Look For

- Compare the system generation (Genned field) and high-water mark (HWM field) values for the resource link elements (RLEs), resource control elements (RCEs), deadlock prevention elements (DPEs), and the stack size. The high-water mark may exceed the amount assigned at system generation. For RCEs, RLEs, or DPEs, this may happen if additional resources have been allocated dynamically by the system. In this case, you should adjust the sysgen values to avoid secondary allocation of resources.

  Note: At runtime, exceeding the Genned value for the stack results in system termination.

- Pools SOS should be a value near zero. A non-zero value should represent peak usage, not a constant condition.

Database I/O Driver Detail (PF15)

```
PM-Rnn.n SYSTEM71          CA, Inc.                  V71      08.348 15:52:14.22
CMD-->                                                              Window : 02
                                                                    Refresh: 10
  02 Database I/O Driver Detail
    Task          Driver  Forced    Read   Write  Journal  Jrnldrvr   Read
    Number          Type   Write   Count   Count   Writes     Posts  Posts
    143          DBIOWRIT       0       0       0       0         0       0
    146          DBIOREAD       0       0       0       0         0       0
    292          DBIOWRIT       0       0       0       0         0       0
```

Screen Description

The Database I/O Driver Detail screen displays the I/O activity for the database I/O drivers. The screen includes one line for each driver activated for the DC/UCF system.

Database drivers are independent tasks that perform page reads and writes on behalf of a task:

Driver	Description
DBIOWRIT	The write driver, which writes pages in the buffer to disk

Driver	Description
DBIOREAD	The read driver, which performs look-ahead reads for tasks that perform area sweeps

Note: For more information about the read and write drivers, see the *CA IDMS System Tasks and Operator Commands Guide*.

What To Look For

- Look to see if Jnrldrvr Posts is high compared to Journal Writes. If it is, you may have too many read drivers activated.
- Look for a high value in the Forced Write field. A forced write occurs when the system must write a buffer page in order to read a database page. A high value means one of these conditions exist:
  - A large number of update jobs are running at the same time
  - A long-running update job is not issuing COMMIT statements frequently enough
  - Buffer activity is excessive
- Look at the values in the Read Count and Write Count fields. If the values are consistently zero, the drivers aren't doing any work and you should deactivate them.
- Monitor the number of tasks performed and system I/O. Although the drivers increase the number of tasks the system can perform, they do so at the cost of increased I/O. To use the read and write drivers most efficiently, activate them for long-running update jobs. If you use the read drivers, activate at least two to see performance improvements.

Journal Detail (PF16)

```
PM-Rnn.n TECHDC99          CA, Inc.                  V545     08.348 10:25:20.99
 CMD-->                                                              Window : 02
                                                                     Refresh: 10
   02 Journal Detail                                                          >
                  Current Offload          Tran     Dseg    Ru     Dseg  Current
     Journal Name  Status  Status Full Waiting Interval Level      RBN      RBN
 J1JRNL                                        0         0     0        0        0
 J2JRNL            ACTIVE                                0     0    15020     92
```

```
PM-Rnn.n TECHDC99        CA, Inc.              V545     08.348 10:26   :21.99
CMD-->                                                          Window : 02
                                                                Refresh: 10
  02 Journal Detail                                                      <
                     Dseg    Ru     Dseg  Current     High      Low  Current
    Journal Name Interval Level      RBN      RBN      RBN      RBN  Segment
 J1JRNL                 0     0        0        0    15000       21        0
 J2JRNL                 0     0    15020     9360    15000       11       16
```

Screen Description

The Journal Detail screen displays the current status of all disk journals. It indicates which journals are full and whether a journal is being offloaded.

What To Look For

- Look at the status of the journals.
- Look at the Tran Waiting field to see if transactions are waiting for the journal.
- Look at the number assigned in the Dseg RBN field. This value indicates the relative block number (RBN) at which IDMSDBIO will write the next dummy segment (DSEG) record. During warmstart processing, CA IDMS rolls back the journal to the most current DSEG record.

  If you have not specified a journal fragment interval with the DCMT VARY JOURNAL FRAGMENT NUMBER command, you will see a value in the Dseg RBN field that is greater than the number of blocks in the journal.

SQL Overview (PF17)

```
PM-Rnn.n SYSTEM71        CA, Inc.              V71      08.348 15:12:27.33
CMD-->                                                          Window : 02
                                                                Refresh: 10

  02 SQL Overview
       _ Row Level Activity
Fetch     Insert    Update    Delete
60        5         26        3

          Sort Activity
Total #   Hi-Row    Low-Row   # Rows
4         20        3         41

Access Module       Number of SQL
Recompiles          Statements
2                   5
```

Screen Description

The SQL Overview screen provides summary SQL information for the entire system since startup.

To view detailed information about each active SQL transaction, you can request the SQL Detail screen by returning to the menu screen and pressing PF18, or by typing a nonblank character next to SQL Detail on the menu screen then pressing [Enter].

What To Look For

- Look for large values in the Hi-Row field under Sort Activity.
- Look for large values under Access Module Recompiles. Three reasons for recompiles:
  - Changes in the physical database definition

    Note: Use discretion in planning changes to components of the physical database definition.
  - Program recompiling; the recompile changes the date/time stamp, necessitating an AM recompile

    Note: Try to limit program compiles on a production system.
  - An SQL statement referencing a temporary table before the table is defined

    Note: Define temporary tables before referencing them.
- Monitor the Total # field for total number of sorts performed since startup. Keep track of this field to insure that the database contains the indexes needed to support the application requests for sorted data.

SQL Detail (PF18)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 03:26:10.25
CMD-->                                                          Window : 02
                                                                Refresh: 20
  02 SQL Detail                                                          >
  Trans      User     Access         ACM       SQL    Rows     Rows    Rows
  Number     ID       Module    Recompile Processed Fetched Inserted Updated
  557        DDK      SQLAM1            0         1       0        1       0
  962        GRD                       0         8      32        0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 03:26:10.25
CMD-->                                                          Window : 02
                                                                Refresh: 20
  02 SQL Detail                                                        < >
Trans         Rows    Rows Number Hi-Row Lo-Row   Rows  Pages Pages     Pages
Number     Updated Deleted  Sorts  Sorts  Sorts Sorted Written  Read Requested
557              0       0      0      0      0      0       2     0         5
962              0       0      0      0      0      0       0     0        86
```

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 03:26:10.25
CMD-->                                                            Window : 02
                                                                  Refresh: 20
  02 SQL Detail                                                            <
 Trans      Hi-Row Lo-Row   Rows  Pages Pages     Pages    Rows Update Select
 Number      Sorts  Sorts Sorted Written  Read Requested Current  Locks  Locks
 557             0      0      0       2     0         5       1      7      3
 962             0      0      0       0     0        86      50      1      5
```

Screen Description

The SQL Detail screen displays a line of information for each SQL transaction.

What To Look For

- Look for a high number in the Rows Requested field compared to the number in the Rows Current field. This ratio should be as close to 1:1 as possible.
- Look at the ratio of pages requested to pages read. The ratio can be an indication of the effectiveness of the buffer size and database design. Low ratios could indicate that either the buffer is too small or the database should be tuned.
- Look for large values under Access Module Recompiles. Three reasons for recompiles:
  - Changes in the physical database definition

    Note: Use discretion in planning changes to components of the physical database definition.
  - Program recompiling; the recompile changes the date/time stamp, necessitating an AM recompile

    Note: Try to limit program compiles on a production system.
  - An SQL statement referencing a temporary table before the table is defined

    Note: Define temporary tables before referencing them.

Active System Summary (PF19)

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 03:31:10.25
 CMD-->                                                           Window : 02
                                                                  Refresh: 20
   02 Active System Summary                                                >
   Job      Job      Job          Program
   Name     Number   Status   ASID Name       DCV     CV    SVC Version
   SYSTEM71 JOB19126   NS     007C RHDCOMVS   710    148    172 18.5.00
   SYSTEM72 JOB05353   NS     0079 RHDCOMVS   720    222    172 18.5.00
```

```
PM-Rnn.n SYSTEM71          CA, Inc.                  V71      08.348 03:31:10.25
 CMD-->                                                             Window : 02
                                                                    Refresh: 20
   02 Active System Summary                                                   >
   Job      Job          Program                                    Tape
   Name     Status   ASID Name        DCV     CV    SVC Version   Number
   SYSTEM71   NS     007C RHDCOMVS    710    148    172 18.5.00   GJI50B
   SYSTEM72   NS     0079 RHDCOMVS    720    222    172 18.5.00   GJI50B
```

Screen Description

The Active System Summary screen provides a list of all active IDMS central versions (z/OS only). To select a system for monitoring, type any non-blank character in the select field to the left of a system name and press ENTER.

Note: You can also select a system for monitoring using the SYStem top-line command. For more information on the SYStem command, see Control Keys and Commands (see page 20).

Chapter 4: Using the Interval Monitor

This section contains the following topics:

Overview

This chapter introduces the Interval Monitor. During an Interval Monitor session, use the windowing commands and control keys described in Introduction to Performance Monitor, to manipulate your screen displays. The Interval Monitor provides additional commands that are described later in this chapter.

What the Interval Monitor Does

The Interval Monitor captures system-wide wait-time statistics and information related to wait-time statistics for each interval. An interval is a unit of time (30 minutes, 60 minutes, etc.). The time spanned by each interval is established by the system administrator, as is the total number of intervals to be maintained.

For example, you may want to maintain statistics based on 60-minute intervals and to store up to 24 intervals (one day of data). Once the day (24 intervals, in this case) elapses, the system wraps back and begins overwriting the earliest intervals with new information. For more information about system installation and setup, see the *CA IDMS Performance Monitor System Administration Guide*.

The first interval recorded after system startup will end at the next time-of-day which is a multiple of the Size of Interval setting. For example, if the system started at 01:03:00 and the Size of Interval setting is 10, the first interval will end at 01:10:00. To find the Size of Interval setting, see Options in Effect (see page 132).

Note: In addition to online interval monitoring, there is also a batch component that allows you to report by interval and category. For more information, see the *CA IDMS Performance Monitor System Administration Guide*.

Problem-Solving

This chapter also provides information that you can use to help alleviate problems detected by using the Interval Monitor. If you detect a problem with your system, perform the following steps:

1. Try to isolate the applications that are heavy users of the problem resource. For example, storage-pool problems can be caused by an application that neglects to release acquired storage.
2. If Step 1 fails to correct the problem, increase the availability of the resource. For example, to solve storage-pool problems, you may need to expand the storage pool.

Uses and Users

The Interval Monitor is typically used by DBAs and DCAs to identify trends in system-resource utilization.

The Interval Monitor maintains statistics for several categories of information:

- Db-key/area
- I/O
- Area
- Buffer
- Journal
- Storage
- Storage type
- Program pool
- Program loads
- Log
- Scratch
- Queue
- Message
- Line I/O
- Transaction
- CDMSLIB libraries
- SQL
- Sysplex menu

The Interval Monitor automatically captures the appropriate wait information for each category. You can view this information either in detail or history form.

Note that the Interval Monitor maintains statistics separately for system and nonsystem data.

Area Name	Description
DDLDML	DC/UCF system definitions, maps, dialogs, source modules, and record descriptions
DDLDCRUN/ DDLDCQUE	Queue area

Area Name	Description
DDLDCSCR	Scratch area
DDLDCMSG	Message area
DDLDCLOG	Log area
DDLDCLOD	Load modules associated with DDLDML
DDLCAT	Physical database definitions (segments, database name tables, DMCLs); also contains SQL entity definitions at sites having the SQL option
DDLCATX	Indexes associated with DDLCAT
DDLCATLOD	Load modules associated with DDLCAT; also contains access modules at sites having the SQL option
DDLSEC	System user catalog area

Types of Interval Monitor Screens

The types of screens shown in the following table are available through the Interval Monitor and are used to display the statistics:

Screen	Description
Summary Detail screen	Provides wait statistics for each category
Summary History screen	Shows the average wait time for each interval in a graph
Wait Type by Interval screen	Summarizes wait information by category for a specific time interval. The screen displays this information both numerically and graphically. The Interval Monitor uses 1 of 4 scales for the graph, depending on the highest average wait time value: ■ 0 - 1 second ■ 0 - 5 seconds ■ 0 - 10 seconds ■ 0 - 50 seconds For values that exceed the scale of the graph, the Interval Monitor displays this symbol: =>.
Detail screens	Break down the wait activity for a particular category and interval. Where appropriate, these screens include other related statistics to help evaluate the use of resources and the cause of the waits.

Screen	Description
History screens	Summarize the wait activity for a specific category, across all intervals. For each interval, these screens show the average wait time. The average wait time is displayed numerically and graphically. The Interval Monitor displays 1 of 4 scales for the graph, based on the highest average wait time value (see the ranges listed under Wait Type by Interval screen).

Screen Access Sequence

Typically, you access Interval monitor screens in this sequence:

1. Summary History screen—Use this screen to determine which interval experienced a high average wait time.
2. Wait Type by Interval screen—Use this screen to determine what types of waits occurred for the interval. Expect high values for I/O operations.
3. Specific detail screens—Use the specific detail screens to determine why waits occurred during a particular interval.

Getting Started

To begin with the Interval Monitor, follow the steps described below.

Step 1

To request the Interval Monitor, type the task code **pmim** following the ENTER NEXT TASK CODE prompt:

```
V71  ENTER NEXT TASK CODE:
 pmim
```

Step 2

Press [Enter]. The Interval Monitor displays the menu screen which lists all of the Interval Monitor options.

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 08:01:10.98
CMD-->                                                          Window : 01

  01 07:55 MENU Interval Monitor

Detail   Hist  Description          Detail   Hist  Description
_  PF1    _    Summary              _  PF2        Wait Type
_  PF3    _    DB  DBkey/Area       _  PF4        DDL Log
_  PF5    _        IO               _  PF6            Scratch
_  PF7             Area             _  PF8            Queue
_  PF9    _        Buffer           _  PF10           Message
_  PF11   _        Journal
_  PF13        Storage              _  PF14   _    Line IO
_  PF15   _    Pgm Pool             _  PF16   _    Storage Type
_  PF17            Loads            _  PF18   _    Interval Statistics
_  PF19   _        Cdmslib          _  PF20   _    Transaction Statistics
_  PF21        PMIM Status/Options  _  PF22   _    SQL Statistics
_  PF23   _    Sysplex Menu

 Interval Monitor is Online and Collecting Data
```

Step 3

Select the screen(s) you want to view first. The menu is always available in window 01, should you need to select more screens later in the session. Select the screens by:

- Using a PF key to select a Detail screen.

  or

- Typing any nonblank character next to the category that describes the screen you want to access. The first column to the left of each category requests the corresponding Detail screen. The second column requests the History screen.

The Current Interval

The current interval is initially set to the earliest interval for which the system has stored statistics.

To change the current interval, press:

- [PF4] to establish the previous interval as current
- [PF5] to establish the next interval as current

Monitor Screens

The following table summarizes the Interval Monitor screens. Each screen is discussed in more detail later in this chapter, in the order presented in this table.

Screen Name	PF Key	Display
Interval Monitor Menu		The main menu for the Interval Monitor
Summary Detail	PF1	One line per interval, showing system wait statistics, CPU time, and disk I/O. Also includes a breakdown of wait information by wait-type category for each interval.
Summary History		One line per interval, showing the total wait count and time, and the average wait time.
Wait Type by Interval	PF2	Information for the current interval. Includes one line for each detailed category of wait (Db-key/area, I/O, Journal, etc.): ■ The total wait count and time for that category ■ The percent-of-total for the category ■ A graphic representation of these percentages
DBkey/Area Detail	PF3	Information for the current interval for db-key waits and area waits. For each nonsystem area, the information includes: ■ A total wait count and time for all db-key waits ■ Area wait information broken down by retrieval mode (shared, protected, and exclusive)
DBkey/Area History		One line per interval for the DBkey/Area wait category.
Log Detail	PF4	Information for the current interval, showing the following log statistics: ■ I/O access statistics ■ Db-key wait statistics ■ Area statistics
IO Detail	PF5	Information for the current interval for all database I/O waits. For each nonsystem area, includes statistics for read and write waits, and for buffer use

Screen Name	PF Key	Display
IO History		One line per interval for the I/O wait category.
Scratch Detail	PF6	Information for the current interval for the scratch file, including: ■ I/O access statistics ■ Db-key wait statistics ■ Area statistics
Area Detail	PF7	Information for the current interval, including: ■ I/O access statistics ■ Db-key wait statistics ■ Area statistics for a specific database area
Queue Detail	PF8	Information for the current interval for each queue file, including: ■ I/O access statistics ■ Db-key wait statistics ■ Area statistics
Buffer Detail	PF9	Information for the current interval, showing statistics related to database and journal buffer use
Buffer History		One line per interval for the Buffer wait category
Message Detail	PF10	Information for the current interval for each message file, including: ■ I/O access statistics ■ Db-key wait statistics ■ Area statistics
Journal Detail	PF11	Information for the current interval, showing access statistics related to each journal file.
Journal History		One line per interval for the Journal wait category.
Storage Detail	PF13	Information for the current interval, showing statistics related to storage-pool use.

Screen Name	PF Key	Display
Line I/O Detail	PF14	Information for the current interval, showing teleprocessing statistics: ■ Line information ■ A PTERM count ■ Read/write counts and errors ■ Request parameter list (RPL) information for VTAM; RPB information for DCAM
Program Pool Detail	PF15	Information for the current interval, showing statistics related to program-pool use
Program Pool History		One line per interval for the Program Pool wait category.
Storage Type Detail	PF16	Information about the current interval, showing statistics related to XA and non-XA storage pools.
Storage Type History		One line per interval for the Storage Type wait category.
Program Load Detail	PF17	Information for the current interval, showing program loading information for programs, dialogs, maps, tables, and applications being loaded from the primary directory load area, CDMSLIB, and any test libraries
Specific Interval Information	PF18	DC statistics for a particular interval
Interval Information		Information by interval, showing detailed DC statistics
CDMSLIB Detail	PF19	Overview of load library activity by interval
CDMSLIB History		One line per interval for the CDMSLIB wait category.
Specific Transaction Information	PF20	DB statistics for a particular transaction
Transaction Information		Information by interval, showing detailed transaction statistics
Interval Monitor Options in Effect	PF21	Displays options specified by the system administrator
Specific SQL Information	PF22	Information for the current interval for all SQL statistics
SQL Information		One line per interval for SQL statistics.

Screen Name	PF Key	Display
Sysplex Menu	PF23	The menu for all activity related to Sysplex.

Moving from Screen to Screen

To move from one screen to the next, use one of the following methods:

- Type any nonblank character at the appropriate underscore in the left-most column of the displayed screen, then press [Enter]. This process is explained for each screen later in this chapter. No underscore is displayed on screens that do not allow you to select the next screen with a nonblank character.
- Use the control keys summarized in the following table.

Control Keys

The following table summarizes the control keys you can use with the Interval Monitor:

Control Key	What It Does
ENTER	Processes user input
PF1	Displays a screen of help text appropriate to the current cursor position
PF3	Deletes the current window
PF4	Sets the previous interval as current
PF5	Sets the next interval as current
PF6	Displays the Active Windows screen
PF7	Scrolls up
PF8	Scrolls down
PF9	Toggles between a corresponding Detail and History screen
PF10	Scrolls left
PF11	Scrolls right
CLEAR	Exits the monitor

Interval Monitor Menu

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 07:00:28.15
CMD-->                                                          Window : 01

  01 06:54 MENU Interval Monitor

Detail   Hist  Description          Detail   Hist  Description
_  PF1    _    Summary              _  PF2        Wait Type
_  PF3    _    DB  DBkey/Area       _  PF4        DDL Log
_  PF5    _        IO               _  PF6            Scratch
_  PF7             Area             _  PF8            Queue
_  PF9    _        Buffer           _  PF10           Message
_  PF11   _        Journal
_  PF13            Storage          _  PF14   _    Line IO
_  PF15   _        Pgm Pool         _  PF16   _    Storage Type
_  PF17            Loads            _  PF18   _    Interval Statistics
_  PF19   _        Cdmslib          _  PF20   _    Transaction Statistics
_  PF21            PMIM Status/Options _  PF22   _    SQL Statistics
_  PF23   _    Sysplex Menu

 Interval Monitor is Online and Collecting Data
```

Menu Description

The Interval Monitor Menu screen is the entry-level menu for the Interval Monitor. Use this screen to request the next screen(s) for display.

To the left of each screen name are either one or two single-character select fields and a PF-key name. To select a screen, do one of the following:

- Type any nonblank character in the select field, then press [Enter]. The Detail select field applies to detail screens. The Hist select field applies to history screens.
- Press the indicated PF key to access a detail screen.

To select multiple screens, mark as many select fields as you want, then press [Enter].

Summary Detail (PF1)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 08:10:26.33
CMD-->                                                          Window : 02

  02 07:55 SUM  Summary Detail                                              >
     Start   Tasks   Tasks     CPU    Disk    DBIO    DBIO  DB Buf  DB Buf
      Time Started   Ended    Time     I/O   Waits    Time   Waits    Time
   _ 07:55      72      52  .0604S      95      64  .3759S       3  .0406S
   _ 08:00      47      47  .0244S       3       3  .0794S       0  .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 08:10:26.33
CMD-->                                                         Window : 02

  02 08:30 SUM  Summary Detail                                          <  >
    Start  DB Buf   Prior   Prior Jrnl IO Jrnl IO Jrnl Buf Jrnl Buf   DBkey
     Time    Time   Waits    Time   Waits    Time    Waits     Time   Waits
  _ 07:55  .0406S       0  .0000S       4  .0026S        0   .0000S       0
  _ 08:00  .0000S       0  .0000S       0  .0000S        0   .0000S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 08:10:26.33
CMD-->                                                         Window : 02

  02 07:55 SUM  Summary Detail                                          <  >
   Start   DBkey   DBkey  Log IO  Log IO Log Sngl Log Sngl Log Full Log Full
    Time   Waits    Time   Waits    Time    Waits     Time    Waits     Time
 _ 07:55       0  .0000S      14  .0600S        1   .0005S        0   .0000S
 _ 08:00       0  .0000S       0  .0000S        0   .0000S        0   .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 08:10:26.33
CMD-->                                                         Window : 02

  02 07:55 SUM  Summary Detail                                          <  >
  Start Log Full  Scr IO  Scr IO Scr Sngl Scr Sngl Queue IO Queue IO Stg Pool
   Time     Time   Waits    Time    Waits     Time    Waits     Time    Waits
_ 07:55   .0000S       0  .0000S        0   .0000S       13  .0133S        0
_ 08:00   .0000S       0  .0000S        0   .0000S        0   .0000S        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 08:10:26.33
CMD-->                                                         Window : 02

  02 07:55 SUM  Summary Detail                                          < >
     Start Stg Pool Stg Pool Pgm Pool Pgm Pool Pgm Loads Pgm Loads  Loader
      Time    Waits     Time    Waits     Time     Waits     Time   Waits
   _ 07:55        0   .0000S        0   .0000S        0    .0000S        0
   _ 08:00        0   .0000S        0   .0000S        0    .0000S        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 08:10:26.33
CMD-->                                                         Window : 02

  02 07:55 SUM  Summary Detail                                          < >
     Start  Loader  Loader    Area    Area    ERUS    ERUS     DDS     DDS
      Time   Waits    Time   Waits    Time   Waits    TIME   Waits    Time
   _ 07:55       0  .0000S       0  .0000S       0  .0000S       5  .6985S
   _ 08:00       0  .0000S       0  .0000S       0  .0000S       0  .0000S
```

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 08:10:26.33
CMD-->                                                           Window : 02

  02 07:55 SUM  Summary Detail                                          < >
     Start     DDS  CKUSER  CKUSER Term IO Term IO     TCA     TCA DBGroup
      Time    Time   Waits    Time   Waits    Time   Waits    Time   Waits
   _ 07:55  .6985S       0  .0000S       4  .5596S       1  .0929S       0
   _ 08:00  .0000S       0  .0000S      10  .0004S       0  .0000S       0
```

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 08:10:26.33
CMD-->                                                           Window : 02

  02 07:55 SUM  Summary Detail                                           <
  Start DBGroup DBGroup Sh-Cache Sh-Cache XESLock  XESLock  XESList  XESList
   Time   Waits    Time    Waits     Time    Waits     Time    Waits     Time
_ 07:55       0  .0000S        0   .0000S        0   .0000S        0   .0000S
_ 08:00       0  .0000S        0   .0000S        0   .0000S        0   .0000S
```

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 08:10:26.33
CMD-->                                                           Window: 02

02 07:55 SUM  Summary Detail

   Start XESLock XESLock XESList  XESList  External External Internal Internal
    Time   Waits    Time    Waits     Time    Waits     Time    Waits     Time
_ 07:55       0  .0000S        0   .0000S        0   .0000S        0   .0000S
_ 08:00       0  .0000S        0   .0000S        0   .0001S        4   .0000S
```

Screen Description

The Summary Detail screen includes one line for each interval and shows summary-level task, CPU time, disk I/O, and wait information for each interval. Wait information is broken down to show the wait count/time for each detailed category maintained by the Interval Monitor.

For each category, the wait count and time statistics shown on this screen are the same as those shown on the Wait Type by Interval screen.

Using this Screen

- To request the Wait Type by Interval screen, type any nonblank character to the left of the interval for which the detailed information is required and press [Enter].
- To request the Summary History screen, press [PF9].

What To Look For

- Look for excessive waits for db-keys, journal files, and teleprocessing I/O. You have the most control over these wait types.
- Look for unexpected results, and investigate them by going to the Wait Type by Interval screen for the interval.

Summary History

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 14:59:35.84
CMD-->                                                          Window : 02

  02 02:15 SUHS Summary History
  Start Waits   Wait    Avg         .2        .4        .6        .8        1
   Time         Time   Wait ---------|---------|---------|---------|---------|
_ 02:15  1677  1:09M .0414S --
_ 02:30  5011  3:25M .0410S --
_ 02:45  6727 11:31M .1027S -----
_ 03:00  8136 12:22M .0912S ----
_ 03:15  6429  5:53M .0550S --
_ 03:30  4919  2:12M .0269S -
_ 03:45  6932  3:41M .0319S -
_ 04:00  5898  2:22M .0241S -
_ 04:15  5504  1:56M .0210S -
_ 04:30  4551  4:04M .0536S --
_ 04:45  4570  4:21M .0571S --
_ 05:00  4716  1:28M .0187S
_ 05:15  8073  5:09M .0383S -
_ 05:30  6751  4:51M .0431S --
_ 05:45  5108  2:00M .0235S -
_ 06:00  3267  1:36M .0294S -
_ 06:15  3530  1:56M .0331S -
_ 06:30 10290  5:06M .0297S -
```

Screen Description

The Summary History screen shows the average wait time for the interval. For each interval, the Summary History screen shows a total wait count and time.

Using This Screen

- To request the Wait Type by Interval screen, type any nonblank character to the left of the interval for which the detailed information is required and press [Enter].
- To request the Summary Detail screen, press [PF9].

What To Look For

Look for above-average waits in the graph for an interval. Use the Wait Type by Interval screen to see a breakdown of waits by type for the interval. On this screen, you can see which type of wait caused the problem and request more detail if necessary.

Wait Type By Interval (PF2)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:53:30.17
CMD-->                                                         Window : 02

  02 09:10 WAIT Type by Interval                                          >
   Wait Type       Waits        .2       .4       .6       .8        1
                           ---------|--------|--------|--------|--------|
   DBIO              177 -
   Log IO            170 -
   Scratch IO          7
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:53:30.17
CMD-->                                                         Window : 02

  02 09:10 WAIT Type by Interval                                       < >
 Wait Type                .2       .4       .6       .8        1    Wait
                       ---------|--------|--------|--------|--------|    Time
 DBIO                  -                                               4.64S
 Log IO                -                                               4.57S
 Scratch IO                                                           .0727S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:53:30.17
CMD-->                                                         Window : 02

  02 09:10 WAIT Type by Interval                                          <
           Wait Type                      Wait                  Avg
                                          Time                  Wait
           DBIO                         4.64S                .0262S
           Log IO                       4.57S                .0268S
           Scratch IO                  .0727S                .0103S
```

Screen Description

The Wait Type by Interval screen breaks down the waits for the current interval. The screen includes one line for each category. Each row includes:

- The total wait count and time for the category, across the interval
- The average wait time for each category
- A graphic representation of the average wait time

The wait counts and times shown on this screen are the same as those shown on the Summary Detail screen by category.

What To Look For

Use this screen to determine which category type is experiencing excessive waits.

DBkey/Area Detail (PF3)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:08.64
CMD-->                                                          Window : 02

  02 10:30 DBDT DBkey/Area Detail                                        >
   Area Name                  Area_Access Physical Physical  Buffer Prefetch
                                    Waits   Writes    Reads    Hits     Hits
 _ APPLDICT.DDLDML                      0        0        0       0        0
 _ APPLDICT.DDLDCLOD                    0        0        4       0        0
 _ CATSYS.DDLCAT                        0        0        0       0        0
 _ CATSYS.DDLCATX                       0        0        0       0        0
 _ CATSYS.DDLCATLOD                     0        0        0       0        0
 _ DBCR.BRNCHTEL                        0        0        0       0        0
 _ DBCR.BRNCHTEL                        0        0        0       0        0
 _ DBCR.BRNCHTEL                        0        0        0       0        0
 _ DBCR.BRNCHTEL                        0        0        0       0        0
 _ DBCR.ACCTHIST                        0        0        0       0        0
 _ DBCR.ACCTHIST                        0        0        0       0        0
 _ DBCR.ACCTHIST                        0        0        0       0        0
 _ DBCR.ACCTHIST                        0        0        0       0        0
 _ DBCR.ACCTHIST                        0        0        0       0        0
 _ EMPDEMO.EMP-DEMO-REGION              0        0        0       0        0
 _ EMPDEMO.INS-DEMO-REGION              0        0        0       0        0
 _ EMPDEMO.ORG-DEMO-REGION              0        0        0       0        0
 _ PROJSEG.PROJAREA                     0        0        0       0        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:08.64
CMD-->                                                          Window : 02

  02 10:30 DBDT DBkey/Area Detail                                      < >
    Area Name                 Prefetch D-Space D-Space D-Space Sh-Cache
                                  Hits   Reads    Hits  Writes    Reads
  _ APPLDICT.DDLDML                  0       0       0       0        0
  _ APPLDICT.DDLDCLOD                0       0       0       0        0
  _ CATSYS.DDLCAT                    0       0       0       0        0
  _ CATSYS.DDLCATX                   0       0       0       0        0
  _ CATSYS.DDLCATLOD                 0       0       0       0        0
  _ DBCR.BRNCHTEL                    0       0       0       0        0
  _ DBCR.BRNCHTEL                    0       0       0       0        0
  _ DBCR.BRNCHTEL                    0       0       0       0        0
  _ DBCR.BRNCHTEL                    0       0       0       0        0
  _ DBCR.ACCTHIST                    0       0       0       0        0
  _ DBCR.ACCTHIST                    0       0       0       0        0
  _ DBCR.ACCTHIST                    0       0       0       0        0
  _ DBCR.ACCTHIST                    0       0       0       0        0
  _ DBCR.ACCTHIST                    0       0       0       0        0
  _ EMPDEMO.EMP-DEMO-REGION          0       0       0       0        0
  _ EMPDEMO.INS-DEMO-REGION          0       0       0       0        0
  _ EMPDEMO.ORG-DEMO-REGION          0       0       0       0        0
  _ PROJSEG.PROJAREA                 0       0       0       0        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:08.64
CMD-->                                                          Window : 02

  02 10:30 DBDT DBkey/Area Detail                                        < >
    Area Name                  Sh-Cache Sh-Cache Sh-Cache Sh-Cache    DBIO
                                  Reads     Hits   Writes   Failed   Waits
  _ APPLDICT.DDLDML                   0        0        0        0       0
  _ APPLDICT.DDLDCLOD                 0        0        0        0       4
  _ CATSYS.DDLCAT                     0        0        0        0       0
  _ CATSYS.DDLCATX                    0        0        0        0       0
  _ CATSYS.DDLCATLOD                  0        0        0        0       0
  _ DBCR.BRNCHTEL                     0        0        0        0       0
  _ DBCR.BRNCHTEL                     0        0        0        0       0
  _ DBCR.BRNCHTEL                     0        0        0        0       0
  _ DBCR.BRNCHTEL                     0        0        0        0       0
  _ DBCR.ACCTHIST                     0        0        0        0       0
  _ DBCR.ACCTHIST                     0        0        0        0       0
  _ DBCR.ACCTHIST                     0        0        0        0       0
  _ DBCR.ACCTHIST                     0        0        0        0       0
  _ DBCR.ACCTHIST                     0        0        0        0       0
  _ EMPDEMO.EMP-DEMO-REGION           0        0        0        0       0
  _ EMPDEMO.INS-DEMO-REGION           0        0        0        0       0
  _ EMPDEMO.ORG-DEMO-REGION           0        0        0        0       0
  _ PROJSEG.PROJAREA                  0        0        0        0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:08.64
CMD-->                                                          Window : 02

  02 10:30 DBDT DBkey/Area Detail                                        < >
   Area Name                    DBIO    DBIO Prior_DBIO Prior_DBIO  DB_Buf
                               Waits    Time      Waits       Time   Waits
  _ APPLDICT.DDLDML                0  .0000S          0     .0000S       0
  _ APPLDICT.DDLDCLOD              4  .0794S          0     .0000S       0
  _ CATSYS.DDLCAT                  0  .0000S          0     .0000S       0
  _ CATSYS.DDLCATX                 0  .0000S          0     .0000S       0
  _ CATSYS.DDLCATLOD               0  .0000S          0     .0000S       0
  _ DBCR.BRNCHTEL                  0  .0000S          0     .0000S       0
  _ DBCR.BRNCHTEL                  0  .0000S          0     .0000S       0
  _ DBCR.BRNCHTEL                  0  .0000S          0     .0000S       0
  _ DBCR.BRNCHTEL                  0  .0000S          0     .0000S       0
  _ DBCR.ACCTHIST                  0  .0000S          0     .0000S       0
  _ DBCR.ACCTHIST                  0  .0000S          0     .0000S       0
  _ DBCR.ACCTHIST                  0  .0000S          0     .0000S       0
  _ DBCR.ACCTHIST                  0  .0000S          0     .0000S       0
  _ DBCR.ACCTHIST                  0  .0000S          0     .0000S       0
  _ EMPDEMO.EMP-DEMO-REGION        0  .0000S          0     .0000S       0
  _ EMPDEMO.INS-DEMO-REGION        0  .0000S          0     .0000S       0
  _ EMPDEMO.ORG-DEMO-REGION        0  .0000S          0     .0000S       0
  _ PROJSEG.PROJAREA               0  .0000S          0     .0000S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:08.64
CMD-->                                                          Window : 02

  02 10:30 DBDT DBkey/Area Detail                                        < >
  Area Name                    DB_Buf  DB_Buf SHR_Buf SHR_Buf EXC_Buf EXC_Buf
                                Waits    Time   Waits    Time   Waits    Time
_ APPLDICT.DDLDML                   0  .0000S       0  .0000S       0  .0000S
_ APPLDICT.DDLDCLOD                 0  .0000S       0  .0000S       0  .0000S
_ CATSYS.DDLCAT                     0  .0000S       0  .0000S       0  .0000S
_ CATSYS.DDLCATX                    0  .0000S       0  .0000S       0  .0000S
_ CATSYS.DDLCATLOD                  0  .0000S       0  .0000S       0  .0000S
_ DBCR.BRNCHTEL                     0  .0000S       0  .0000S       0  .0000S
_ DBCR.BRNCHTEL                     0  .0000S       0  .0000S       0  .0000S
_ DBCR.BRNCHTEL                     0  .0000S       0  .0000S       0  .0000S
_ DBCR.BRNCHTEL                     0  .0000S       0  .0000S       0  .0000S
_ DBCR.ACCTHIST                     0  .0000S       0  .0000S       0  .0000S
_ DBCR.ACCTHIST                     0  .0000S       0  .0000S       0  .0000S
_ DBCR.ACCTHIST                     0  .0000S       0  .0000S       0  .0000S
_ DBCR.ACCTHIST                     0  .0000S       0  .0000S       0  .0000S
_ DBCR.ACCTHIST                     0  .0000S       0  .0000S       0  .0000S
_ EMPDEMO.EMP-DEMO-REGION           0  .0000S       0  .0000S       0  .0000S
_ EMPDEMO.INS-DEMO-REGION           0  .0000S       0  .0000S       0  .0000S
_ EMPDEMO.ORG-DEMO-REGION           0  .0000S       0  .0000S       0  .0000S
_ PROJSEG.PROJAREA                  0  .0000S       0  .0000S       0  .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:08.64
CMD-->                                                          Window : 02

  02 10:30 DBDT DBkey/Area Detail                                         <
    Area Name                  EXC_Buf   DBkey   DBkey Sh-Cache Sh-Cache
                                 Time    Waits    Time    Waits     Time
  _ APPLDICT.DDLDML            .0000S        0  .0000S        0   .0000S
  _ APPLDICT.DDLDCLOD          .0000S        0  .0000S        0   .0000S
  _ CATSYS.DDLCAT              .0000S        0  .0000S        0   .0000S
  _ CATSYS.DDLCATX             .0000S        0  .0000S        0   .0000S
  _ CATSYS.DDLCATLOD           .0000S        0  .0000S        0   .0000S
  _ DBCR.BRNCHTEL              .0000S        0  .0000S        0   .0000S
  _ DBCR.BRNCHTEL              .0000S        0  .0000S        0   .0000S
  _ DBCR.BRNCHTEL              .0000S        0  .0000S        0   .0000S
  _ DBCR.BRNCHTEL              .0000S        0  .0000S        0   .0000S
  _ DBCR.ACCTHIST              .0000S        0  .0000S        0   .0000S
  _ DBCR.ACCTHIST              .0000S        0  .0000S        0   .0000S
  _ DBCR.ACCTHIST              .0000S        0  .0000S        0   .0000S
  _ DBCR.ACCTHIST              .0000S        0  .0000S        0   .0000S
  _ DBCR.ACCTHIST              .0000S        0  .0000S        0   .0000S
  _ EMPDEMO.EMP-DEMO-REGION    .0000S        0  .0000S        0   .0000S
  _ EMPDEMO.INS-DEMO-REGION    .0000S        0  .0000S        0   .0000S
  _ EMPDEMO.ORG-DEMO-REGION    .0000S        0  .0000S        0   .0000S
  _ PROJSEG.PROJAREA           .0000S        0  .0000S        0   .0000S
```

Screen Description

The DBkey/Area Detail screen displays detailed information for db-key and area waits for the current interval.

The screen includes one line for each area, which shows the total count and time of all access requests that resulted in a db-key wait and shows statistics by retrieval mode for area waits.

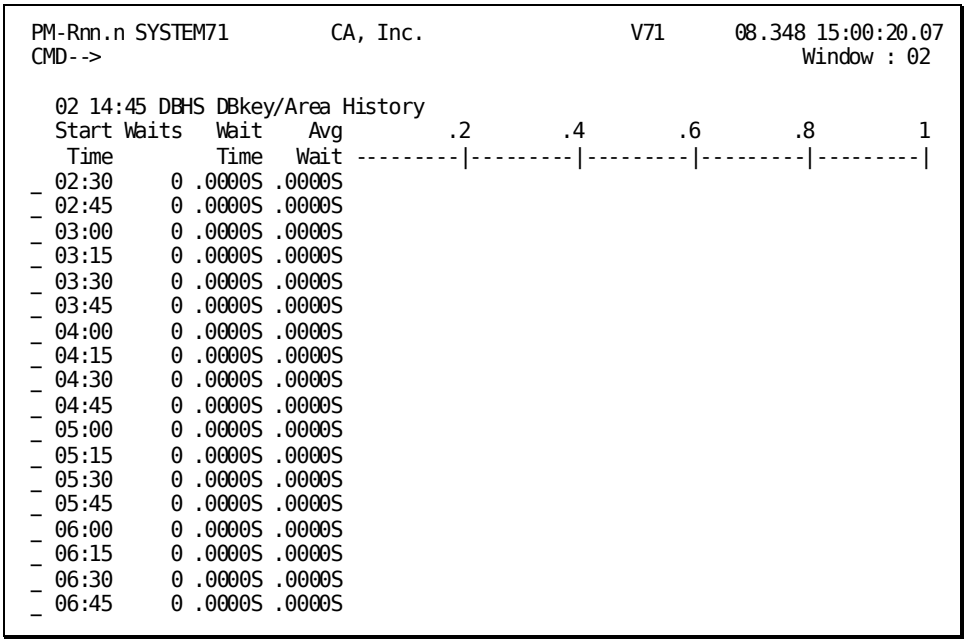
Using This Screen

- To request the Area Detail screen for a specific area, type any nonblank character to the left of the desired area and press [Enter].
- To request the DBkey/Area History screen, press [PF9].

What To Look For

- Look for waits in the Area_Access Waits field. This field indicates the number of times a task had to wait to access the area because of its READY mode (for example, exclusive update).
- Look at the Buffer Hits field. The values in the field should be high, indicating effective use of the area's buffer.
- Look for waits during an interval. Use the Realtime Monitor Active Tasks screen to determine the specific db-keys and db-key holders. You can also use the Application Monitor to see detailed wait information broken down by task.

DBkey/Area History



Screen Description

The DBkey/Area History screen shows a total wait count and time for all db-key and area waits. The screen also shows the average wait time for the interval for the DBkey/Area wait category, both numerically and graphically.

Using This Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Log Detail (PF4)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:00:24.96
CMD-->                                                          Window : 02

  02 10:30 LODT Log Detail                                                  >
 Area Name                   File Name                    Physical  Physical
                                                            Reads    Writes
 SYSTEM.DDLDCLOG             SYSTEM.DCLOG                      5         6
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:00:24.96
CMD-->                                                          Window : 02

  02 10:30 LODT Log Detail                                                < >
  Area Name                  Physical     Read     Read    Write    Write
                               Writes    Waits     Time    Waits     Time
  SYSTEM.DDLDCLOG                   6        0   .0000S       11   .0429S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:00:24.96
CMD-->                                                          Window : 02

  02 10:30 LODT Log Detail                                                < >
 Area Name                    Write  Buffer Name          Buffer  Prefetch
                               Time                        Hits      Hits
 SYSTEM.DDLDCLOG              .0429S  LOG_BUFFER                0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:00:24.96
CMD-->                                                          Window : 02

  02 10:30 LODT Log Detail                                                < >
 Area Name                  Prefetch  DB_Buf  DB_Buf SHR_Buf SHR_Buf EXC_Buf
                               Hits   Waits    Time   Waits    Time   Waits
 SYSTEM.DDLDCLOG                  0       0  .0000S       0  .0000S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:00:24.96
CMD-->                                                          Window : 02

  02 10:30 LODT Log Detail                                                < >
 Area Name                  EXC_Buf EXC_Buf   DBkey   DBkey D-Space D-Space
                              Waits    Time   Waits    Time   Reads    Hits
 SYSTEM.DDLDCLOG                  0  .0000S       0  .0000S       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:00:24.96
CMD-->                                                          Window : 02

  02 10:30 LODT Log Detail                                                < >
  Area Name                  D-Space  D-Space  Shared Cache Name  Sh-Cache
                                Hits   Writes                        Reads
  SYSTEM.DDLDCLOG                  0       0                            0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:00:24.96
CMD-->                                                          Window : 02

  02 10:30 LODT Log Detail                                               <  >
   Area Name                  Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                 Reads     Hits   Writes   Failed    Waits
   SYSTEM.DDLDCLOG                   0        0        0        0        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:00:24.96
CMD-->                                                          Window : 02

  02 10:30 LODT Log Detail                                               <
   Area Name                  Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                 Hits   Writes   Failed    Waits     Time
   SYSTEM.DDLDCLOG                   0        0        0        0   .0000S
```

Screen Description

The Log Detail screen displays detailed information about the system log file(s) for the current interval.

IO Detail (PF5)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:02:52.67
CMD-->                                                          Window : 02

  02 10:30 IODT IO Detail                                                 >
  Area Name                  File Name             Read    Read   Write   Write
                                                  Waits    Time   Waits    Time
_ APPLDICT.DDLDML            APPLDICT.DICTDB         0  .0000S       0  .0000S
_ APPLDICT.DDLDCLOD          APPLDICT.DLODDB         4  .0794S       0  .0000S
_ CATSYS.DDLCAT              CATSYS.DCCAT            0  .0000S       0  .0000S
_ CATSYS.DDLCATX             CATSYS.DCCATX           0  .0000S       0  .0000S
_ CATSYS.DDLCATLOD           CATSYS.DCCATL           0  .0000S       0  .0000S
_ DBCR.BRNCHTEL              DBCR.BRANCHA            0  .0000S       0  .0000S
_ DBCR.BRNCHTEL              DBCR.BRANCHB            0  .0000S       0  .0000S
_ DBCR.BRNCHTEL              DBCR.BRANCHC            0  .0000S       0  .0000S
_ DBCR.BRNCHTEL              DBCR.BRANCHD            0  .0000S       0  .0000S
_ DBCR.ACCTHIST              DBCR.ACCOUNTA           0  .0000S       0  .0000S
_ DBCR.ACCTHIST              DBCR.ACCOUNTB           0  .0000S       0  .0000S
_ DBCR.ACCTHIST              DBCR.ACCOUNTC           0  .0000S       0  .0000S
_ DBCR.ACCTHIST              DBCR.ACCOUNTD           0  .0000S       0  .0000S
_ DBCR.ACCTHIST              DBCR.ACCOUNTE           0  .0000S       0  .0000S
_ EMPDEMO.EMP-DEMO-REGION    EMPDEMO.EMPDEMO         0  .0000S       0  .0000S
_ EMPDEMO.INS-DEMO-REGION    EMPDEMO.INSDEMO         0  .0000S       0  .0000S
_ EMPDEMO.ORG-DEMO-REGION    EMPDEMO.ORGDEMO         0  .0000S       0  .0000S
_ PROJSEG.PROJAREA           PROJSEG.PROJDEMO        0  .0000S       0  .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:02:52.67
CMD-->                                                          Window : 02

  02 10:30 IODT IO Detail                                                < >
    Area Name                    Write Buffer Name          Buffer  Buffer
                                  Time                     Requests   Waits
  _ APPLDICT.DDLDML             .0000S DEFAULT_BUFFER             0       0
  _ APPLDICT.DDLDCLOD           .0000S DEFAULT_BUFFER             0       0
  _ CATSYS.DDLCAT               .0000S DEFAULT_BUFFER             0       0
  _ CATSYS.DDLCATX              .0000S DEFAULT_BUFFER             0       0
  _ CATSYS.DDLCATLOD            .0000S DEFAULT_BUFFER             0       0
  _ DBCR.BRNCHTEL               .0000S DBCR_BRCH_BUFFER           0       0
  _ DBCR.BRNCHTEL               .0000S DBCR_BRCH_BUFFER           0       0
  _ DBCR.BRNCHTEL               .0000S DBCR_BRCH_BUFFER           0       0
  _ DBCR.BRNCHTEL               .0000S DBCR_BRCH_BUFFER           0       0
  _ DBCR.ACCTHIST               .0000S DBCR_ACCT_BUFFER           0       0
  _ DBCR.ACCTHIST               .0000S DBCR_ACCT_BUFFER           0       0
  _ DBCR.ACCTHIST               .0000S DBCR_ACCT_BUFFER           0       0
  _ DBCR.ACCTHIST               .0000S DBCR_ACCT_BUFFER           0       0
  _ DBCR.ACCTHIST               .0000S DBCR_ACCT_BUFFER           0       0
  _ EMPDEMO.EMP-DEMO-REGION     .0000S DEFAULT_BUFFER             0       0
  _ EMPDEMO.INS-DEMO-REGION     .0000S DEFAULT_BUFFER             0       0
  _ EMPDEMO.ORG-DEMO-REGION     .0000S DEFAULT_BUFFER             0       0
  _ PROJSEG.PROJAREA            .0000S DEFAULT_BUFFER             0       0
  _
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11&col.
on.02:52.67
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:02:52.67
CMD-->                                                          Window : 02

  02 10:30 IODT IO Detail                                                < >
    Area Name                  Buffer  Buffer Shared Cache Name  Sh-Cache
                                Waits    Time                      Waits
  _ APPLDICT.DDLDML                 0  .0000S                           0
  _ APPLDICT.DDLDCLOD               0  .0000S                           0
  _ CATSYS.DDLCAT                   0  .0000S                           0
  _ CATSYS.DDLCATX                  0  .0000S                           0
  _ CATSYS.DDLCATLOD                0  .0000S                           0
  _ DBCR.BRNCHTEL                   0  .0000S IDMSCACHE00002            0
  _ DBCR.BRNCHTEL                   0  .0000S IDMSCACHE00002            0
  _ DBCR.BRNCHTEL                   0  .0000S IDMSCACHE00002            0
  _ DBCR.BRNCHTEL                   0  .0000S IDMSCACHE00002            0
  _ DBCR.ACCTHIST                   0  .0000S IDMSCACHE00001            0
  _ DBCR.ACCTHIST                   0  .0000S IDMSCACHE00001            0
  _ DBCR.ACCTHIST                   0  .0000S IDMSCACHE00002            0
  _ DBCR.ACCTHIST                   0  .0000S IDMSCACHE00001            0
  _ DBCR.ACCTHIST                   0  .0000S IDMSCACHE00001            0
  _ EMPDEMO.EMP-DEMO-REGION         0  .0000S                           0
  _ EMPDEMO.INS-DEMO-REGION         0  .0000S                           0
  _ EMPDEMO.ORG-DEMO-REGION         0  .0000S                           0
  _ PROJSEG.PROJAREA                0  .0000S                           0
```

```
CMD-->                                                          Window : 02

  02 10:30 IODT IO Detail                                                <
    Area Name                    Buffer Shared Cache Name  Sh-Cache Sh-Cache
                                   Time                        Waits     Time
  _ APPLDICT.DDLDML              .0000S                          0    .0000S
  _ APPLDICT.DDLDCLOD            .0000S                          0    .0000S
  _ CATSYS.DDLCAT                .0000S                          0    .0000S
  _ CATSYS.DDLCATX               .0000S                          0    .0000S
  _ CATSYS.DDLCATLOD             .0000S                          0    .0000S
  _ DBCR.BRNCHTEL                .0000S IDMSCACHE00002           0    .0000S
  _ DBCR.BRNCHTEL                .0000S IDMSCACHE00002           0    .0000S
  _ DBCR.BRNCHTEL                .0000S IDMSCACHE00002           0    .0000S
  _ DBCR.BRNCHTEL                .0000S IDMSCACHE00002           0    .0000S
  _ DBCR.ACCTHIST                .0000S IDMSCACHE00001           0    .0000S
  _ DBCR.ACCTHIST                .0000S IDMSCACHE00001           0    .0000S
  _ DBCR.ACCTHIST                .0000S IDMSCACHE00002           0    .0000S
  _ DBCR.ACCTHIST                .0000S IDMSCACHE00001           0    .0000S
  _ DBCR.ACCTHIST                .0000S IDMSCACHE00001           0    .0000S
  _ EMPDEMO.EMP-DEMO-REGION      .0000S                          0    .0000S
  _ EMPDEMO.INS-DEMO-REGION      .0000S                          0    .0000S
  _ EMPDEMO.ORG-DEMO-REGION      .0000S                          0    .0000S
  _ PROJSEG.PROJAREA             .0000S                          0    .0000S
```

Screen Description

The IO Detail screen displays detailed information on database I/O waits for the current interval. The screen includes one line for each user database or secondary dictionary area defined to the DC/UCF system. For each area, the screen identifies the file and shows a breakdown of read and write I/O statistics against that file, as well as statistics related to buffer use.

Using This Screen

To request the IO History screen, press [PF9].

What To Look For

- Look for average I/O times:
  - Read Time divided by the number of Physical Reads
  - Write Time divided by the number of Physical Writes

  Average I/O times ideally should be close to the average access time for the device type that the file resides on. For example, an average response time for a 3380 device should be between 18 and 25 msec.

- Look for I/O contention between database files. Your DASD configuration should isolate high activity datasets. For example:
  - Isolate journals and log files
  - Isolate system files from other files, such as spool files
  - Spread application databases across volumes
  - Isolate scratch and queue files if your system has high QLQ usage or is used for CA ADS development
- Look for unexpectedly high I/O counts, which can indicate excessive fragmentation or overflow records. Use the Realtime Monitor and Application Monitor to investigate this possibility.

IO History

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:01:25.14
CMD-->                                                          Window : 02

  02 14:45 IOHS IO History                                                i
  Start Waits   Wait    Avg         .2        .4        .6        .8        1
   Time         Time   Wait ---------|---------|---------|---------|---------|
_ 02:30     0 .0000S .0000S
_ 02:45     0 .0000S .0000S
_ 03:00     0 .0000S .0000S
_ 03:15     0 .0000S .0000S
_ 03:30     0 .0000S .0000S
_ 03:45     0 .0000S .0000S
_ 04:00     0 .0000S .0000S
_ 04:15     0 .0000S .0000S
_ 04:30     0 .0000S .0000S
_ 04:45     0 .0000S .0000S
_ 05:00     0 .0000S .0000S
_ 05:15     0 .0000S .0000S
_ 05:30     0 .0000S .0000S
_ 05:45     0 .0000S .0000S
_ 06:00     0 .0000S .0000S
_ 06:15     0 .0000S .0000S
_ 06:30     0 .0000S .0000S
_ 06:45     0 .0000S .0000S
```

Screen Description

The IO History screen displays each interval being tracked. For each interval, the IO History screen shows a total wait count and time for all nonsystem areas. The screen also shows the average wait time for the interval, both numerically and graphically.

Using This Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Scratch Detail (PF6)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:03:54.63
CMD-->                                                          Window : 02

  02 10:30 SCDT Scratch Detail                                           >
 Area Name                  File Name                    Physical  Physical
                                                           Reads    Writes
 SYSTEM.DDLDCSCR            SYSTEM.DCSCR                      0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:03:54.63
CMD-->                                                          Window : 02

  02 10:30 SCDT Scratch Detail                                         <  >
  Area Name                 Physical     Read     Read    Write    Write
                              Writes    Waits     Time    Waits     Time
  SYSTEM.DDLDCSCR                0        0   .0000S        0   .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:03:54.63
CMD-->                                                          Window : 02

  02 10:30 SCDT Scratch Detail                                         <  >
 Area Name                   Write  Buffer Name          Buffer  Prefetch
                              Time                        Hits      Hits
 SYSTEM.DDLDCSCR            .0000S  DEFAULT_BUFFER          15         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:03:54.63
CMD-->                                                          Window : 02

  02 10:30 SCDT Scratch Detail                                         <  >
 Area Name                 Prefetch  DB_Buf  DB_Buf SHR_Buf SHR_Buf EXC_Buf
                              Hits   Waits    Time   Waits    Time   Waits
 SYSTEM.DDLDCSCR                 0       0  .0000S       0  .0000S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                 V71      08.348 11:03:54.63
CMD-->                                                          Window : 02

  02 10:30 SCDT Scratch Detail                                          < >
 Area Name                  EXC_Buf EXC_Buf   DBkey   DBkey D-Space D-Space
                              Waits    Time   Waits    Time   Reads    Hits
 SYSTEM.DDLDCSCR                  0  .0000S       0  .0000S       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                 V71      08.348 11:03:54.63
CMD-->                                                          Window : 02

  02 10:30 SCDT Scratch Detail                                          < >
  Area Name                  D-Space  D-Space  Shared Cache Name  Sh-Cache
                                Hits   Writes                        Reads
  SYSTEM.DDLDCSCR                  0        0                            0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                 V71      08.348 11:03:54.63
CMD-->                                                          Window : 02

  02 10:30 SCDT Scratch Detail                                          < >
   Area Name                 Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                Reads     Hits   Writes   Failed    Waits
   SYSTEM.DDLDCSCR                  0        0        0        0        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                 V71      08.348 11:03:54.63
CMD-->                                                          Window : 02

  02 10:30 SCDT Scratch Detail                                          <
   Area Name                 Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                Hits   Writes   Failed    Waits     Time
   SYSTEM.DDLDCSCR                  0        0        0        0   .0000S
```

Screen Description

The Scratch Detail screen displays detailed information about the system scratch file for the current interval. This screen does not include the wait time for the scratch single-threaded event control block (ECB).

What To Look For

- Look for db-key waits.
- Look at the buffer utilization statistics. Buffer Hits indicates the number of times a requested database page was already in the buffer, saving the system from performing an I/O. Buffer Waits indicates when the system had to wait for an available page in the buffer. The Buffer Detail screen provides more statistics about buffer use.

Area Detail (PF7)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:11:54.28
CMD-->                                                          Window : 02

  02 10:30 ARDT Area Detail                                              >
 Area Name                   File Name                    Physical  Physical
                                                            Reads    Writes
 APPLDICT.DDLDCLOD           APPLDICT.DLODDB                    4         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:11:54.28
CMD-->                                                          Window : 02

  02 10:30 ARDT Area Detail                                            < >
  Area Name                  Physical     Read     Read    Write    Write
                               Writes    Waits     Time    Waits     Time
  APPLDICT.DDLDCLOD                 0        4   .0794S        0   .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:11:54.28
CMD-->                                                          Window : 02

  02 10:30 ARDT Area Detail                                            < >
 Area Name                    Write  Buffer Name          Buffer  Prefetch
                               Time                        Hits      Hits
 APPLDICT.DDLDCLOD           .0000S  DEFAULT_BUFFER           0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:11:54.28
CMD-->                                                          Window : 02

  02 10:30 ARDT Area Detail                                            < >
 Area Name                  Prefetch  DB_Buf  DB_Buf SHR_Buf SHR_Buf EXC_Buf
                               Hits   Waits    Time   Waits    Time   Waits
 APPLDICT.DDLDCLOD                0       0  .0000S       0  .0000S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:11:54.28
CMD-->                                                          Window : 02

  02 10:30 ARDT Area Detail                                            < >
 Area Name                  EXC_Buf EXC_Buf   DBkey   DBkey D-Space D-Space
                              Waits    Time   Waits    Time   Reads    Hits
 APPLDICT.DDLDCLOD                0  .0000S       0  .0000S       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:11:54.28
CMD-->                                                          Window : 02

  02 10:30 ARDT Area Detail                                            < >
  Area Name                  D-Space  D-Space  Shared Cache Name  Sh-Cache
                                Hits   Writes                        Reads
  APPLDICT.DDLDCLOD                0       0                            0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:11:54.28
CMD-->                                                          Window : 02

  02 10:30 ARDT Area Detail                                              <  >
   Area Name                  Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                 Reads     Hits   Writes   Failed    Waits
   APPLDICT.DDLDCLOD                 0        0        0        0        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:11:54.28
CMD-->                                                          Window : 02

  02 10:30 ARDT Area Detail                                              <
   Area Name                  Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                  Hits   Writes   Failed    Waits     Time
   APPLDICT.DDLDCLOD                 0        0        0        0   .0000S
```

Screen Description

The Area Detail screen displays detailed information about a specific DC/UCF area/file combination for the current interval. For areas that span multiple files, it displays one line of information for each file.

If this screen is requested from the DBkey/Area Detail screen, it is filled in with statistics for the requested area when displayed. If the screen is requested directly from the menu, it is blank when first displayed. In this case, specify the area in the Area Name field, and press [Enter] to display the requested statistics.

You can specify another area in the Area Name field at any time, and then press [Enter] to display statistics for that area.

What To Look For

- Look for db-key waits.
- Make sure that applications are using the appropriate usage modes.
- Look at the buffer utilization statistics. Buffer Hits indicates the number of times a requested database page was already in the buffer, saving the system from performing an I/O. DB_Buf Waits indicates when the system had to wait for an available page in the buffer. The Buffer Detail screen provides more statistics about buffer use.

Queue Detail (PF8)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:13:01.73
CMD-->                                                          Window : 02

  02 10:30 QUDT Queue Detail                                             >
 Area Name                  File Name                    Physical  Physical
                                                           Reads    Writes
 SYSTEM.DDLDCRUN            SYSTEM.DCRUN                      0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:13:01.73
CMD-->                                                          Window : 02

  02 10:30 QUDT Queue Detail                                           <  >
  Area Name                  Physical     Read     Read    Write    Write
                               Writes    Waits     Time    Waits     Time
  SYSTEM.DDLDCRUN                   0        0   .0000S        0   .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:13:01.73
CMD-->                                                          Window : 02

  02 10:30 QUDT Queue Detail                                           <  >
 Area Name                    Write  Buffer Name          Buffer  Prefetch
                               Time                        Hits      Hits
 SYSTEM.DDLDCRUN              .0000S  DEFAULT_BUFFER           0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:13:01.73
CMD-->                                                          Window : 02

  02 10:30 QUDT Queue Detail                                           <  >
 Area Name                  Prefetch  DB_Buf  DB_Buf SHR_Buf SHR_Buf EXC_Buf
                               Hits   Waits    Time   Waits    Time   Waits
 SYSTEM.DDLDCRUN                  0       0  .0000S       0  .0000S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:13:01.73
CMD-->                                                          Window : 02

  02 10:30 QUDT Queue Detail                                           <  >
 Area Name                  EXC_Buf EXC_Buf   DBkey   DBkey D-Space D-Space
                              Waits    Time   Waits    Time   Reads    Hits
 SYSTEM.DDLDCRUN                  0  .0000S       0  .0000S       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:13:01.73
CMD-->                                                          Window : 02

  02 10:30 QUDT Queue Detail                                           <  >
  Area Name                  D-Space  D-Space  Shared Cache Name  Sh-Cache
                                Hits   Writes                        Reads
  SYSTEM.DDLDCRUN                  0       0                            0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:13:01.73
CMD-->                                                          Window : 02

  02 10:30 QUDT Queue Detail                                             <  >
   Area Name                  Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                 Reads     Hits   Writes   Failed    Waits
   SYSTEM.DDLDCRUN                   0        0        0        0        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:13:01.73
CMD-->                                                          Window : 02

  02 10:30 QUDT Queue Detail                                             <
   Area Name                  Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                 Hits   Writes   Failed    Waits     Time
   SYSTEM.DDLDCRUN                   0        0        0        0   .0000S
```

Screen Description

The Queue Detail screen displays detailed information about the system queue file for the current interval.

What To Look For

- Look for db-key waits.
- Look at the buffer utilization statistics. Buffer Hits indicates the number of times a requested database page was already in the buffer, saving the system from performing an I/O. Buffer Waits indicates when the system had to wait for an available page in the buffer. The Buffer Detail screen provides more statistics about buffer use.

Buffer Detail (PF9)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:14:06.96
CMD-->                                                          Window : 02

  02 10:30 BUDT Buffer Detail                                              >
  Buffer Name         Buffer     Pages Found_In    % Buffer Prefetch   Pages
                       Waits Requested   Buffer Utilization     Hits    Read
  DBCR_BRCH_BUFFER         0         0        0           0        0       0
  DBCR_ACCT_BUFFER         0         0        0           0        0       0
  LOG_BUFFER               0         0        0           0        0       0
  DEFAULT_BUFFER           0         4        0           0        0       4
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:06.96
CMD-->                                                          Window : 02

  02 10:30 BUDT Buffer Detail                                          <  >
  Buffer Name          Pages Found-In   Pages  Buffer   Pages Pages  Buffer
                        Read    Cache Written    Size Defined  Used   Flush
  DBCR_BRCH_BUFFER         0        0       0    4000     500    200       0
  DBCR_ACCT_BUFFER         0        0       0    2932     500    200       0
  LOG_BUFFER               0        0       0    4276       5      0       0
  DEFAULT_BUFFER           4        0       0    4276      60     30       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:06.96
CMD-->                                                          Window : 02

  02 10:30 BUDT Buffer Detail                                          <  >
Buffer Name          Buffer  Buffer SHR_Buffer SHR_Buffer EXC_Buffer EXC_Buffer
                      Flush    Time      Waits       Time      Waits       Time
DBCR_BRCH_BUFFER          0  .0000S          0     .0000S          0     .0000S
DBCR_ACCT_BUFFER          0  .0000S          0     .0000S          0     .0000S
LOG_BUFFER                0  .0000S          0     .0000S          0     .0000S
DEFAULT_BUFFER            0  .0000S          0     .0000S          0     .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:06.96
CMD-->                                                          Window : 02

  02 10:30 BUDT Buffer Detail                                          <
  Buffer Name        EXC_Buffer EXC_Buffer DB_Read DB_Read DB_Write DB_Write
                          Waits       Time   Waits    Time    Waits     Time
  DBCR_BRCH_BUFFER            0     .0000S       0  .0000S       0   .0000S
  DBCR_ACCT_BUFFER            0     .0000S       0  .0000S       0   .0000S
  LOG_BUFFER                  0     .0000S       0  .0000S       0   .0000S
  DEFAULT_BUFFER              0     .0000S       4  .0794S       0   .0000S
```

Screen Description

The Buffer Detail screen displays statistics related to database and journal buffer use for the current interval. The screen includes one line for each buffer defined to the DC/UCF system and shows a breakdown of statistics describing the efficiency of buffer use.

Using This Screen

To request the Buffer History screen, press [PF9].

What To Look For

- Look at the ratio of Pages Read to Pages Requested. This ratio measures the effectiveness of the buffer pool size and design of the database. If the ratio is consistently low, this may indicate that the size of the buffer is too small or the database needs to be tuned. If the ratio is low, you can change the DMCL to:
  - Increase the number of pages in the buffer
  - Change the buffer and area assignments

If the interval includes transactions that keep locks, this ratio may be artificially high because of the nature of the internal locking mechanism. IDMSDBMS cannot hold a buffer while requesting a lock. Therefore, when locks are kept, IDMSDBMS must free and request a page each time a record is requested.

Note: By increasing the amount of buffer space, you decrease the amount of storage available for the DC/UCF system and you can cause paging. If space is tight, allocate the space elsewhere; for example, a program pool. If paging increases, decrease the size of the buffer.

- Look for buffer wait counts greater than zero and try to determine the cause.

Buffer History

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:28:41.90
CMD-->                                                          Window : 02

  02 09:45 BUHS Buffer History
  Start Waits   Wait    Avg         .2        .4        .6        .8        1
   Time         Time   Wait ---------|---------|---------|---------|---------|
_ 09:45     0 .0000S .0000S
_ 09:50     1 .0285S .0285S -
_ 09:55     2 .0312S .0156S
_ 10:00     2 .0371S .0185S
_ 10:05     4 .0709S .0177S
_ 10:10   110  3.62S .0329S -
_ 10:15    47  1.40S .0299S -
_ 10:20    26 .7701S .0296S -
_ 10:25   100  2.20S .0220S -
_ 10:30    97  1.59S .0164S
_ 10:35    32 .5837S .0182S
_ 10:40   198  3.42S .0173S
_ 10:45    32 .7642S .0238S -
_ 10:50    23 .5983S .0260S -
_ 10:55    33 .7659S .0232S -
_ 11:00     0 .0000S .0000S
_ 11:05     6 .3406S .0567S --
_ 11:10     2 .0507S .0253S -
```

Screen Description

The Buffer History screen displays each interval being tracked. For each interval, the screen shows a total count and time for buffer waits that occurred when a database or journal buffer was requested but was not available.

This screen also shows the average wait time for the interval. The average wait time is displayed numerically and in graph form.

Buffer waits include:

- Waits on a buffer pool
- Waits on a buffer page

Using This Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What To Look For

Look at the graphic display for intervals with higher than average waits.

Message Detail (PF10)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:44.73
CMD-->                                                          Window : 02

  02 10:30 MSDT Message Detail                                            >
 Area Name                  File Name                    Physical  Physical
                                                           Reads    Writes
 SYSMSG.DDLDCMSG            SYSMSG.DCMSG                     0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:44.73
CMD-->                                                          Window : 02

  02 10:30 MSDT Message Detail                                          <  >
  Area Name                  Physical     Read     Read    Write    Write
                               Writes    Waits     Time    Waits     Time
  SYSMSG.DDLDCMSG                 0        0   .0000S        0   .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:44.73
CMD-->                                                          Window : 02

  02 10:30 MSDT Message Detail                                          <  >
 Area Name                    Write  Buffer Name          Buffer  Prefetch
                               Time                        Hits      Hits
 SYSMSG.DDLDCMSG             .0000S  DEFAULT_BUFFER           0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:44.73
CMD-->                                                          Window : 02

  02 10:30 MSDT Message Detail                                          <  >
 Area Name                  Prefetch  DB_Buf  DB_Buf SHR_Buf SHR_Buf EXC_Buf
                               Hits   Waits    Time   Waits    Time   Waits
 SYSMSG.DDLDCMSG                  0       0  .0000S       0  .0000S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:14:44.73
CMD-->                                                          Window : 02

  02 10:30 MSDT Message Detail                                          < >
 Area Name                  EXC_Buf EXC_Buf   DBkey   DBkey D-Space D-Space
                              Waits    Time   Waits    Time   Reads    Hits
 SYSMSG.DDLDCMSG                  0  .0000S       0  .0000S       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:14:44.73
CMD-->                                                          Window : 02

  02 10:30 MSDT Message Detail                                          < >
  Area Name                  D-Space  D-Space  Shared Cache Name  Sh-Cache
                                Hits   Writes                        Reads
  SYSMSG.DDLDCMSG                  0       0                            0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:14:44.73
CMD-->                                                          Window : 02

  02 10:30 MSDT Message Detail                                          < >
   Area Name                 Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                Reads     Hits   Writes   Failed    Waits
   SYSMSG.DDLDCMSG                  0        0        0        0        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:14:44.73
CMD-->                                                          Window : 02

  02 10:30 MSDT Message Detail                                          <
   Area Name                 Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                Hits   Writes   Failed    Waits     Time
   SYSMSG.DDLDCMSG                  0        0        0        0   .0000S
Screen Description
```

The Message Detail screen displays detailed information about the system message file for the current interval.

What To Look For

- Look for db-key waits.
- Look at the buffer utilization statistics. Buffer Hits indicates the number of times a requested database page was already in the buffer, saving the system from performing an I/O. Buffer Waits indicates when the system had to wait for an available page in the buffer. The Buffer Detail screen provides more statistics about buffer use.

Journal Detail (PF11)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:28.65
CMD-->                                                          Window : 02

  02 10:00 JRDT Journal Detail                                           >
Journal Name              File Name   Block   Bytes  Blocks   First    Last
                                       Size Written Written     RBN     RBN
J1JRNL                     J1JRNL      2004  467096     238    4999     282
J2JRNL                     J2JRNL      2004       0       0       0       0
J3JRNL                     J3JRNL      2004       0       0       0       0
J4JRNL                     J4JRNL      2004 3826528    1932    3071    4999
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:28.65
CMD-->                                                          Window : 02

  02 10:00 JRDT Journal Detail                                        <  >
 Journal Name                 Last    Read    Read   Write   Write  Buffer
                               RBN   Waits    Time   Waits    Time   Waits
 J1JRNL                        282      12  .1964S     238  13.21S       0
 J2JRNL                          0       0  .0000S       0  .0000S       0
 J3JRNL                          0       0  .0000S       0  .0000S       0
 J4JRNL                       4999       3  .0563S    1932  54.88S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:59:28.65
CMD-->                                                          Window : 02

  02 10:00 JRDT Journal Detail                                          <
 Journal Name              Buffer  Buffer    JBEE    JBEE     JBC     JBC
                            Waits    Time   Waits    Time   Waits    Time
 J1JRNL                         0  .0000S       0  .0000S       0  .0000S
 J2JRNL                         0  .0000S       0  .0000S       0  .0000S
 J3JRNL                         0  .0000S       0  .0000S       0  .0000S
 J4JRNL                         0  .0000S       0  .0000S       0  .0000S
```

Screen Description

The Journal Detail screen displays access statistics for each journal file defined to the DC/UCF system for the current interval. For each journal, the screen identifies the file name and shows a breakdown of access statistics.

Using This Screen

To request the Journal History screen, press [PF9].

What To Look For

- Look for a high number of journal read waits which indicate rollback operations. The only way to control read waits is to eliminate abends. During a rollback a single buffer is dynamically allocated and none of the existing journal buffers are used. Use the Application Monitor batch reports (see the *CA IDMS Performance Monitor System Administration Guide*) to determine which transactions are experiencing the journal waits.
- Look for a high number of JBC waits. This field indicates the number of times a task had to wait for space in the journal buffer. You can increase the number of pages in the journal buffer to remedy this problem. The field is incremented when IDMSDBIO determines that all the pages in the buffer are exclusively held and must therefore wait until a buffer page becomes available.

Journal History

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:03:58.12
CMD-->                                                          Window : 02

  02 14:45 JRHS Journal History
  Start Waits   Wait    Avg         .2        .4        .6        .8        1
   Time         Time   Wait ---------|---------|---------|---------|---------|
_ 22:34    35  2.89S .0827S ----
_ 23:00     0 .0000S .0000S
_ 23:30     4 .1393S .0348S -
_ 00:00     0 .0000S .0000S
_ 00:30     4 .1174S .0293S -
_ 01:00     0 .0000S .0000S
_ 01:30     4 .1156S .0289S -
_ 02:00     0 .0000S .0000S
_ 02:30     4 .1377S .0344S -
_ 03:00     0 .0000S .0000S
_ 03:30     4 .1267S .0316S -
_ 04:00     0 .0000S .0000S
_ 04:30     4 .1387S .0346S -
_ 05:00     0 .0000S .0000S
_ 05:30     4 .1618S .0404S --
_ 06:00     0 .0000S .0000S
_ 06:30     4 .1217S .0304S -
_ 07:00     0 .0000S .0000S
```

Screen Description

The Journal History screen displays each interval being tracked. For each interval, the screen shows the total count and time for journal waits that occurred while accessing journal files. This screen also shows the average wait time for the interval.

Using This Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Storage Detail (PF13)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:09:53.37
CMD-->                                                          Window : 02

  02 15:30 STDT Storage Detail                                            >
     Storage     Pool Pool In Short On      High     Storage Storage Storage
        Pool Size(Kb) Use(Kb)  Storage Water(Kb) Cushion(Kb)    Gets   Frees
           0  1016kB    28672        0    40960      28672       115      88
          30  1000kB    104kB        0    144kB       4096       197     182
         200  2000kB        0        0     4096       4096         1       1
         201  2000kB    40960        0    45056       4096        27       1
         202  4000kB    516kB        0    528kB       4096       300     193
         255  1500kB    476kB        0    484kB          0       236     138
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:09:53.37
CMD-->                                                          Window : 02

  02 15:30 STDT Storage Detail                                          <
      Storage      High     Storage Storage Storage Storage Storage Storage
         Pool Water(Kb) Cushion(Kb)    Gets   Frees  Pass 1  Pass 2  Pass 3
            0    40960      28672       115      88      96       5       0
           30    144kB       4096       197     182     130       6       0
          200     4096       4096         1       1       0       0       0
          201    45056       4096        27       1      18       8       0
          202    528kB       4096       300     193       0       0       0
          255    484kB          0       236     138       0       0       0
```

Screen Description

The Storage Detail screen displays statistics related to the use of system storage pools for the current interval. The screen includes one line for each storage pool defined to the DC/UCF system at system generation. For each storage pool, the screen identifies the pool size and provides access statistics.

What To Look For

Storage-use problems are indicated by the Short On Storage field. A non-zero number should represent peak use, not a chronic condition. If the field is always 0, you may have allocated too much pool space.

To alleviate a storage-use problem, you should take the following steps:

1. Decrease storage use. For example, make sure that all programs are making efficient use of storage.
2. If Step 1 does not alleviate the situation, increase the size of the storage pool. However, by doing this, you will probably see an increase in the number of concurrent tasks, which in turn increases the demand for program pool storage and other system resources.
3. Decrease the MAX TASK and MAX ERUS values.
4. In a CA ADS environment, enable the fastmode threshold or relocatable storage. This option reduces storage held concurrently by terminals executing CA ADS applications. However, both facilities increase scratch activity and CPU usage per task. This method should be used as a last resort to alleviate a Short On Storage condition.

Line I/O Detail (PF14)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:43:47.66
CMD-->                                                         Window : 02

  02 08:30 LIDT Line I/O Detail                                          >
Line     Line            Line          PTERMs    Read    Read   Write   Write
Name     Type            Status       Defined   Total  Errors   Total  Errors
UCFLINE  UCF LINE DRIVER IN-SERVICE         4       0       0       0       0
CCILINE  DDS VTAM        IN-SERVICE        20       0       0       0       0
CONSOLE2 OPERATOR CONSOLE IN-SERVICE        1       0       0       0       0
VTAM     VTAM INTERFACE  IN-SERVICE      110   44706       0   44707       0
VTAM92   VTAM INTERFACE  CLOSED           0       0       0       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:43:47.66
CMD-->                                                         Window : 02

  02 08:30 LIDT Line I/O Detail                                        <  >
  Line       Write  PTE_RPL PTE_RPL    Read    Read   Write   Write     RPL
  Name      Errors Requests   Waits   Waits    Time   Waits    Time   Waits
  UCFLINE        0        0       0       0  .0000S       0  .0000S       0
  CCILINE        0        0       0       0  .0000S       0  .0000S       0
  CONSOLE2       0        0       0       0  .0000S       0  .0000S       0
  VTAM           0    89538   32797      92   1.03S   29412   2:07M       0
  VTAM92         0        0       0       0  .0000S       0  .0000S       0
```

```
PM-Rnn.n SYSTEM71          CA, Inc.                    V71      08.348 11:43:47.66
CMD-->                                                                Window : 02

  02 08:30 LIDT Line I/O Detail                                                <
  Line       PTE_RPL PTE_RPL    Read     Read   Write   Write     RPL     RPL
  Name      Requests   Waits   Waits     Time   Waits    Time   Waits    Time
  UCFLINE          0       0       0  .0000S       0  .0000S       0  .0000S
  CCILINE          0       0       0  .0000S       0  .0000S       0  .0000S
  CONSOLE2         0       0       0  .0000S       0  .0000S       0  .0000S
  VTAM         89538   32797      92   1.03S   29412   2:07M       0  .0000S
  VTAM92           0       0       0  .0000S       0  .0000S       0  .0000S
```

Screen Description

The Line IO Detail screen displays detailed information about each teleprocessing (TP) line defined in the DC/UCF network for the current interval. For each line, the screen indicates the status and displays access statistics related to line use.

Line Types

The following table lists the TP line types defined at system generation. For each line type, the equivalent TYPE parameter specification for the system generation LINE statement is included.

Line Type	TYPE Parameter	Meaning
Console	CONSOLE	Operator's console
CCI	CCI	CCI line driver
SNA	VTAMLU	VTAM/SNA logical units
UCF	UCFLINE	UCF line driver
Start/Stop	ASYNC	Start/Stop terminals
SYSOUT only	SYSOUTL	SYSOUT only (for printers)
VTAM	VTAMLIN	VTAM interface
Local 3270	L3270B	Local 3270s
Remote 3270	BSC3	Remote 3270s
Simulated 3270	S3270Q	Simulated 3270s
Online Sim 3270	S3270Q	Online simulated 3270s
L3280 Printer	L3280B	Local 3280 printer
TCAM	TCAMLIN	TCAM driver
BSC Non-Sw P-P	BSC2	BSC nonswitched point-to-point
BSC Switch P-P	BSC2	BSC switched point-to-point

Line Type	TYPE Parameter	Meaning
BSC Multipoint	BSC3	BSC multipoint
DCAM	DCAMLIN	DCAM interface
SOCKET	SOCKET	SOCKET line driver

Line Status

The following statuses can be indicated for a TP line:

Status	Meaning
IN-SERVICE	Line is in service
OUT-SERVICE	Line is out of service
CLOSED	Line has not been opened

Using This Screen

To request the Line IO History screen, press [PF9].

What To Look For

- Look at the status of lines defined to your system.
- Look at the number of I/O errors relative to the number of reads and writes.
- If the number of RPL waits is not close to zero, increase the request parameter list (RPL) count in the system generation LINE statement.
- Look for average I/O times:
  - Read Time divided by the number of Physical Reads
  - Write Time divided by the number of Physical Writes

  High I/O times can result from large numbers of I/O error lines that contain large numbers of high volume terminals or printers.

Line IO History

```
PM-Rnn.n SYSTEM71        CA, Inc.                 V71      08.348 15:04:57.19
CMD-->                                                          Window : 02

  02 14:45 LIHS Line IO History
  Start Waits   Wait    Avg         .2       .4       .6       .8        1
   Time         Time   Wait ---------|--------|--------|--------|--------|
_ 02:30     0 .0000S .0000S
_ 02:45     0 .0000S .0000S
_ 03:00     0 .0000S .0000S
_ 03:15     0 .0000S .0000S
_ 03:30     0 .0000S .0000S
_ 03:45     0 .0000S .0000S
_ 04:00     0 .0000S .0000S
_ 04:15     0 .0000S .0000S
_ 04:30     0 .0000S .0000S
_ 04:45     0 .0000S .0000S
_ 05:00     0 .0000S .0000S
_ 05:15     0 .0000S .0000S
_ 05:30     0 .0000S .0000S
_ 05:45     0 .0000S .0000S
_ 06:00     0 .0000S .0000S
_ 06:15     0 .0000S .0000S
_ 06:30     0 .0000S .0000S
_ 06:45     0 .0000S .0000S
```

Screen Description

The Line IO History screen displays each interval being tracked. For each interval, the screen shows a total count and time for line waits. This screen also shows the average wait time for the interval.

Using this Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Program Pool Detail (PF15)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:10:53.25
CMD-->                                                          Window : 02

  02 15:30 PPDT Program Pool Detail                                        >
Pool Type           Pool     In   High    Pool   Pages Overlay Overlay Overlay
                    Size    Use  Water   Loads  Loaded  No_Use Pgm_Use  In_Use
PROGRAM            53248  16384  16384       1       4       1       0       0
REENTRANT        2936kB  390kB  390kB      36     779      36       0       0
XA PROGRAM       204800      0      0       0       0       0       0       0
XA REENTRANT     2680kB 1223kB 1223kB      93    2446      93       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:10:53.25
CMD-->                                                          Window : 02

  02 15:30 PPDT Program Pool Detail                                       <
   Pool Type        Overlay Overlay Overlay    Load    Load    Pool    Pool
                     No_Use Pgm_Use  In_Use   Waits    Time   Waits    Time
   PROGRAM                1       0       0       0  .0000S       0  .0000S
   REENTRANT             36       0       0       0  .0000S       0  .0000S
   XA PROGRAM             0       0       0       0  .0000S       0  .0000S
   XA REENTRANT          93       0       0       0  .0000S       0  .0000S
```

Screen Description

The Program Pool Detail screen displays statistics related to the use of program pools for the current interval. The screen includes one line for each program pool defined to the DC/UCF system. For each program pool, the screen identifies the pool size and provides access statistics.

Using This Screen

To request the Program Pool History screen, press [PF9].

What To Look For

- Look for non-zero values in the Overlay In Use field or the Pool Waits field. A non-zero number indicates the pool was very fragmented, and tasks had to wait until enough contiguous space became available to load a program. When these conditions occur, try these tuning options:
  - Expand the pool size. If you don't have enough space, try reducing the size of another program pool or try reducing the MAX TASK and MAX ERUS parameters.
  - Make heavily used reentrant or quasi-reentrant programs resident.
  - Reduce the size of modules in your programs to reduce concurrent demand on the program pools. For example, don't use large subschemas for your application programs; use tailored subschemas instead.

- Compare the number of pages loaded (Pages Loaded) to the total number of loads (Pool Loads). If there are many pages loaded for only a few program loads, consider increasing the block size for the program load libraries and load areas. For example, a block size of 10Kb requires 20 I/Os to load a 200Kb program; a block size of 1Kb requires 200 I/Os to load the same program.

Program Pool History

```
PM-Rnn.n SYSTEM71        CA, Inc.                 V71      08.348 15:05:24.54
CMD-->                                                          Window : 02

  02 14:45 PPHS Program Pool History
  Start Waits   Wait    Avg         .2       .4       .6       .8        1
   Time         Time   Wait ---------|--------|--------|--------|---------|
_ 02:30     0 .0000S .0000S
_ 02:45     0 .0000S .0000S
_ 03:00     0 .0000S .0000S
_ 03:15     0 .0000S .0000S
_ 03:30     0 .0000S .0000S
_ 03:45     0 .0000S .0000S
_ 04:00     0 .0000S .0000S
_ 04:15     0 .0000S .0000S
_ 04:30     0 .0000S .0000S
_ 04:45     0 .0000S .0000S
_ 05:00     0 .0000S .0000S
_ 05:15     0 .0000S .0000S
_ 05:30     0 .0000S .0000S
_ 05:45     0 .0000S .0000S
_ 06:00     0 .0000S .0000S
_ 06:15     0 .0000S .0000S
_ 06:30     0 .0000S .0000S
_ 06:45     0 .0000S .0000S
```

Screen Description

The Program Pool History screen displays each interval being tracked. For each interval, the screen shows the total count and time for waits on a pool that was full. There should not be any waits for a program pool. This screen also displays the average wait time for the interval.

Using this Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Storage Type Detail (PF16)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:05:33.38
CMD-->                                                          Window : 02

  02 14:45 STDY Storage Type Detail                                        >
    Storage   Shared   Shared   Shared Shared Kept Shared Kept Shared Kept
        Loc  # Waits    Total  Longest     # Waits       Total     Longest
                         Time     Time                    Time        Time
     NON-XA        0   .0000S   .0000S           0      .0000S      .0000S
     XA            0   .0000S   .0000S           0      .0000S      .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:05:33.38
CMD-->                                                          Window : 02

  02 14:45 STDY Storage Type Detail                                    <  >
 Storage Shared Kept     User     User     User User Kept User Kept User Kept
     Loc     Longest  # Waits    Total  Longest   # Waits     Total   Longest
                Time             Time     Time                Time      Time
  NON-XA     .0000S         0   .0000S   .0000S         0    .0000S    .0000S
  XA         .0000S         0   .0000S   .0000S         0    .0000S    .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:05:33.38
CMD-->                                                          Window : 02

  02 14:45 STDY Storage Type Detail                                    <  >
    Storage User Kept Terminal Terminal Terminal Database Database Database
        Loc   Longest  # Waits    Total  Longest  # Waits    Total  Longest
                 Time             Time     Time             Time     Time
     NON-XA    .0000S        0   .0000S   .0000S        0   .0000S   .0000S
     XA        .0000S        0   .0000S   .0000S        0   .0000S   .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:05:33.38
CMD-->                                                          Window : 02

  02 14:45 STDY Storage Type Detail                                      <
    Storage Terminal Database Database Database   System   System   System
        Loc  Longest  # Waits    Total  Longest  # Waits    Total  Longest
                Time             Time     Time             Time     Time
     NON-XA   .0000S        0   .0000S   .0000S        0   .0000S   .0000S
     XA       .0000S        0   .0000S   .0000S        0   .0000S   .0000S
```

Screen Description

For users with XA storage, the Storage Type Detail screen displays an overview of storage waits for the interval by type and storage location. For z/VSE users, the screen displays an overview of storage by type.

Using this Screen

To request the Storage Type History screen, press [PF9].

What To Look For

Look for the nature of waits that have occurred and the storage pools in which they occurred. Consider adjusting the size of the cushion so that you get SOS (short on storage) conditions instead of storage waits.

Storage Type History

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:06:03.95
CMD-->                                                          Window : 02

  02 14:45 SGHS Storage Type History
  Start Waits   Wait    Avg         .2        .4        .6        .8        1
   Time         Time   Wait ---------|---------|---------|---------|---------|
_ 02:30     0 .0000S .0000S
_ 02:45     0 .0000S .0000S
_ 03:00     0 .0000S .0000S
_ 03:15     0 .0000S .0000S
_ 03:30     0 .0000S .0000S
_ 03:45     0 .0000S .0000S
_ 04:00     0 .0000S .0000S
_ 04:15     0 .0000S .0000S
_ 04:30     0 .0000S .0000S
_ 04:45     0 .0000S .0000S
_ 05:00     0 .0000S .0000S
_ 05:15     0 .0000S .0000S
_ 05:30     0 .0000S .0000S
_ 05:45     0 .0000S .0000S
_ 06:00     0 .0000S .0000S
_ 06:15     0 .0000S .0000S
_ 06:30     0 .0000S .0000S
_ 06:45     0 .0000S .0000S
```

Screen Description

The Storage Type History screen shows a total wait count and time for all storage waits. The screen also shows the average wait time both numerically and graphically.

Using this Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Program Load Detail (PF17)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:17:05.43
CMD-->                                                          Window : 02

  02 10:30 PLDT Program Load Detail                                        >
 Area Name                  File Name                    Physical  Physical
                                                           Reads    Writes
 SYSTEM.DDLDCLOD            SYSTEM.DCLOD                      0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:17:05.43
CMD-->                                                          Window : 02

  02 10:30 PLDT Program Load Detail                                      < >
  Area Name                  Physical     Read     Read    Write    Write
                               Writes    Waits     Time    Waits     Time
  SYSTEM.DDLDCLOD                 0        0   .0000S        0   .0000S
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:17:05.43
CMD-->                                                          Window : 02

  02 10:30 PLDT Program Load Detail                                      < >
 Area Name                   Write  Buffer Name          Buffer  Prefetch
                              Time                        Hits      Hits
 SYSTEM.DDLDCLOD            .0000S  DEFAULT_BUFFER           0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:17:05.43
CMD-->                                                          Window : 02

  02 10:30 PLDT Program Load Detail                                      < >
 Area Name                  Prefetch  DB_Buf  DB_Buf SHR_Buf SHR_Buf EXC_Buf
                               Hits   Waits    Time   Waits    Time   Waits
 SYSTEM.DDLDCLOD                  0       0  .0000S       0  .0000S       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:17:05.43
CMD-->                                                          Window : 02

  02 10:30 PLDT Program Load Detail                                      < >
 Area Name                  EXC_Buf EXC_Buf   DBkey   DBkey D-Space D-Space
                              Waits    Time   Waits    Time   Reads    Hits
 SYSTEM.DDLDCLOD                  0  .0000S       0  .0000S       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:17:05.43
CMD-->                                                          Window : 02

  02 10:30 PLDT Program Load Detail                                      < >
  Area Name                  D-Space  D-Space  Shared Cache Name  Sh-Cache
                                Hits   Writes                        Reads
  SYSTEM.DDLDCLOD                  0       0                            0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:17:05.43
CMD-->                                                          Window : 02

  02 10:30 PLDT Program Load Detail                                    <  >
   Area Name                 Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                Reads     Hits   Writes   Failed    Waits
   SYSTEM.DDLDCLOD                  0        0        0        0        0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:17:05.43
CMD-->                                                          Window : 02

  02 10:30 PLDT Program Load Detail                                    <
   Area Name                 Sh-Cache Sh-Cache Sh-Cache Sh-Cache Sh-Cache
                                Hits   Writes   Failed    Waits     Time
   SYSTEM.DDLDCLOD                  0        0        0        0   .0000S
```

Screen Description

The Program Load Detail screen displays program loading information for:

- Dialogs
- Maps
- Subschemas
- Tables
- CA ADS applications

Dialogs, maps, subschemas, tables, and CA ADS applications can be loaded from the DDLDCLOD dictionary load area.

The waits indicated on the Program Load Detail screen include I/O waits and BLDL (Building Load Directory List) waits.

The I/O activity counts (reads and writes) *exclude* I/O against any CDMS*nnn* files.

What to look for

- Look for a high number of load waits, which indicates I/O activity against load libraries and load areas.
- Look for db-key waits.
- Look at the buffer utilization statistics. Buffer Hits indicates the number of times a requested database page was already in the buffer, saving the system from performing an I/O. Buffer Waits indicates when the system had to wait for an available page in the buffer. The Buffer Detail screen provides more statistics about buffer use.

Specific Interval Information (PF18)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:06:57.36
CMD-->                                                          Window : 02

  02 14:45 SINT Specific Interval Information

   Task Information                  Statistic Information
     Started               2519       Programs Called         47652
     Ended                 2521       Programs Loaded            12
     # at Interval Start     22       Terminal Reads              0
     # at Interval End       20       Terminal Writes             0
     # Abended                0       Terminal Errors             0
     # Runaway                0       Get Storage             60720
     # Times SOS              0       Free Storage            60878
     Timed Out (1 ECB)       0       Get Scratch              1077
     Timed Out (ECB List)    0       Put Scratch               719
     Times at Max Tasks      0       Delete Scratch            489
                                     Get Queue                 160
                                     Put Queue                  94
                                     Delete Queue               63
                                     DC Service Requests    191187
                                     DB Service Requests    119836
```

Screen Description

The Specific Interval Information screen displays DC statistics for a specific interval.

Using This Screen

To request the Interval Information screen, press [PF9].

What To Look For

Look for values that seem higher than average. Investigate further by looking at the tasks that were performed during the interval.

Interval Information

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:07:13.88
CMD-->                                                          Window : 02

  02 14:45 INT  Interval Information                                       >
  Start Interval    Tasks   Tasks     Tasks   Tasks    Tasks    Tasks  Times
   Time   Length  Started   Ended  At_Start  At_End  Abended  Runaway    SOS
_ 02:30   15:00M      477     477        19      19        0        0      2
_ 02:45   15:00M      366     366        19      19        0        0      2
_ 03:00   15:00M      522     522        19      19        0        1      1
```

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 15:07:13.88
CMD-->                                                            Window : 02

  02 14:45 INT  Interval Information                                      < >
     Start  Times Timed_Out  Timed_Out    Times  Programs  Programs  Terminal
      Time    SOS   (1 ECB) (ECB List)   At_Max    Called    Loaded     Reads
   _ 02:30      2         0          0       0      7101         6         0
   _ 02:45      2         0          0       0      5109         3         0
   _ 03:00      1         0          0       0      6877         6         0
```

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 15:07:13.88
CMD-->                                                            Window : 02

  02 14:45 INT  Interval Information                                      < >
     Start Terminal Terminal Terminal     Get     Free     Get     Put  Delete
      Time    Reads   Writes   Errors Storage Storage Scratch Scratch Scratch
   _ 02:30        0        0        0   11229   11212     967     974     862
   _ 02:45        0        0        0   10500   10528    1297    1143    1142
   _ 03:00        0        0        0   13124   13080    1311    1285    1196
```

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 15:07:13.88
CMD-->                                                            Window : 02

  02 14:45 INT  Interval Information                                      <
    Start     Get     Put  Delete     Get     Put  Delete        DC        DB
     Time Scratch Scratch Scratch   Queue   Queue   Queue  Requests  Requests
   _ 02:30     967     974     862      32      29      12     29495     18691
   _ 02:45    1297    1143    1142      91     148      13     34517     23190
   _ 03:00    1311    1285    1196     107      46      19     33827     21437
```

Screen Description

The Interval Information screen displays an overview of DC statistics by interval. Use this screen to quickly compare activity across intervals.

Using this Screen

To access the Specific Interval Information screen for DC statistics for a particular interval, type any nonblank character to the left of the interval for which the detail is required and press [Enter].

What To Look For

- Look for intervals with unusually high levels of activity compared to other intervals.
- Look for intervals with high numbers of task abends. Increases in task abends reduces the number of tasks processed and increases the CPU used by the DC/UCF system to format and write dumps to the log. Look at the system log (by using OLP or the PRINT LOG utility) to identify tasks that are abending.
- Look at the Times_At_Max field. If all the values are 0, the value allocated to MAX TASKS may be more than you need. If the value is high, increase the MAX TASKS and MAX ERUS allocation, provided your system has enough resources available to support increased task activity.

CDMSLIB Detail (PF19)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:18:41.13
CMD-->                                                          Window : 02

  02 10:30 CDDT CDMSLIB Detail
            Loadlib Name              Waits              Time
               CDMSLIB                   0            .0000S
```

Screen Description

The CDMSLIB Detail screen displays an overview of load library activity by interval. It displays information about the first ten load libraries listed in the system startup JCL.

Using this Screen

To request the CDMSLIB History screen, press [PF9].

What To Look For

Use this screen to quickly compare the activity of load libraries.

CDMSLIB History

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 10:55:42.05
CMD-->                                                          Window : 02

  02 10:50 CDHS Cdmslib History                                          !
  Start Waits   Wait    Avg         .2        .4        .6        .8         1
   Time         Time   Wait ---------|---------|---------|---------|---------|
_ 10:45     0 .0000S .0000S
_ 10:50    16 .6900S .0431S --
```

Screen Description

The CDMSLIB History screen displays each interval being tracked. For each interval, the screen shows a total count and time for CDMSLIB waits that occurred when a CDMSLIB library was requested but was not available.

This screen also shows the average wait time for the interval. The average wait time is displayed numerically and in graph form.

Using this Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Specific Transaction Information (PF20)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:18:59.51
CMD-->                                                          Window : 02

  02 10:30 SRU  Specific Transaction Information

   Transaction Information           Statistic Information
     Started                  0       DBkey Locks              0
     Ended                    0       System Locks             0
     Max Concurrent          15       Pages Read               4
     # at Interval Start     15       Pages Written            0
     # at Interval End       15       Pages Requested          4
                                      CALC With Overflow       0
   External Request Unit Information  CALC No Overflow         0
     Started                  0       VIA With Overflow        0
     Ended                    0       VIA No Overflow          0
     Max Concurrent           0       Records Requested        4
     # at Interval Start      0       Records Curr of Tran     0
     # at Interval End        0       Total # of DBMS Calls   18
     # with DB Trans          0       # of Fragments Stored    0
                                      Records Updated          0
                                      # Found in Cache         0
                                      # Found in Prefetch      0
```

Screen Description

The Specific Transaction Information screen displays DB statistics for a specific interval.

Using this Screen

To request the Transaction Information screen, press [PF9].

What To Look For

Look for values that seem higher than average. Investigate further by looking at the transactions processed during the interval.

Transaction Information

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:20:26.24
CMD-->                                                        Window : 02

  02 10:30 RUN  Transaction Information                                    >
  Start    Tran    Tran   Max_Tran     Tran    Tran    ERUS    ERUS   Max_ERUS
   Time Started   Ended Concurrent At_Start  At_End Started   Ended Concurrent
_ 08:00       1       1         16        15      15       0       0          0
_ 08:10     473     473         20        15      15       0       0          0
_ 08:20       0       0         15        15      15       0       0          0
_ 08:30       0       0         15        15      15       0       0          0
_ 08:40       0       0         15        15      15       0       0          0
_ 08:50       0       0         15        15      15       0       0          0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:20:26.24
CMD-->                                                        Window : 02

  02 10:30 RUN  Transaction Information                                  < >
  Start   Max_ERUS     ERUS    ERUS ERUS_With   DBkey  System   Pages   Pages
   Time Concurrent At_Start  At_End      DBRU   Locks   Locks    Read Written
_ 08:00          0        0       0         0       0       0      12       0
_ 08:10          0        0       0         0       0       0     194       0
_ 08:20          0        0       0         0       0       0       5       0
_ 08:30          0        0       0         0       0       0       0       0
_ 08:40          0        0       0         0       0       0       0       0
_ 08:50          0        0       0         0       0       0       0       0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:20:26.24
CMD-->                                                        Window : 02

  02 10:30 RUN  Transaction Information                                  < >
     Start   Pages     Pages      CALC    CALC       VIA     VIA   Records
      Time Written Requested With OVFL No OVFL With OVFL No OVFL Requested
   _ 08:00       0        39         0        0         0       0        51
   _ 08:10       0      1681         0        0         0       0      2729
   _ 08:20       0        29         0        0         0       0        31
   _ 08:30       0         0         0        0         0       0         0
   _ 08:40       0         0         0        0         0       0         0
   _ 08:50       0         0         0        0         0       0         0
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:20:26.24
CMD-->                                                          Window : 02

  02 10:30 RUN  Transaction Information                                   <
  Start     VIA   Records   Records    DBMS Fragments Records    Found    Found
   Time No OVFL Requested Curr_Tran   Calls    Stored Updated   Cache Prefetch
_ 08:00       0        51        34       93         0       0       0        0
_ 08:10       0      2729      1136     5469         0       0       0        0
_ 08:20       0        31         3      106         0       0       0        0
_ 08:30       0         0         0        0         0       0       0        0
_ 08:40       0         0         0        0         0       0       0        0
_ 08:50       0         0         0        0         0       0       0        0
```

Screen Description

The Transaction Information screen displays an overview of transaction activity by interval. Use this screen to quickly compare activity across intervals.

Using this Screen

To access the Specific Transaction Information screen for a particular interval, type any nonblank character to the left of the interval for which the detail is required and press [Enter].

What To Look For

- Look for intervals with unusually high levels of activity compared to other intervals.
- Look for intervals with high numbers of system locks or db-key locks.
- Look at CALC and VIA overflow ratios. Overflow happens when the target page does not have enough room to hold the record.

Options in Effect (PF21)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:45:08.63
CMD-->                                                          Window : 02

  02 08:30 OPT  Interval Monitor Options in Effect
  #PMOPT Assembly Date/Time          950217    16:31
* Online Options *                  * Statistics Destinations *
PMIM Active           YES           Write DC Stats      YES
Online Active         YES           Write to DClog      YES
Max # Intervals        20           Write to SMF        YES
Size of Interval       10           SMF Buffer Size    8180
# of CDMSLIB Recs      10           SMF Record ID       230
# of DBkey Recs         5           Data Refresh Time  1645
Site Save Allowed     YES
User Save Allowed     YES
```

Screen Description

The Interval Monitor Options in Effect screen displays options specified by the Performance Monitor system administrator.

If WRITE TO DCLOG displays NO, you can change this field to YES; you then must reassemble PMOPT so the control blocks needed for writing to log are allocated.

Note: For more information about options, see the *CA IDMS Performance Monitor System Administration Guide*.

z/VSE users: The #PMOPT Assembly Date/Time field reads NOT AVAIL.

Specific SQL Information (PF22)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:54:20.91
CMD-->                                                          Window : 02

  02 08:25 SSQ  Specific SQL Information

   Row Level Information              Statistic Information
     Fetched                  75       Select Locks              0
     Inserted                 30       Update Locks             11
     Updated                  11       Pages Read                3
     Deleted                   6       Pages Written            46
                                       Pages Requested          52
   Sort Information                    CALC With Overflow        0
     # of Sorts                1       CALC No Overflow          0
     High Rows                26       VIA With Overflow         0
     Low Rows                 26       VIA No Overflow           0
     # Rows Sorted            26       Rows Requested           52
                                       Rows Current of Tran      0
   Access Module Information           Total # of DBMS Calls   210
     Recompiles                2       # of Fragments Stored     0

   SQL Statement Information
     # Processed               3
```

Screen Description

The Specific SQL Information screen displays SQL statistics for a specific interval.

Using this Screen

To request the SQL Information screen, press [PF9].

What To Look For

Look for values that seem higher than average. Investigate further by looking at the SQL statements processed during the interval.

SQL Information

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:05:56.67
CMD-->                                                        Window : 02

  02 08:25 SQL  SQL Information                                          >
     Start    Rows     Rows    Rows    Rows   Total  Hi-Row  Lo-Row    Rows
      Time Fetched Inserted Updated Deleted   Sorts   Sorts   Sorts  Sorted
   _ 08:25      75       30      11       6       1      26      26      26
   _ 08:30     204       56      15      10       2      50      13      63
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:05:56.67
CMD-->                                                        Window : 02

  02 08:25 SQL  SQL Information                                        < >
  Start    Rows       ACM        SQL  Select  Update   Pages   Pages     Pages
   Time  Sorted Recompile Statements   Locks   Locks    Read Written Requested
_ 08:25      26        2          3       0      11      48      46        52
_ 08:30      63        2          4      54      15     154      32       167
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:05:56.67
CMD-->                                                        Window : 02

  02 08:25 SQL  SQL Information                                        < >
     Start     Pages      CALC    CALC       VIA     VIA       Rows       Rows
      Time Requested With OVFL No OVFL With OVFL No OVFL  Requested  Curr_Tran
   _ 08:25       46         5       42        3       2         52          3
   _ 08:30       32        20      100       17      63        200         27
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:05:56.67
CMD-->                                                        Window : 02

  02 08:25 SQL  SQL Information                                          <
     Start    CALC       VIA     VIA      Rows       Rows   DBMS  Fragments
      Time No OVFL With OVFL No OVFL Requested  Curr_Tran  Calls     Stored
   _ 08:25      42        3       2        52          3    210         10
   _ 08:30     100       17      63       200         27    382         31
```

Screen Description

The SQL Information screen displays an overview of SQL activity by interval. Use this screen to quickly compare activity across intervals.

Using this Screen

To access the Specific SQL Information screen for a particular interval, type any nonblank character to the left of the interval for which the detail is required and press [Enter].

What To Look For

- Look for a high number in any of the following fields:
  - CALC With OVFL
  - VIA With OVFL
  - Fragments Stored

  These fields indicate that target pages for rows stored by the task were full, forcing CA IDMS to store the rows on other pages. If necessary, use the IDMSDBAN utility to analyze space availability for database pages. If a large number of pages in the database are full, consider increasing the database page size or the number of pages in the database.
- Look for a high number in the Rows Requested field compared to the number in the Rows Current field. This ratio should be as close to 1:1 as possible.
- Look at the ratio of pages requested to pages read. The ratio, which indicates the effectiveness of the buffer size and database design, should be about two. Ratios less than two indicate that either the buffer is too small or the database should be tuned.
- Look for large values under Access Module Recompiles. Three reasons for recompiles:
  - Changes in the physical database definition

    Note: Use discretion in planning changes to components of the physical database definition.
  - Program recompiling; the recompile changes the date/time stamp, necessitating an AM recompile

    Note: Try to limit program compiles on a production system.
  - An SQL statement referencing a temporary table before the table is defined

    Note: Define temporary tables before referencing them.

Sysplex Menu (PF23)

```
 PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 12:17:51.04
CMD-->                                                          Window : 02
    Dtl   Hist  Description            Dtl   Hist  Description
    _     _     DBGroup                _     _     Shared Cache
    _     _     Data Sharing Lock      _     _     Data Sharing List
    _     _     Data Sharing Member
```

Menu Description

The Sysplex Menu is a sub-menu of the Interval Monitor. It incorporates two items that were previously on the main menu and makes available three new items associated with data sharing.

The Sysplex Menu allows selection of the following displays:

Screen Name	Display
DBGroup Detail	Information for the current interval, showing statistics related to each DBGroup that can process dynamically routed database sessions. Additionally, each DBGroup can be selected to show the distribution of the DBGroup requests processed by the different server nodes (DBGroup's Node screen). Dynamic routing of database session is possible only in a Sysplex environment.
DBGroup History	One line per interval for the DBGroup wait category.
Data Sharing Lock Detail	Information for the current interval, showing statistics related to each type of global lock acquired in a data sharing environment.
Data Sharing Lock History	One line per interval for the Data Sharing Lock wait category.
Data Sharing Member Detail	Information for the current interval, showing statistics related to each member of this system's data sharing group.
Data Sharing Member History	One line per interval for the Data Sharing Member wait category.
Shared Cache Detail	Information for the current interval, showing statistics for each shared cache active in the interval. Additionally, each Shared Cache can be selected to show the same information by files (Shared Cache Files Detail Screen). The use of the Shared Cache feature is possible only in a Sysplex environment.
Shared Cache History	One line per interval for the Shared Cache wait category.
Data Sharing List Detail	Information for the current interval, showing statistics related to list in the list structure associated with this system's data sharing group.
Data Sharing List History	One line per interval for the Data Sharing List wait category.

DBGroup Detail

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 11:12:41.66
CMD-->                                                            Window : 03

  02 08:10 DGDT DBGroup Detail
            DBGroup       DBGroup       Number         Wait      Average
               Name      Requests        Waits         Time         Time
            IDMSGR               0            0       .0000S       .0000S
            DBDCGR            1019          820     25.9039S       .0254S
```

Screen Description

The DBGroup Detail screen displays statistics related to the dynamic routing of database sessions activity for the current interval. The screen includes one line for each DBGroup to which database sessions can be dynamically routed for processing; that is, one line for each node defined in the node table with an access type of GROUP. Dynamic routing of database sessions is possible only in a Sysplex environment.

Using this Screen

To request the DBGroup's Nodes screen for a specific DBGroup, type any nonblank character to the left of the corresponding DBGroup Name and press [Enter]. To request the DBGroup History screen, press [PF9].

What To Look For

Look for excessive average wait time and eventually start additional backend CVs to process database sessions submitted to that particular DBGroup.

DBGroup's Nodes

```
PM-Rnn.n SYSTEM71         CA, Inc.                  V71      08.348 11:12:41.66
CMD-->                                                            Window : 03

  03 08:10 DGND DBGroup's Nodes
       DBGroup       DBGroup      Server         Number       Percent
          Name      Requests        Name       Requests      Requests
       DBDCGR            1019     SYSTEM71          472            46
                                  SYSTEM74          547            53
```

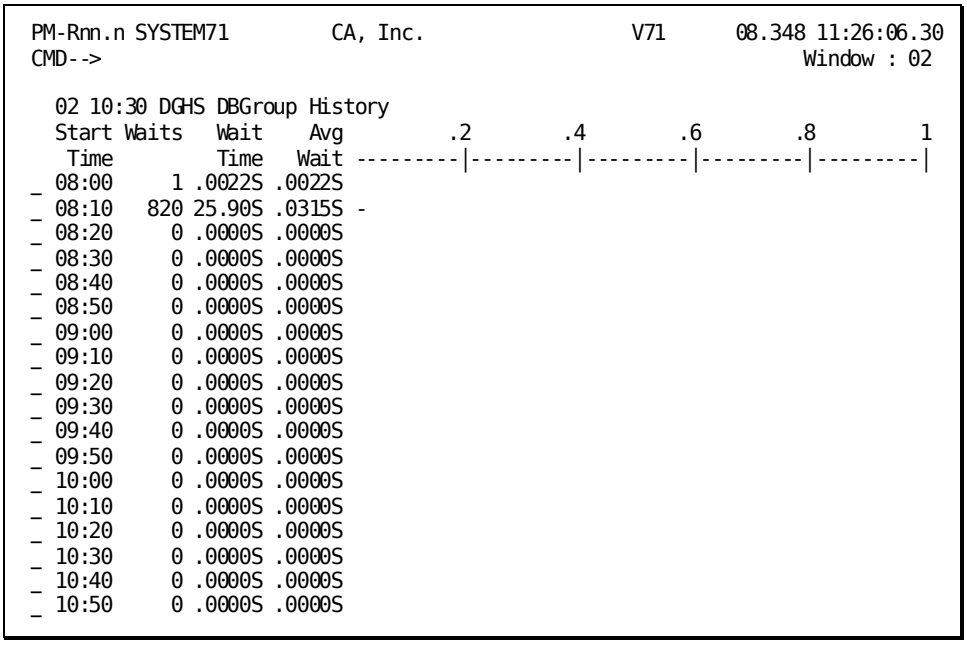
Screen Description

The DBGroup's Nodes screen displays the distribution of all the requests submitted to a particular DBGroup in the current interval, on all the server nodes that volunteered to process these sessions.

What to Look For

The statistics displayed on this screen are informative and will depend on the workload of the different CVs in the Sysplex.

DBGroup History



```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:26:06.30
CMD-->                                                          Window : 02

  02 10:30 DGHS DBGroup History
  Start Waits   Wait    Avg         .2        .4        .6        .8         1
   Time         Time   Wait ---------|---------|---------|---------|---------|
_ 08:00     1 .0022S .0022S
_ 08:10   820 25.90S .0315S -
_ 08:20     0 .0000S .0000S
_ 08:30     0 .0000S .0000S
_ 08:40     0 .0000S .0000S
_ 08:50     0 .0000S .0000S
_ 09:00     0 .0000S .0000S
_ 09:10     0 .0000S .0000S
_ 09:20     0 .0000S .0000S
_ 09:30     0 .0000S .0000S
_ 09:40     0 .0000S .0000S
_ 09:50     0 .0000S .0000S
_ 10:00     0 .0000S .0000S
_ 10:10     0 .0000S .0000S
_ 10:20     0 .0000S .0000S
_ 10:30     0 .0000S .0000S
_ 10:40     0 .0000S .0000S
_ 10:50     0 .0000S .0000S
```

Screen Description

The DBGroup History screen displays each interval being tracked. For each interval, the screen shows a total count and time for DBGroup waits. This screen also shows the average wait time for the interval. The average wait time is displayed numerically and in graph form.

Using this Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9].

What to Look For

Use the graphic display to determine intervals with higher than average waits.

Shared Cache Detail

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:14:20.56
CMD-->                                                          Window : 03

  02 08:10 SHDT Shared Cache Detail                                        >
    Shared Cache Name   Number    Number   Fnd-In   Number   Failed   Number
                         Files     Reads    Cache   Writes   Writes    Waits
     IDMSCACHE00002          3        41        6       35        1       76
     IDMSCACHE00001          4       151       70       81        0      226
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 11:14:20.56
CMD-->                                                          Window : 03

  02 08:10 SHDT Shared Cache Detail                                        <
    Shared Cache Name   Fnd-In   Number   Failed   Number     Wait  Average
                         Cache   Writes   Writes    Waits     Time     Time
     IDMSCACHE00002          6       35        1       76  .5683S   .0074S
     IDMSCACHE00001         70       81        0      226 1.5560S   .0067S
```

Screen Description

The Shared Cache Detail screen displays statistics related to the use of the Shared Cache in the Coupling Facility for the current interval. The screen includes one line for each shared cache active in the interval. This line includes the number of files assigned to the shared cache, the number of reads and writes from and to the shared cache, and waits information. The use of Shared Cache is possible only in a Sysplex environment.

Using this Screen

To request the Shared Cache Files Detail screen for a specific shared cache, type any nonblank character to the left of the corresponding shared cache name and press [Enter]. To request the Shared Cache History screen, press [PF9].

What To Look For

Look for excessive average wait time. Go through the Shared Cache Files Detail screen to determine which files are involved.

Shared Cache Files Detail

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:20.56
CMD-->                                                          Window : 03

  03 08:10 SFDT Shared Cache Files Detail                                   >
 Shared Cache Name  File Name                      Number    Fnd-In    Number
                                                    Reads     Cache    Writes
  IDMSCACHE00001    DBCR.ACCOUNTA                     31        17        14
                    DBCR.ACCOUNTB                     39        21        18
                    DBCR.ACCOUNTD                     49        20        29
                    DBCR.ACCOUNTE                     32        12        20
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:14:20.56
CMD-->                                                          Window : 03

  03 08:10 SFDT Shared Cache Files Detail                                   <
   File Name                      Number   Failed   Number     Wait  Average
                                  Writes   Writes    Waits     Time     Time
   DBCR.ACCOUNTA                      14        0       43   .2757S   .0061S
   DBCR.ACCOUNTB                      18        0       56   .4762S   .0083S
   DBCR.ACCOUNTD                      29        0       76   .4001S   .0051S
   DBCR.ACCOUNTE                      20        0       51   .4039S   .0077S
```

Screen Description

The Shared Cache Files Detail screen displays the distribution of the different statistics on all the files that were currently using the selected shared cache.

What To Look For

Look for excessive average wait time and eventually tune the corresponding shared cache differently: increase the size of the cache, change the assignments of files to the cache, or assign some files to a new cache.

Shared Cache History

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 11:53:39.62
CMD-->                                                          Window : 02

  02 11:40 SHHS Shared Cache History
  Start Waits   Wait    Avg         .2        .4        .6        .8        1
   Time         Time   Wait ---------|---------|---------|---------|---------|
_ 08:30     0 .0000S .0000S
_ 08:40     0 .0000S .0000S
_ 08:50     0 .0000S .0000S
_ 09:00     0 .0000S .0000S
_ 09:10     0 .0000S .0000S
_ 09:20     0 .0000S .0000S
_ 09:30     0 .0000S .0000S
_ 09:40     0 .0000S .0000S
_ 09:50     0 .0000S .0000S
_ 10:00     0 .0000S .0000S
_ 10:10     0 .0000S .0000S
_ 10:20     0 .0000S .0000S
_ 10:30     0 .0000S .0000S
_ 10:40     0 .0000S .0000S
_ 10:50     0 .0000S .0000S
_ 11:00     0 .0000S .0000S
_ 11:10     0 .0000S .0000S
_ 11:20     0 .0000S .0000S
_
```

Screen Description

The Shared Cache History screen displays each interval being tracked. For each interval, the screen shows a total count and time for shared cache waits. This screen also shows the average wait time for the interval. The average wait time is displayed numerically and in graph form.

Using this Screen

- To request the Wait Type by Interval screen for a specific interval, type any other nonblank character to the left of the interval for which the detail is required and press [Enter].
- To request the Detail screen for the same interval, press [PF9]

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Data Sharing Lock Detail

```
PM-Rnn.n SYSTEM71          CA, Inc.                 V71      08.348 12:17:51.04
CMD-->                                                          Window : 03
ResType          Obtains      Alters    Releases       Waits    WaitTime      AvgWait       HighWait      ContEx     NotifEx
LmgrResource           1           0           1           0      .0000S       .0000S        .0000S           0           0
Phys.Page            134           0         134           0      .0000S       .0000S        .0000S           0           0
GlobalDeadLk           0           0           0           0      .0000S       .0000S        .0000S           0           0
LmgrProxy              1           0           1           0      .0000S       .0000S        .0000S           0           0
EnqDeq                 0           0           0           0      .0000S       .0000S        .0000S           0           0
AreaList               1           0           1           0      .0000S       .0000S        .0000S           0           0
FileList               3           0           3           0      .0000S       .0000S        .0000S           0           0
GlobalQueue            1           0           1           0      .0000S       .0000S        .0000S           0           0
```

Screen Description

The Data Sharing Lock Detail screen displays statistics related to acquiring global locks. The screen includes one line for each type of global resource for which locks can be acquired.

What To Look For

Look for excessive average wait time.

Data Sharing Lock History

```
PM-Rnn.n SYSTEM71          CA, Inc.                 V71      08.348 12:17:51.04
CMD-->                                                          Window : 03
  Start    Waits     Wait      Avg        .2     .4     .6     .8      1
  Time               Time      Wait  ------|------|------|------|------|
_ 13:43        0     .0000S    .0000S
_ 13:45        1     .0015S    .0015S
_ 13:50        4    39.72S     9.93S
  ---------------------------------
_ 13:55        0     .0000S    .0000S
_ 14:00        0     .0000S    .0000S
```

Screen Description

The Data Sharing Lock History screen displays each interval being tracked. For Each interval the screen shows a total count and time for global lock waits. This screen also shows the average wait time for the interval. The average wait time is displayed numerically and in graph form.

Using this Screen

To request the Detail screen for an interval, type any other nonblock blank character to the left of the interval for which the detail is required and press [Enter] or move the cursor to an interval line and press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Data Sharing List Detail

```
PM-Rnn.n SYSTEM71          CA, Inc.                V71      08.348 12:17:51.04
CMD-->                                                            Window : 03
ListName              Reads        Writes       Deletes         Waits      WaitTime       AvgWait       HighWait
AreaList                 14             9             0             7       .0028S        .0004S        .0007S
FileList                 15            21             0             0       .0000S        .0000S        .0000S
QueueList                 1             0             0             1       .0058S        .0058S        .0058S
```

Screen Description

The Data Sharing List Detail screen displays each list in the list structure associated with this system's data sharing group that had activity during the interval. The screen includes one line for each list showing its name and statistics for the various types of accesses to the list.

What To Look For

Look for excessively high average wait times.

Data Sharing List History

```
PM-Rnn.n SYSTEM71          CA, Inc.             V71      08.348 12:17:51.04
CMD-->                                                            Window : 03
  Start    Waits     Wait      Avg        .2     .4     .6     .8      1
  Time               Time      Wait  ------|------|------|------|------|
_ 07:51        0    .0000S    .0000S
_ 07:55        0    .0000S    .0000S
_ 08:00        0    .0000S    .0000S
_ 08:05        3    2.07S     .6910S
  ---------------------------------
_ 08:10        0    .0000S    .0000S
```

Screen Description

The Data Sharing List History screen displays each interval being tracked. For each interval the screen shows a total count and time for waits on requests to access lists in the list structure. This screen also shows the average wait time for the interval. The average wait time is displayed numerically and in graph form.

Using this Screen

To request the Detail screen for an interval, type any other nonblock blank character to the left of the interval for which the detail is required and press [Enter] or move the cursor to an interval line and press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Data Sharing Member Detail

```
PM-Rnn.n SYSTEM71          CA, Inc.                  V71      08.348 12:17:51.04
CMD-->                                                                Window : 03
Member   Member Current  Prior   ReplyMsg ReplyMsg TestMsg  TestMsg SyncStamp SyncStamp GlblDeadLk GlblDeadLk DCMTUFSEND DCMTUFSEND
name     state  CVstate  CVstate     Sent Received    Sent Received      Sent  Received       Sent   Received       Sent   Received
SYSTEM71 Active Active   Ready          0        0       0        0         0         0          0          0          0          0
SYSTEM72 Active Active   Ready          0        0       0        0         0         0          0          0          0          0
- - - -

PM-Rnn.n SYSTEM71          CA, Inc.                  V71      08.348 12:17:51.04
CMD-->                                                                Window : 03
Member   AreaFileVa AreaFileVa QueueMsg QueueMsg ProgramMsg ProgramMsg
name           Sent   Received     Sent Received       Sent   Received
SYSTEM71          0          0        0        0          0          0
SYSTEM72          0          0        0        0          0          0
```

Screen Description

The Data Sharing Member Detail screen displays each data sharing member that was a member of this system's data sharing group during the interval. The screen includes one line for each member showing its member state, its current and prior CV states and the number of messages sent from this system to the given member and from the member to this system.

What To Look For

Look for excessively high numbers of messages.

Data Sharing Member History

```
PM-Rnn.n SYSTEM71          CA, Inc.              V71      08.348 12:17:51.04
CMD-->                                                          Window : 03
  Start    Waits     Wait      Avg        .2     .4     .6     .8      1
  Time               Time      Wait  ------|------|------|------|------|
_ 12:25        0    .0000S    .0000S
_ 12:30        0    .0000S    .0000S
_ 12:35        0    .0000S    .0000S
_ 12:40        0    .0000S    .0000S
_ 12:45        0    .0000S    .0000S
_ 12:50        0    .0000S    .0000S
_ 12:55        0    .0000S    .0000S
_ 13:00        0    .0000S    .0000S
_ 13:05        0    .0000S    .0000S
_ 13:10        0    .0000S    .0000S
_ 13:15        0    .0000S    .0000S
_ 13:20        0    .0000S    .0000S
```

Screen Description

The Data Sharing Member History screen displays each interval being tracked. For each interval the screen shows a total count and time for waits on messages. This screen also shows the average wait time for the interval. The average wait time is displayed numerically and in graph form.

Using this Screen

To request the Detail screen for an interval, type any other nonblock blank character to the left of the interval for which the detail is required and press [Enter] or move the cursor to an interval line and press [PF9].

What To Look For

Use the graphic display to determine intervals with higher than average waits.

Chapter 5: Using the Application Monitor

This section contains the following topics:

Application Monitor

Introduction

This chapter introduces the online components of the Application Monitor, including the Group Billing component. This chapter describes the components in the order listed below:

Task Code	Components
pmam	All Application Monitor screens, except billing
pmbill	The screen associated with group billing information

During an Application Monitor session, use the windowing commands and control keys described in Introduction to Performance Monitor to manipulate your screen displays, except as noted later in this discussion. The Application Monitor provides additional control keys, described later.

Problem Solving

This chapter also provides information that you can use to help alleviate problems detected by using the Application Monitor. If you detect a problem with your system, perform the following steps:

1. Try to isolate the applications that are heavy users of the problem resource. For example, storage-pool problems can be caused by an application that neglects to release acquired storage.
2. If Step 1 fails to correct the problem, increase the availability of the resource. For example, to solve storage-pool problems, you may need to expand the storage pool.

What the Application Monitor Does

The Application Monitor continuously captures and records task information, and reports that information either online or through batch reports. A task can be any of the following:

- A DC/UCF system task
- A CA ADS dialog
- Any task external to the DC/UCF system (for example, a batch job or a CICS transaction)

Uses and Users

The Application Monitor is typically used by designers, programmer analysts, DBAs, and DCAs.

The information reported by the Application Monitor allows you to address several key areas efficiently:

- DC/UCF system performance evaluation and tuning. The monitor provides detailed information about the storage used during task execution and the storage kept across tasks for a pseudo-converse.
- DC/UCF system resource use and analysis. The monitor captures information about when each task is run and allows you to selectively report tasks that run in prime and nonprime time.
- Application chargeback and billing. Chargeback/billing information is presented by billing group. For more information on billing groups, see Perfmon Billing Group Maintenance (see page 166) later in this chapter.

  Note: The batch component of the Application Monitor provides accurate information for the billing of resources consumed by DC/UCF tasks, and the CA IDMS portion of batch jobs and CICS transactions. For more information about running batch reports, see *CA IDMS Performance Monitor System Administration Guide*.

What You Can Monitor Online

You can define the tasks to be monitored by naming any number of entities for which task data should be collected. An entity is a task, program, or logical terminal. The Application Monitor collects data for each task that is associated with a monitored entity, as shown in the following table.

Entity	What is monitored
Task	The specified task
Program	All tasks executed by that program at the highest level (level 1)
LTERM	All tasks initiated from that terminal
User ID	All tasks initiated for that user ID

Each time a task associated with a monitored entity is executed, the monitor captures and saves the task statistics for immediate online access.

You can add to or delete from the list of entities being monitored at any time. For any entity, you can turn the monitoring status to OFF, while leaving the entity in the list. This allows you to keep the statistics already collected for an entity, but it terminates further information gathering. Later, you can turn the status back to ON to continue monitoring.

Considerations

The following considerations apply to an Application Monitor online session:

- Entities are monitored on a system-wide basis. If you add an entity to the list of monitored entities, it appears on the Entity List screen of every Application Monitor user. Likewise, if you delete an entity, it is deleted for every Application Monitor user.
- To collect data on your own programs, monitor your logical terminal or user ID. Other users may be invoking your program to keep track of your usage. Define your LTERM or user ID as an entity.

Getting Started

To get started with the Application Monitor, follow the steps described below.

Step 1

To request the Application Monitor, type **pmam** following the ENTER NEXT TASK CODE prompt:

```
V71  ENTER NEXT TASK CODE:
 pmam
```

Step 2

Press [Enter]. The Application Monitor displays the menu screen which lists all of the Application Monitor options.

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 08:07:24.19
CMD-->                                                          Window : 01

  01 Application Monitor Menu

  PFkey  Description                    PFkey  Description
_  PF1   Entity List                  _  PF2   Task List
_  PF3   Entity Selection             _  PF4   General Statistics
_  PF5   DC Statistics                _  PF6   DB Statistics
_  PF7   ADS Statistics               _  PF8   Task Wait Statistics
_  PF9   DBkey Wait Statistics        _  PF10  PMAM Status/Options
_  PF11  SQL Statistics

 Application Monitor is Online and Collecting Data
```

Monitor Screens

The following table summarizes the Application Monitor screens. Each screen is described in more detail later in this chapter.

Screen	PF Key	Displays
Application Monitor Menu		A menu of Application Monitor screens
Entity List	PF1	The entities currently defined to the monitor; from this list, you can: ■ Select an entity ■ Delete an entity and its related task statistics records ■ Change the monitor status or the maximum number of records stored for an entity
Task List	PF2	A list of tasks associated with a particular entity and for which the monitor has collected statistics; you can select or delete a task from the list
Entity Selection	PF3	Prompts that let you define an entity to be monitored
General Statistics	PF4	General statistics about the task
DC Statistics	PF5	Detailed DC/UCF system statistics for a specified task

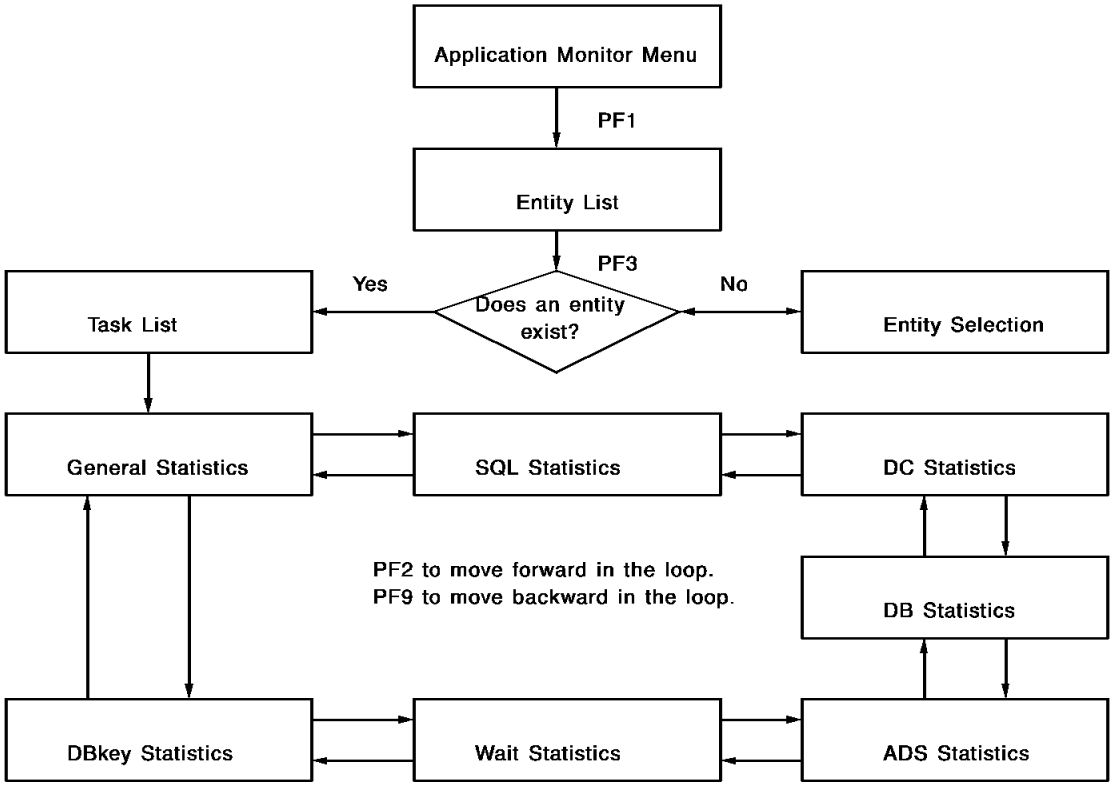
Screen	PF Key	Displays
DB Statistics	PF6	Detailed database access statistics for a specified task
ADS Statistics	PF7	CA ADS runtime statistics for an entity occurrence
Task Wait Statistics	PF8	Detailed wait statistics for a specified task
DBkey Wait Statistics	PF9	Information on database keys for which the task waited
PMAM Status/Options	PF10	Options specified by the system administrator
SQL Statistics	PF11	Detailed SQL statistics for a specified task.

Screen Flow

Application Monitor screens can be used hierarchically. Typically, you initiate a session with the Application Monitor by following these steps:

1. Choose an entity from the Entity List—Selection screen or name a new entity by using the Entity Selection screen.
2. Choose a specific task from the Task List screen. After you press [Enter], the Interval Monitor displays the General Statistics screen. By pressing either [PF2] or [PF9], you can view each statistics screen associated with the chosen task.

The following illustration shows the sequence of screens.



Current Entity

The current entity is the first entity on the Entity List screen.

Note: For more information about making another entity current or deleting an entity, see Entity List (PF1) (see page 154).

Current Task

The current task is the first task on the Task List screen. All of the tasks on any given Task List screen are the tasks associated with the current entity.

Skipping the Entity List and Task List Screens

If, instead of choosing an entity, you press [PF2] to go directly to the Task List screen, the Application Monitor lists the current entity.

If, instead of choosing an entity and task, you press a PF key to go directly to a statistics screen, the Application Monitor provides statistics for the current task of the current entity.

Control Keys

The following table summarizes the control keys you can use with the Application Monitor.

Control Key	What It Does
ENTER	Processes user input
PF1	Displays a screen of help text appropriate to the current cursor position
PF2	Displays the next screen in the screen hierarchy
PF3	Deletes the current screen
PF4	Displays the next (in time) task occurrence
PF5	Displays the prior (in time) task occurrence
PF6	Displays the Active Windows screen
PF7	Scrolls up
PF8	Scrolls down
PF9	Displays the prior screen in the screen hierarchy
PF10	Scrolls left
PF11	Scrolls right
CLEAR	Exits the monitor

Exceptions to Window Processing

Note the following exceptions to standard window processing for the Application Monitor:

- If you request the Edit Window Format screen (using the EDIT command), do not change the Current Window Size. If you do, some Application Monitor screens might be truncated.
- You cannot use the SORT command with any Application Monitor screen.

Application Monitor Menu

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:47:00.15
CMD-->                                                          Window : 01

  01 Application Monitor Menu

  PFkey  Description                      PFkey  Description
_  PF1   Entity List                   _  PF2   Task List
_  PF3   Entity Selection              _  PF4   General Statistics
_  PF5   DC Statistics                 _  PF6   DB Statistics
_  PF7   ADS Statistics                _  PF8   Task Wait Statistics
_  PF9   DBkey Wait Statistics         _  PF10  PMAM Status/Options
_  PF11  SQL Statistics


 Application Monitor is Online and Collecting Data
```

Screen Description

To the left of each option is a single-character select field and a PF key name. To select an option:

- Type any nonblank character in the select field, then press [Enter].

  or

- Press the indicated PF key.

Typically, you choose either the Entity List [PF1] or Entity Selection [PF3] options from the menu. If you choose one of the statistics screens, the Application Monitor displays the statistics associated with the first task on the Task List screen.

Entity List (PF1)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:47:13.70
CMD-->                                                          Window : 02

  02 Entity List - Selection
    Action   Status
   Sel/Del   On/Off   Entity Type   Entity Name   Total Recs   Max Records
     ___       ON       TASK          ITMIGR          1            50
     ___       ON       PROGRAM       DCMT            0            50
     ___       ON       USERID        LHN            22            50
```

Screen Description

The Entity List—Selection screen displays a list of all the entities defined to the Monitor. These entities include both those being currently monitored and those whose monitor status is off.

Note: If no entities are currently defined, the Application Monitor automatically displays the Entity Selection screen.

Using the Action Column

The current entity is the entity at the top of the entity list. To make another entity current or to delete an entity, use the Action column:

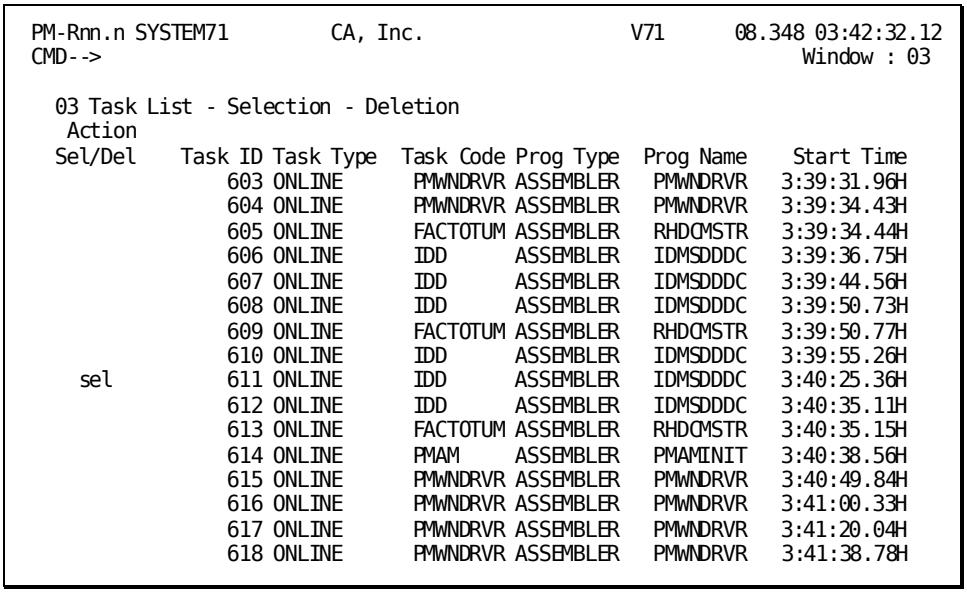
- To select an entity as current, type **s** in the Action column. Press [Enter] to display the Task List screen for the new current entity.
- To delete an entity, type **d** in the Action column and press [Enter]. You can delete multiple entities at a time.

Using the Status and Max Records Columns

To change the monitor status and maximum record count for a listed entity, use the Status and Max Records fields:

- To change the monitor status, type **on** or **off**, as appropriate, in the Status column.
- To change the maximum record count, type over the current Max Records value with the new value. The maximum is 9,999.

Task List (PF2)



```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 03:42:32.12
CMD-->                                                          Window : 03

  03 Task List - Selection - Deletion
   Action
  Sel/Del    Task ID Task Type  Task Code Prog Type  Prog Name    Start Time
                 603 ONLINE      PMWNDRVR ASSEMBLER   PMWNDRVR   3:39:31.96H
                 604 ONLINE      PMWNDRVR ASSEMBLER   PMWNDRVR   3:39:34.43H
                 605 ONLINE      FACTOTUM ASSEMBLER   RHDCMSTR   3:39:34.44H
                 606 ONLINE      IDD      ASSEMBLER   IDMSDDDC   3:39:36.75H
                 607 ONLINE      IDD      ASSEMBLER   IDMSDDDC   3:39:44.56H
                 608 ONLINE      IDD      ASSEMBLER   IDMSDDDC   3:39:50.73H
                 609 ONLINE      FACTOTUM ASSEMBLER   RHDCMSTR   3:39:50.77H
                 610 ONLINE      IDD      ASSEMBLER   IDMSDDDC   3:39:55.26H
    sel          611 ONLINE      IDD      ASSEMBLER   IDMSDDDC   3:40:25.36H
                 612 ONLINE      IDD      ASSEMBLER   IDMSDDDC   3:40:35.11H
                 613 ONLINE      FACTOTUM ASSEMBLER   RHDCMSTR   3:40:35.15H
                 614 ONLINE      PMAM     ASSEMBLER   PMAMINIT   3:40:38.56H
                 615 ONLINE      PMWNDRVR ASSEMBLER   PMWNDRVR   3:40:49.84H
                 616 ONLINE      PMWNDRVR ASSEMBLER   PMWNDRVR   3:41:00.33H
                 617 ONLINE      PMWNDRVR ASSEMBLER   PMWNDRVR   3:41:20.04H
                 618 ONLINE      PMWNDRVR ASSEMBLER   PMWNDRVR   3:41:38.78H
```

Screen Description

The Task List screen displays information about each task execution associated with the current entity. The task that appears on the first line of the list is the current task.

Depending on the type of entity, the Application Monitor displays this information for Task Code:

Entity Type	Task Code Information
Task	■ For CA ADS application compiler task codes, the application's name ■ For DC task codes, the DC task code ■ For CICS external transactions, the transaction ID ■ For batch external transactions, the job name ■ For other external transactions, INTX LRELID1
LTERM	■ For DC systems, the DC LTERM ID or access method-specific terminal identification ■ For CICS external transactions, the terminal ID

Entity Type	Task Code Information
Program	■ For DC systems, the DC program name ■ For CA ADS applications, the dialog name. If a CA ADS application abends before the Application Monitor can collect its dialog name, either ADS2 or ADSORUN*n* is displayed for the Program Name. ■ For external transactions, the name of the Load module, phase, or Member executed
User ID	■ For DC systems, the user ID ■ For CICS external transactions, the operator ID

Using this Screen

- To display statistics for a particular task, type **s** in the Action field and press [Enter]. The Application Monitor displays the General Statistics screen in response.
- To delete one or more tasks from the task list, type **d** in the Action field for the tasks to be deleted. Press [Enter].

Entity Selection (PF3)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 15:08:40.60
CMD-->                                                          Window : 02

  02 Entity Selection

                                                          Status
           Entity Name              Entity Type           On/Off
             dcmt____                 task____             on_
             ________                 ________             ___
             ________                 ________             ___
             ________                 ________             ___
             ________                 ________             ___
```

Screen Description

The Entity Selection screen lets you define *new* entities to be monitored by the Application Monitor and lets you change the monitoring status of existing entities.

Using this Screen

To define a new entity, fill in the fields as shown in the following table.

Field Name	Information to Enter
Entity Name	The name of the entity to be monitored, identified by its task code, program name, or logical terminal ID. Use an asterisk (*) if you don't know your terminal's LTE number.
Entity Type	The entity type: ■ For a task, type TASK or T. ■ For a level-1 program, type PROGRAM or P. ■ For a logical terminal, type LTERM or L. ■ For a user ID, type USERID or U.
Status	ON to initiate statistics gathering OFF to turn off statistics gathering

Press [Enter] to add the entity and leave the screen. To begin collecting statistics, leave the Application Monitor and start the application.

Note: Once you define it, you cannot change the entity type. If you specify the type incorrectly, you must delete the entity and add it again with the correct type.

General Statistics (PF4)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:48:06.10
CMD-->                                                          Window : 04

  04 General Statistics  DCMT     100926                16:45:06.7131

* General Information *              * Time Information *
  Task Name       DCMT                 Start Time         16:45:06.71H
  Program Name    RHDCMT00             End Time           16:45:07.15H
  Program Version       1              Elapsed Time        .4396S
  Program Type    ASSEMBLE             Total Wait Time     .4242S
  Program Dbnode                       Cpu Time            .0154S
  Program Dbname                     * Line Information *
  Lterm ID        LV72029              Terminal Reads           1
  Front End Name  VCUL0A5              Read Length
  User/Erus ID    LHN                  Terminal Writes          1
  Billing Group                        Write Length

  Completion                           Terminal Errors
  Abend Code
  Abend Message
```

Screen Description

The General Statistics screen displays a statistical overview for the current task.

Using this Screen

- Press [PF2] to go to the SQL Statistics screen.
- Press [PF9] to go to the DBkey Wait Statistics screen.
- Press [PF4] to display general statistics for the next task, as shown on the Task List screen.
- Press [PF5] to display general statistics for the previous task, as shown on the Task List screen.

What To Look For

Look for a consistent discrepancy between the Total Wait Time field and the wait time for internal waits (Tot Int Wait field in the Wait Statistics screen). If you find a consistent discrepancy, investigate operating system overhead.

DC Statistics (PF5)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:48:12.25
CMD-->                                                          Window : 04

  04 DC Statistics       DCMT     100926               16:45:06.7131

*Time Information*                    *Storage Pool Activity*
  Int Wait        .1984S                Getstg Requests             18
  Sys Mode Time   .0148S                Freestg Requests             8
  User Mode Time  .0006S                Storage Relocated
*Resource Utilization*                  Storage Kept               768
  RCE Usage                15           Storage HWM               8000
  RLE Usage                17         *Program Pool Activity*
  DPE Usage                 4           Programs Loaded              1
  Stack HWM               243           Programs Called              2
*Service Information*                   Program Pool HWM         17016
  DC Service Reqs          29           Get Scratch Reqs
  DB Service Reqs           6           Put Scratch Reqs             1
  Get Time Reqs             3           Del Scratch Reqs
  Set Time Reqs                         Put Queue Reqs
  Get Queue Reqs                        Del Queue Reqs
```

Screen Description

The DC Statistics screen displays detailed DC/UCF system statistics for the current task.

Using this Screen

- Press [PF2] to go to the DB Statistics screen.
- Press [PF9] to go to the SQL Statistics screen.
- Press [PF4] to display DC/UCF statistics for the next task, as shown on the Task List screen.
- Press [PF5] to display DC/UCF statistics for the previous task, as shown on the Task List screen.

What To Look For

RCE, RLE, and DPE indicate numbers of resources. Program and storage pool activity indicate amount of resources. Service information indicates the number of service requests an application made.

DB Statistics (PF6)

```
PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 03:44:46.54
CMD-->                                                          Window : 04

  04 DB Statistics       IDD      611                    3:40:25.3629

* I/O Information *                  * DB Navigation *
  Pages Written              3        Records Requested              77
  Pages Read                14        Records Current                14
  Pages Requested           32        Records Updated
* Overflow Information *              Records Fnd Cache
  Calc No Ovflo              1        Records Fnd Prefetch
  Calc Ovflo                        * Locking Information *
  Via No Ovflo               1        Total Locks Acquired           73
  Via Overflow                        Select Locks Held
  Frags Stored                        Update Locks Held
  Records Relo                        Total Locks Held

                                      DB Service Reqs                50
```

Screen Description

The DB Statistics screen displays detailed database statistics for the current task.

Using this Screen

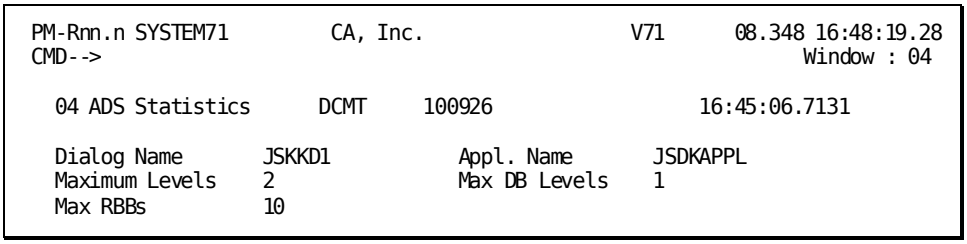
- Press [PF2] to go to the ADS Statistics screen.
- Press [PF9] to go to the DC Statistics screen.
- Press [PF4] to display DB statistics for the next task, as shown on the Task List screen.
- Press [PF5] to display DB statistics for the previous task, as shown on the Task List screen.

What To Look For

- Look for a high number in any of the following fields:
  - Calc Ovfl
  - Via Overflow
  - Frags Stored

  These fields indicate that target pages for records stored by the task were full, forcing CA IDMS to store the records on other pages. If necessary, use the IDMSDBAN utility to analyze space availability for database pages. If a large number of pages in the database are full, consider increasing the database page size or the number of pages in the database.
- Look for a high number in the Records Requested field compared to the number in the Records Current field.
- Look at the ratio of pages requested to pages read. The ratio indicates the effectiveness of the buffer size and database design. Low ratios may indicate that the buffer is too small or that the database needs to be tuned.

ADS Statistics (PF7)



Screen Description

The ADS Statistics screen displays CA ADS runtime statistics for an entity occurrence.

Using this Screen

- Press [PF2] to go to the Wait Statistics screen.
- Press [PF9] to go to the DB Statistics screen.
- Press [PF4] to display CA ADS statistics for the next task, as shown on the Task List screen.
- Press [PF5] to display CA ADS statistics for the previous task, as shown on the Task List screen.

What To Look For

The Maximum Levels field indicates how many levels your application achieved. Too many levels can indicate that your application is consuming too much storage. Typically, this value should be 3 or less.

Wait Statistics (PF8)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 16:48:26.96
CMD-->                                                          Window : 04

  04 Wait Statistics     DCMT     100926                16:45:06.7131
       Wait Type     # Waits    Wait Time    Average Wait    Highest Wait
    TOT INT WAIT           5      .1984S        .0396S          .0474S
    DBIO READ              1      .0451S        .0451S          .0451S
    DBIO WRITE             1      .0339S        .0339S          .0339S
    SCR WRITE              1      .0339S        .0339S          .0339S
    PGM LOAD               2      .0854S        .0427S          .0474S
```

Screen Description

The Wait Statistics screen displays detailed statistics about waits that occurred during execution of the current task. If your task did not wait for a specific wait type, the wait type will not appear on your screen.

The total of the wait times shown on this screen may not match the total wait time shown on the General Statistics screen for the same task. This is because individual wait statistics are collected each time a task goes into and out of a wait type (also called an ECB type). The General Statistics wait time is calculated by subtracting the internal response time from the CPU time.

Using this Screen

- Press [PF2] to go to the DBkey Wait Statistics screen.
- Press [PF9] to go to the ADS Statistics screen.
- Press [PF4] to display wait statistics for the next task, as shown on the Task List screen.
- Press [PF5] to display wait statistics for the previous task, as shown on the Task List screen.

What To Look For

- Look for a number in the # Waits or Wait Time fields, which display the number and total duration of db-key waits, respectively. This can indicate db-key deadlocks among programs that are running concurrently. If this happens, consider implementing a site-standard database access sequence.
- Look for a consistent discrepancy between the wait time for internal waits (Tot Int Wait wait type) and the total wait time in the General Statistics screen. If you find a consistent discrepancy, investigate operating system overhead.
- Look at the types of waits that occur. Typical waits include DBIO reads and writes, journal writes, and terminal reads and writes. Waits that are more serious include waits for database keys, storage pools, and program pools.

Dbkey Statistics (PF9)

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 17:14:37.37
CMD-->                                                            Window : 02

  02 DBkey Statistics    ITMIGR   56064                  12:48:41.5136     >
                       Page  Lock           Wait  Type of     Name of
          DBkey       Group  Type           Time  Holder      Holder
     1054117:  0          0  CURRENCY     .1668S  TASK        ADS2
```

```
PM-Rnn.n SYSTEM71        CA, Inc.                  V71      08.348 17:14:37.37
CMD-->                                                            Window : 02

  02 DBkey Statistics    ITMIGR   56064                 12:48:41.5136   <
               Type of     Name of
        DBkey  Holder      Holder      Area Name          File Name
   1054117:  0 TASK        ADS2        DDLDCRUN           SYS72-DDLDCRUN
```

Screen Description

The DBkey Statistics screen displays information on database keys on which the task occurrence waited.

Using this Screen

- Press [PF2] to go to the General Statistics screen.
- Press [PF9] to go to the Wait Statistics screen.
- Press [PF4] to display database key statistics for the next task, as shown on the Task List screen.
- Press [PF5] to display database key statistics for the previous task as shown on the Task List screen.

What To Look For

- Look for db-key locks appearing in the Lock Type field. If they appear consistently, check the Name of Holder field to determine the task holding this type of lock.
- Look for db-keys that are consistently being waited on. This can indicate that commonly accessed record or row occurrences (such as OOAKs) are limiting the throughput of the system.

Application Monitor Options in Effect (PF10)

```
 PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:48:50.95
 CMD-->                                                          Window : 02

   02 Application Monitor Options in Effect
   #PMOPT Assembly Date/Time          900804    22:27
* Online Options *                   * Statistics Destinations *
 PMAM Active        YES               Write DC Stats       NO
 Online Active      YES               Write to DClog      YES
 Max # Entities      50               Write to SMF         NO
 Dflt # Tasks        50               SMF Buffer Size    8180
* Statistics Collection *            SMF Record ID       230
 Dlg Name Used     LAST              Write SMF Type4      NO
 Collect Tsk Wait   YES              Write SMF Type30     NO
 Collect DBkey Wt   YES
 # of DBkey Recs     10
 Terminal Name    LTERM
 Site Save Allowed  YES
 User Save Allowed  YES
```

Screen Description

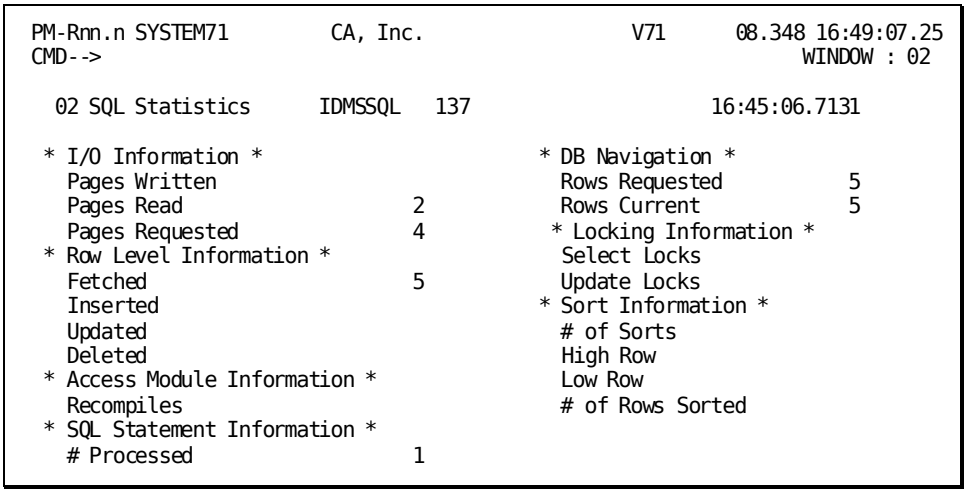
The Application Monitor Options in Effect screen displays options specified by the Performance Monitor system administrator.

If WRITE TO DCLOG displays NO, you can change this field to YES; you then must reassemble PMOPT so the control blocks needed for writing to the log are allocated.

Note: For more information about options, see the *CA IDMS Performance Monitor System Administration Guide*.

z/VSE users: The #PMOPT Assembly Date/Time field reads NOT AVAIL.

SQL Statistics (PF11)



Screen Description

The SQL Statistics screen displays detailed SQL statistics for the current task.

Using this Screen

- Press [PF2] to go to the DC Statistics screen.
- Press [PF9] to go to the General Statistics screen.
- Press [PF4] to display SQL statistics for the next task, as shown on the Task List screen.
- Press [PF5] to display SQL statistics for the previous task, as shown on the Task List screen.

What To Look For

- Look for a high number in the Rows Requested field compared to the number in the Rows Current field.
- Look at the ratio of pages requested to pages read. The ratio indicates the effectiveness of the buffer size and database design. Low ratios may indicate that the buffer is too small or that the database needs to be tuned.

- Look for large values under Access Module Recompiles. Three reasons for recompiles:
  - Changes in the physical database definition

    Note: Use discretion in planning changes to components of the physical database definition.
  - Program recompiling; the recompile changes the date/time stamp, necessitating an AM recompile

    Note: Try to limit program compiles on a production system.
  - An SQL statement referencing a temporary table before the table is defined

    Note: Define temporary tables before referencing them.

Perfmon Billing Group Maintenance

```
 PM-Rnn.n SYSTEM71        CA, Inc.                V71      08.348 16:49:07.25
CMD-->                                                          WINDOW : 01

   01 PERFMON BILLING GROUP MAINTENANCE
   FUNCTION        SET               SET/GET/CLR
   USER ID         CUB
   BILLING GROUP   CULL0600
```

Screen Description

The Perfmon Billing Group Maintenance screen lets you change your billing group online. For example, if you develop applications for different clients, you can modify the billing information each time you switch development projects.

The functions are:

- SET—Establishes a new billing group
- GET—Displays your billing group
- CLR—Erases your billing group

Using this Screen

Typing the task code **pmbill** at the system prompt brings you directly to this screen.

Note: Your default billing group appears the first time after you sign on.

To exit the screen and return control to the DC/UCF system, type **bye** on the command line or press [Clear].

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