IBM OMEGAMON for IMS on z/OS
5.5.0

OMEGAMON for IMS Classic User's Guide

Note

Before using this information and the product it supports, read the information in "Product legal notices" on page 83.

April 2024 Edition

This edition applies to version 5, release 5, modification 0, of IBM OMEGAMON for IMS on z/OS (product number 5698-T02) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Chapter 1. Introduction

OMEGAMON® for IMS provides tools for you to manage your IMS system resources effectively, and to assist the help desk staff to identify and resolve problems, often before they affect the user.

- Performance indicators alert you to impending problems so that you can quickly navigate to detail panels.
- The Operator Assist function provides you with an easy way to display database transactions and programs, and make them available.

For example, you can request a view of only those resources that are unavailable. Then, if you see a stopped database, you can move your cursor next to the database name and type the action code to start the database. OMEGAMON for IMS creates the appropriate IMS command and passes it to IMS for execution.

Managing IMS performance

Managing IMS performance requires you to balance workloads and resources, and monitor the effects of your load balancing decisions. You monitor IMS to determine whether IMS transactions are processing at an acceptable rate.

Even though IMS is a complex environment, something as simple as a stopped database can delay the completion of the IMS transactions. Typically, users might observe the effects of resource contention or unavailable resources and inform help desk personnel.

Managing your system is an iterative process that comprises the following steps:

1. Monitoring the performance of your system.
2. Identifying the root cause when a workload or key system resource shows a problem.
3. Correcting problems that arise.
4. Using the data from your observations and your knowledge of data center priorities to determine performance targets.
5. Continually monitoring your system.

Monitor performance

Although your site might not have formal, written performance objectives, almost all sites have informal objectives. OMEGAMON for IMS can help you translate informal objectives into formal objectives, and can also help you monitor your system performance. After OMEGAMON for IMS is up and running, you can start monitoring current IMS performance by asking yourself the following questions:

- How well are the groups of transactions performing?
- How well are the IMS resources performing?
- Are the problems that OMEGAMON for IMS identifies really problems for the site?
- Is OMEGAMON for IMS missing any problems for the site?

See the *IBM Tivoli OMEGAMON for IMS on z/OS: Response Time Analysis Reference* for more information about how to set response-time exception values.

Identify and correct problems

When one of the status indicators signals that a problem exists, OMEGAMON for IMS can help you identify the cause of this problem.

For example, OMEGAMON for IMS provides information about what might be causing poor performance for a group of transactions. It helps you identify which resources or system components are busiest or unusually active when the response time for a particular group of transactions is delayed. You can then

use this information to correct the problem. If you must issue an IMS command to correct the problem, you can go to panels where you select IMS commands from a menu, or you can enter IMS commands directly.

The OMEGAMON for IMS online help system also provides advice for resolving problems.

User interfaces for OMEGAMON for IMS

With OMEGAMON for IMS, multiple user interfaces provide access to IMS information.

OMEGAMON for IMS offers the following user interfaces:

- The menu interface provides the user access to real-time data with an easy-to-use menu system. Each menu option leads to a panel that displays appropriate commands and output.
- The command interface offers a set of extensive and flexible commands that cover almost every aspect of the IMS environment in real time.
- The OMEGAMON for IMS historical component provides access to historical information. Users request printed reports by using a batch report generator and make interactive queries through a series of TSO panels. For more information, see the *IBM Tivoli OMEGAMON on z/OS: Historical Component (EPILOG) User's Guide*.

To navigate from the menu interface to the command interface or from the command interface to the menu interface, press **PF12**.

Product components for OMEGAMON for IMS

When you install OMEGAMON for IMS, more components are integrated with the product. Some components are required for OMEGAMON for IMS to function while other components are optional.

The following table provides a brief description of each component available at installation and indicates whether the component is required or optional.

Table 1. Product components available with OMEGAMON for IMS

Component	Description
Realtime Performance Monitor component (required)	Provides basic real-time information about the IMS environment
Menu interface for the Realtime Monitor (required)	The original OMEGAMON for IMS menu system interface that provides real-time information about an IMS subsystem
Command interface for the Realtime Monitor (required)	An extensive set of flexible commands that provides real-time information about an IMS subsystem
OMEGAMON Subsystem (optional)	Provides dynamic I/O information to OMEGAMON for IMS
Response Time Analysis (optional)	Provides monitoring of IMS transaction
Application Trace Facility (ATF) (optional)	Tracks activity on a transaction by transaction basis and records the individual events for transactions
Bottleneck Analysis (optional)	Provides information for degradation analysis
Historical component (optional)	Provides historical information about the IMS environment

Tivoli® Management Services on z/OS® components and OMEGAMON products are configured by using the PARMGEN configuration method. For information about using PARMGEN and the steps to configure components, see the *OMEGAMON shared documentation Version 6.3.0 Fix Pack 2 and above* or later, and the *OMEGAMON for IMS on z/OS: Planning and Configuration Guide*.

OMEGAMON for IMS modes of operation

When you configure OMEGAMON for IMS, you are asked to select and customize an operating mode.

Available operating modes are as follows:

- VTAM® mode
- TSO/ISPF mode
- Dedicated mode

The following table describes each operating mode and its requirements.

Table 2. Characteristics and requirements for OMEGAMON for IMS modes of operation

Mode	Characteristics	Configuration requirements
VTAM	Use VTAM mode to run OMEGAMON for IMS sessions from a VTAM terminal without an intermediate online application, such as TSO. You can set automatic update mode so that the screen refreshes automatically. VTAM mode allows all VTAM terminal users to share a single copy of OMEGAMON for IMS.	Define a VTAM applid for OBVTAM.
TSO and ISPF	The TSO address space communicates with the OMEGAMON for IMS address space by using a VTAM application, VTM1. In this mode, there is no auto screen refresh; the screen refreshes when you press the **Enter** key. Use TSO mode to access OMEGAMON for IMS without logging off TSO. ISPF mode includes split-screen capability that you can swap between multiple OMEGAMON for IMS sessions, or between OMEGAMON for IMS and another ISPF application.	• Define a VTAM applid for OBVTAM. • Requires an active OBVTAM application. • Define a set of virtual terminals to VTAM. You can define up to 99 virtual terminals in the virtual terminal pool (VTPOOL).
Dedicated	Dedicated mode offers high availability and does not require VTAM services. Dedicated mode uses EXCP to communicate with a terminal and refreshes the screen every few seconds. Dedicated mode allows OMEGAMON for IMS to provide real-time data even when VTAM is not available.	Availability of a locally attached non-SNA terminal.

If you choose to log on to the menu and command interfaces directly, you can use several different modes of operation that include dedicated, VTAM, TSO, and ISPF modes. For more information about these modes, see “Logging on to the menu and command interface directly” on page 29.

Chapter 2. Command basics

OMEGAMON for IMS provides an extensive set of flexible commands that you use to access real-time IMS data. You can issue the OMEGAMON for IMS commands from both the menu interface and command interface.

If you use the menu interface, many commands are automatically invoked for you, but you still must be familiar with the commands themselves. You may choose to issue specific commands yourself from either the menu or command interface or from screen spaces which support a repeatable sequence of commands.

The following topics introduce the command interface and screen spaces. They also provide basic information about commands, screen output control, and screen logging.

Accessing the command interface

To access the command interface from the menu interface, press **PF12** or **PF24**. This same key toggles you back to the menu interface.

You can enter commands in both the menu interface and the command interface. However, the PF key settings are different in these two interfaces.

The PF keys in the menu interface support menu system navigation; in the command interface, they fetch analysis screens directly. For example, in the command interface, pressing PF3 takes you to a screen space named #03. New users might consider entering commands on the menu interface panels, rather than switching to the command interface. The menu interface is easier to use than the command interface.

Commands and screen spaces

There are two ways to operate OMEGAMON for IMS in the command interface: you can enter individual command names or you can execute screen spaces.

A *screen space* is a predefined set of commands that is saved in a file and given a name. When you type the screen space name on the INFO-line and press Enter, all the commands assigned to that screen space execute automatically in sequence. You can also assign a screen space name to a PF key, which you can use to execute the screen space with one keystroke.

Creating screen spaces is discussed in Chapter 3, “Screen spaces,” on page 19.

Panel format

The format of an OMEGAMON for IMS panel is illustrated in the following figure.

```
 _________________ KOI#01   VTM     OI-II    V530./C I91C 03/25/15  8:37:46    B


                           <Main body of panel>


|____   <Input area>    | |        <Display area>                                 |
```

Figure 1. Panel format

Each line of the panel consists of an input area and a display area. You enter commands in the input area on the left side of the screen, and OMEGAMON for IMS displays command output on the right of the screen.

The input area of the top line, or the *INFO-line*, is where you enter menu options, INFO-line commands, or screen space names. The display area on the INFO-line shows status information about your session. In the main body of the panel, which follows the INFO-line, OMEGAMON for IMS accepts the input of other types of commands and displays their output.

OMEGAMON for IMS processes data on the INFO-line first. If an entry there begins with a slash, OMEGAMON for IMS treats it as an INFO-line command. Otherwise, it attempts to find and display a screen space by that name.

Next, OMEGAMON for IMS processes the input area of the main body of the panel. It executes commands as it encounters the commands, starting at the beginning of the panel.

INFO-line format

The first line of an OMEGAMON for IMS screen display is called the *INFO-line*. The INFO-line accepts keyboard input over the underscores, for example the /PRINT command, and displays status information about your session.

The following figure shows the format of the INFO-line, which can include the following components:

- The input area where you enter menu options
- Screen space name, for example, ZMENU
- Mode of operation, for example, VTM
- Logging status
- Product ID and version
- User profile suffix
- System ID
- Screen refresh date
- Screen refresh time
- Scrolling depth
- Automatic screen facility
- Screen stacking and bell status

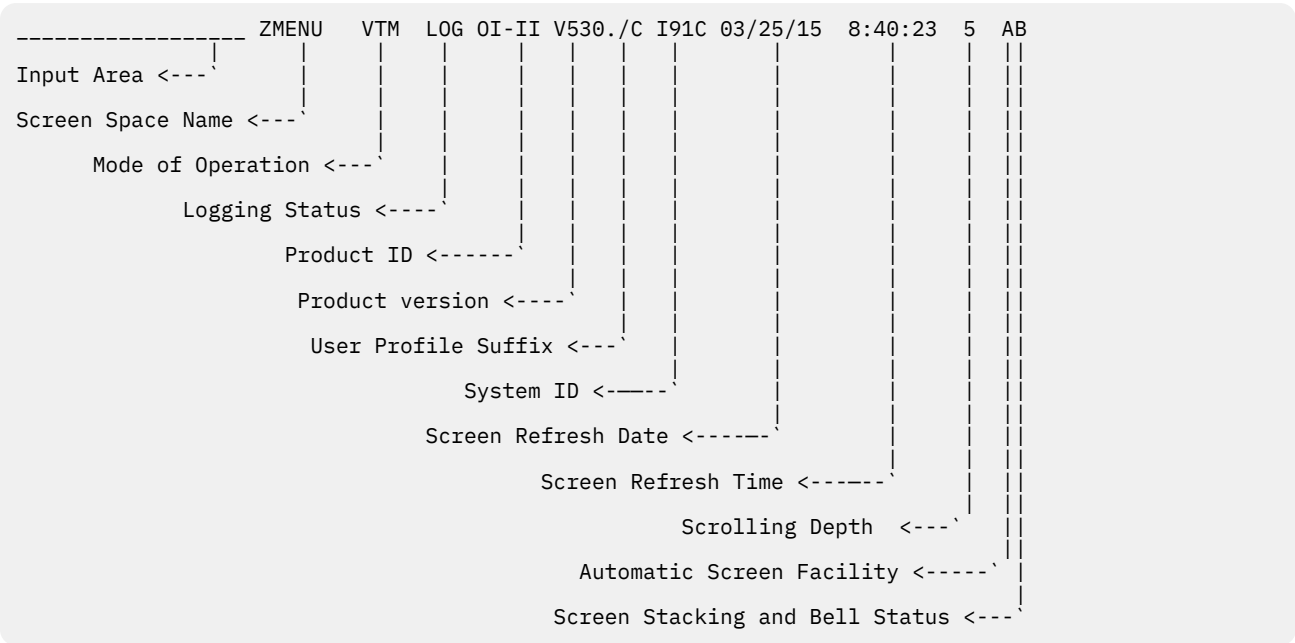

Figure 2. INFO-line format

The *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* discusses the elements of the INFO-line in more detail. The symbols for the logging status (**LOG**), the scrolling depth option (**5**), the automatic screen facility status (**A**), and the bell status (**B**) are displayed on the INFO-line only when those features are in use. Otherwise, the field is blank.

If the zero-value display option is on, the system displays zero values as zeros. If the option is off, the system displays zero values as blanks.

Panel display symbols

When OMEGAMON for IMS displays command output, you might see panel symbols displayed in the output.

The symbols that OMEGAMON for IMS uses are explained as follows.

Comment lines (>)

To designate a comment line, enter a greater-than sign (>) in column 1. Any command that is entered on that line does not execute.

In addition to the comment symbols that you enter yourself, OMEGAMON for IMS automatically comments out some commands after they execute to prevent re-execution on the next cycle. OMEGAMON for IMS also comments out help text so that it remains on the screen until you clear it.

Continuation character (+)

OMEGAMON for IMS displays a plus sign (+) at the end of a line of output to indicate when more output is available. You might see this continuation character after you issue certain major commands that select a long list of items (such as DISK, which displays all online disks). So that the display does not extend off the screen, OMEGAMON for IMS displays only one line of data at a time unless you request additional lines. Displaying continuation lines of command output explains how to request the additional lines.

Online help text also displays the continuation character when more help is available.

Commands that produce multiple display lines when they execute display the plus sign (+) in column 1. For example, if you enter the `.VTM` command, multiple lines of information about VTAM users are displayed as shown in the following figure.

```
 _________________ KOI#01   VTM     OI-II    V530./C I91C 03/25/15  8:46:07    B
 .VTM  Userid     Terminal    Mode       Session Start           Last Update
+                 ATERM507    VTM      03/25/09  7:28:12      03/25/09  8:46:07
+                 RGI21102    VTM      03/25/09  7:57:06      03/25/09  8:46:07
+                 RGI21124    VTM      03/25/09  8:31:25      03/25/09  8:46:07
```

Figure 3. VTAM user information

Commands that you enter after a command with multiple display lines might extend off the screen. These commands reappear as soon as you scroll through the output.

If you enter a new command on a continuation line, OMEGAMON for IMS automatically positions the new command after the existing output lines.

Input character (:)

Some commands allow multi-line input for setting parameters. When you issue this type of command, OMEGAMON for IMS responds with a table of keywords and their current settings. On each line of a multi-line input command, column 1 displays a colon (:) to indicate that you can type over the current setting and change the value as shown in the following figure.

```
 _________________ KOI#01   VTM     OI-II    V530./C I91C 03/25/15  8:51:37    B
 .SET
:       FGOLIMIT     =       64     FGOLOOP      = OFF
:       GDEVUCBS     =      200     INTERVAL     =     5.00
:       IODELAY      =        5     LOOPCOUNT    =    50000
:       LOOPTIME     =   150.00     PAGELIMIT    =      400
:       PEEKSIZE     =    16384     STATUSMODE   = OFF
:       OCMDMASTER   = ON
```

Figure 4. Keywords

Entering commands

To operate OMEGAMON for IMS in the command or menu interface, you must understand the types of OMEGAMON for IMS commands and the appropriate time and place to enter each type.

Command types

There are four types of commands that are used in OMEGAMON for IMS.

The following figure shows the four types of commands and sample output.

```
 /PRINT__________ KOI#01   VTM     OI-II    V530./C I91C 03/25/15 16:55:15    B

 DISK    VMXA04   VMXA05    VMSP50  VMHP02    OMONVM  DOSTST  DP215R  DOSRES +
 dadr       1A0      1A1       1B0     1B1       2A7     2B0     4F1     4F2
 .MIN
+       DADR  DALC  DCAT  DIO   DIOQ  DOPN  DPIN  DPLT  DRES  DSTA  DTYP  DUSR
+       DVMP  DVOL  ICHP  OCHP
```

Figure 5. Examples of the four types of commands

The types of commands include the following:

INFO-line
: These commands perform control functions such as printing a screen (/PRINT) and stopping your session (/STOP).

  INFO-line commands are executed first and disappear as soon as they execute. Therefore, you cannot save them in a screen space. INFO-line commands always begin with a slash (/) and must be entered on the top line (starting in column 2).

  Note: If you are running in an automatic update mode, placing the cursor in column 1 on the top line pauses updating until you move the cursor.

Major
: These commands select general categories for display, such as system information, resource utilization, or storage utilization. In the example, the major command DISK produces a list of online disks. You can enter major commands on any line after the INFO-line.

Minor
: These commands display detailed information about the category that the major selects. In the example, the minor command DADR displays the unit addresses of the devices listed with DISK. You can enter minor commands on any line after the INFO-line, but they do not execute unless they are preceded by an appropriate major command.

Immediate
: These commands serve various functions. Some are system monitoring commands, while others provide information about your session or about OMEGAMON for IMS.

  In the example, .MIN produces a list of all the minors of DISK. Immediate commands can also provide screen and session controls, and often perform the same or similar functions as INFO-line commands of the same name. You can include control commands as part of a screen space.

Enter immediate commands on any line after the INFO-line. You can enter immediate commands between a major command and one of its minors.

Command format

Many OMEGAMON for IMS commands can be entered with labels or arguments, which can change the output that is displayed.

The following figure shows some sample commands and output.

```
 .MJ DS DISK  DLST  DPAV  DSKB  DSKC  DSKE  DSKG  DSKM  DSKN  DSKP  DSKQ  DSKR
+       DSKS  DSKU  DSKV  2305  2314  3330  3340  3350  3375  3380  3390
 DISK    VMXA04   VMXA05    VMSP50  VMHP02    OMONVM  DOSTST  DP215R  DOSRES +
 dadr       1A0      1A1       1B0     1B1       2A7     2B0     4F1     4F2

2GDEV     SYSDA
          MIS003  HSM001  WORKB1  PDB002  MIS002  MIS003  SYSB24  SYSD22 PROD02 +
```

Figure 6. Sample commands, which include examples with labels and arguments

The following diagram shows the format for OMEGAMON for IMS major, minor, and immediate commands.

```
lccccaa
||   | |
||   | +-----> extended argument or keyword field (cols. 8 through 72)
||   |
||   +-----> argument field (cols. 6 and 7)
||
|+----> command name (cols. 2 through 5)
|
+--> label field (col. 1)
```

Figure 7. OMEGAMON for IMS command format

label field
Many commands accept a character in the label field that alters the type of output displayed. You can also use this field for special command modifiers, such as those that request online help text for commands. For example, the numeral 2 in the label field of the **GDEV** command in Figure 6 on page 9 restricts the display to only the second row of all available output.

command name
This field contains the four-character command name. Although the command name field occupies columns 2 - 5, OMEGAMON for IMS recognizes most commands that begin in column 1 and automatically shifts the command one space to the right.

argument field
Many commands accept arguments that modify their function or specify output options. The **.MJ** command with no arguments displays a list of all OMEGAMON for IMS major and immediate commands. In Figure 6 on page 9, **.MJ** is entered with an argument of DS, a group code that specifies that only disk major commands be listed.

Extended arguments are entered in columns 8 - 72. In Figure 6 on page 9, the **GDEV** command was entered with an argument of SYSDA, which is a generic device name in the system. This means that only devices in the SYSDA category are displayed. Many commands also accept keywords and parameters that can extend to column 72. OMEGAMON for IMS cannot extend a parameter string to a second line. You must reenter the command (along with keywords) on succeeding lines.

Command help

OMEGAMON for IMS provides online help for each command in the product.

Major, minor, and immediate command help

Major, minor, and immediate commands provide one-line help. Many of these commands also provide extended help, which displays more information about the command or the command operands.

A continuation character (+) following the end of the one-line help indicates that more (extended) help is available. To request help for a major, minor, or immediate command, enter one of three symbols (`?`, `/`, or `;`) followed by the command.

Help symbols

Table 3. Help symbols

Symbol	Description
?	Displays a one-line help that stays on the screen until you clear it.
/	Displays an extended help that stays on the screen until you clear it. You can clear the help text with the **.DCL** command.
;	Displays an extended help that is cleared from the screen on the next cycle.

Help examples

The following examples show the three symbols being used to obtain help for the **.WAT** command.

When you enter `?.WAT`, one-line help is displayed.

```
>.WAT
>       Specifies a delay before executing the commands that follow.          +
```

Note: The continuation character (+) at the end of the one-line help indicates that extended help is available.

When you enter a slash followed by the command, as in `/.WAT`, an extended help is displayed.

```
>.WAT
>       Specifies a delay before executing the commands that follow.          +
>
>       Type of Command:  Immediate
>
>       Command Format:  .WATnn
>
>        1 | 2    |  Definition of operands
>       ------------------------------------------------------------------------
>          | .WAT |  nn   Specifies the length of the delay (seconds) before
>          |      |       the command(s) that follow are executed.
>
>       EXAMPLE:
>
>        .WAT02
>        .FGO MYSCREEN
>
>       The commands shown above cause OMEGAMON to wait 2 seconds before
>       fetching screen space MYSCREEN.
```

The entry `;.WAT` produces the same output as `?.WAT`, however, plus signs (+) display in column 1 of the lines below the one-line help. The plus signs indicate that the extended help text will disappear on the next cycle.

```
>.WAT
>       Specifies a delay before executing the commands that follow.          +
+
+       Type of Command:  Immediate
+
+       Command Format:  .WATnn
+
+        1 | 2    |  Definition of operands
+       ------------------------------------------------------------------------
+          | .WAT |  nn   Specifies the length of the delay (seconds) before
+          |      |       the command(s) that follow are executed.
+
+       EXAMPLE:
+
+        .WAT02
+        .FGO MYSCREEN
+
+       The commands shown above cause OMEGAMON to wait 2 seconds before
+       fetching screen space MYSCREEN.
```

Minor command help

You can obtain help for a minor command by using the ?, /, and ; symbols, without knowing the associated major command name. In some cases, however, the same minor name is used for multiple majors. If the function of the minor command is the same for all of its associated majors, OMEGAMON for IMS displays help that lists the associated major commands with the help for the minor command, as shown in the following example, which displays the one-line help for the **DIO** minor command.

```
>DIO
>  DIO  is a minor command of the following major(s):
>       DEV   DEVL  DEVP  DISK  DPAV  DSKB  DSKC  DSKE  DSKG  DSKM  DSKN  DSKP
>       DSKQ  DSKR  DSKS  DSKU  DSKV  GDEV  TAPE  TPAL  TPBS  TPCU  TPFR  TPMT
>       TPOF  TP16  TP38  TP62  TP7T  TP80  2305  2314  3330  3340  3350  3375
>       3380  3390
>  Help:
>       Displays the I/O count since IPL of the device(s).                    +
```

In cases where OMEGAMON for IMS uses the same minor command name for multiple major commands, but the function and help text differ, OMEGAMON for IMS lists the major command names and instructs you to place your cursor under the desired command. When you press **Enter**, the appropriate help displays.

If you know that the minor command is shared among several major commands and you know the major command, you can type the major command name on the same line after the help request. For example, entering /DIO DISK produces the help text for the DIO minor specific to the DISK major command.

INFO-line command help

You can obtain INFO-line command help with the **.ILC** immediate command.

To request help for an INFO-line command, enter **.ILC** followed by the command.

```
.ILC cccccc
```

You do not need to enter the slash before the INFO-line command. For example, to get help for the **/DEF** command, you can enter the following:

```
.ILC DEF
```

Help for the specified INFO-line command displays as shown in the following example.

```
>.ILC /DEF
>       Sets definition mode.                                                +
>
>       Type of Command:  INFO-line
>
>       Command Format:  /DEF cccc
>
>        1 | 2       Definition of operands:
>        ---------------------------------------------------------------------
>          | /DEF  <cccc>  ON    Turns on definition mode.  Definition mode
>          |                     suspends command execution (except for the
>          |                     commands which control screen editing
>          |                     functions) so that you can define a screen
>          |                     space without executing commands.  Once you
>          |                     set definition mode with /DEF ON, it remains
>          |                     in effect until you issue /DEF OFF or the
>          |                     screen space is saved or replaced.
>          |               OFF   Restores normal command execution (cancels
>          |                     /DEF ON or /DEF HOLD).
>          |               HOLD  Same as ON argument, but definition mode
>          |                     remains in effect after you save a screen
>          |                     space.  It is only cancelled when you issue
>          |                     /DEF OFF.  Use this option when you want to
>          |                     save 2 or more screens in a row without
>          |                     turning on definition mode each time.
```

Figure 8. INFO-line command help

Commands to list commands

OMEGAMON for IMS provides a set of immediate commands that you can use to list all OMEGAMON for IMS commands by type.

Some of these commands also support the H label to display one-line help for each command that is listed.

The following table shows the set of commands that list commands.

Table 4. Commands that display lists of commands by type.

Command	Description
.EXM	Lists and executes all minors for the preceding major command.
.ILC	Lists all INFO-line command. If an INFO-line command is typed after .ILC, it shows the help for that command.
.MIN	Lists all minors for the preceding major command.
H.MIN	Lists all minors and their one-line helps for the preceding major.
.MJ	Lists all major and immediate commands.
H.MJ	Lists all major and immediate commands and their one-line helps.
.MJC	Lists all major commands.
H.MJC	Lists all major commands and their one-line helps.
.MJI	Lists all immediate commands.
H.MJI	Lists all immediate commands and their one-line helps.
.MMA	Lists all major commands for the specified minor command.

The .MJ, H.MJ, .MJC, H.MJC, .MJI, and H.MJI commands can be followed by a group code argument to restrict the list to commands in that group. For example, DS restricts the list to disk commands.

Screen control

OMEGAMON for IMS provides commands and other features that you use for screen control. For example, commands such as **/UP** and **/DOWN** scroll the screen, and the **.D** command deletes lines from the screen.

Scrolling

In the menu interface, the default scrolling keys are PF7/PF19 and PF8/PF20 (on terminals with 24 programmed function keys). In the command interface, OMEGAMON for IMS assigns PF7 and PF8 to analysis screens, so PF19 and PF20 are the default scrolling keys. The scrolling keys are set to /U and /D (which as aliases for /UP and /DOWN), and they scroll one physical screen at a time. You can change the default scroll amount with the OPTN command.

You can also scroll by using the /UP and /DOWN INFO-line commands. /UP and /DOWN (or /U and /D) accept the following arguments:

nnn
Scrolls *nnn* lines (*nnn* can be a number 1 - 999).

PAGE
Scrolls a physical screen at a time.

MAX
Scrolls up or down the number of LROWS defined for your terminal. The short form of MAX is M.

CSR
Scrolls according to the current location of the cursor. If the cursor is on the INFO-line, the scroll amount is one page.

As an alternative to /UP and /DOWN, you can use the INFO-line command /TOP to scroll to the top of the logical screen and /BOTTOM to scroll to the bottom of the logical screen.

You can also type any of the /UP and /DOWN arguments (such as *nnn*, MAX, or CSR) on the INFO-line, then press the scroll PF key to scroll up or down that amount. For example, if you type MAX on the INFO-line, then press PF20, OMEGAMON for IMS scrolls down the maximum number of lines.

Clearing the screen

If a menu, screen space, or any commands display on your screen, and you want to clear the screen, use the clear screen immediate command. The clear screen command consists of two periods followed by two blanks. Enter ..bb, where *b* is a blank, in the input area of any line below the INFO-line to clear the screen below it.

Deleting comment lines

If your screen is cluttered with lines of comment text (lines with > in column 1), and you want to clear the comments but retain other command text, you can use the /DCL INFO-line command or the .DCL immediate command. The /DCL command clears all comment lines on the logical screen, while the .DCL immediate command clears all comment lines after its entry line.

Inserting and deleting lines

To insert blank lines into a screen, use the following immediate command:

```
.I nn
```

The variable *nn* indicates the number of lines to insert. The default setting is 1. Note that the *nn* argument must begin in column 6.

OMEGAMON for IMS inserts the new lines above the line where you type the insert command. Therefore, all other lines currently on the screen below the inserted line shift downward. When the command executes, the line you typed over with the insert command restores to its original data.

For example, assume that your screen includes the following lines.

```
DISK    VMXA04   VMXA05    VMSP50  VMHP02    OMONVM  DOSTST  DP215R  DOSRES +
dadr       1A0      1A1       1B0     1B1       2A7     2B0     4F1     4F2
dalc         8       16         6      12        24      16      32       8
```

You then type .I on the second line.

```
DISK    VMXA04   VMXA05    VMSP50  VMHP02    OMONVM  DOSTST  DP215R  DOSRES +
.I        1A0      1A1       1B0     1B1       2A7     2B0     4F1     4F2
dalc        8       16         6      12        24      16      32       8
```

When you press **Enter**, a new line is inserted above the line where you typed `.I` and the original lines shift down.

```
DISK    VMXA04   VMXA05    VMSP50  VMHP02    OMONVM  DOSTST  DP215R  DOSRES +

dadr      1A0      1A1       1B0     1B1       2A7     2B0     4F1     4F2
dalc        8       16         6      12        24      16      32       8
```

To delete lines from a screen space, use the `.D` *nn* immediate command, which works the same way as `.I` *nn*. When you do not specify the *nn* variable, it defaults to one deletion line.

You can also delete a block of data from the physical screen. To delete a block of lines, enter `.DD` on the first and last lines of the block, then press **Enter**.

Displaying continuation lines of command output

Some major commands select a series of items. Often, the display output does not fit onto one line. In this case, the major command displays only the first line of output, and a plus sign appears at the end of the line to indicate that more data is available.

To see a count of the number of items that are selected by a major command, enter a number sign (#) in column 1 before the command. The following example shows that there are 20 online disks for the DISK command to display:

```
#DISK      20
```

Continuing major command output

You can use a number of different continuation characters and commands to control the output display.

- Enter a less-than sign (<) in column 1 in front of a major command to generate all of the output at once when the command executes.
- After you issue a major command for the first time, you can put a number in column 1 to specify how many lines of the display to skip.
- You can repeat a major command to display only the next line of output.

Continuing major and minor command output

When a major command lists a series of items that continues for more than one line, any minor command that you enter after the major command applies only to the last line of output. Therefore, if you enter a minor command after the third line of major command output, that minor command generates information only about the third line of items that are listed by the major. Normally, the major and minor commands must be repeated for each line of available output.

The `.RC` command is a shortcut to this process. The `.RC` command automatically repeats the major and the minor until all available lines of data are displayed. Enter the major command one time, followed by the minor commands, and then the `.RC` command after the minors. The set of major and minor commands are automatically repeated for every line of major command output.

For example, you enter the DISK major command followed by the DADR and DIO minor commands, then type the `.RC` command as shown in the following example.

```
DISK    VMXA04   VMXA05    VMSP50  VMHP02    OMONVM  DOSTST  DP215R  DOSRES +
dadr      1A0      1A1       1B0     1B1       2A7     2B0     4F1     4F2
dio      4157     4240      3975    4010      4422     272    1638    1147
.RC
```

When you press **Enter**, the set of commands repeats for each line of DISK output.

```
 DISK    VMXA04   VMXA05    VMSP50  VMHP02    OMONVM  DOSTST  DP215R  DOSRES +
 dadr       1A0      1A1       1B0     1B1       2A7     2B0     4F1     4F2
 dio       4157     4240      3975    4010      4422     272    1638    1147
 DISK    PPSMPE   TSO024    QM0001  OMON25    MTBLI3  DB2002  PPSMPE  TSO042 +
 dadr       148      149       14A     14B       14C     14D     14E     14F
 dio       6157    40885      3325    4115       277    1122   44322   48995
 DISK    CPM023   DBRCPROD  DLSPROD IRLMPROD  MPP01   MPP02
 dadr       4F3      4F4       4F5     4F6       4F7     4F8
 dio       3284     2140      3287    3967       298     275
.RC
```

Setting Program Function (PF) keys

When you use the command interface, the default PF key definitions differ from those key definitions that are used in the menu system. In the command interface, some PF keys are preset to control commands such as scrolling and printing, and a number of keys are set to IBM®-defined screen spaces for various types of analysis. Use the .PFK immediate command to list the PF key settings.

The following figure shows the default PF key definitions for the command interface.

```
 .PFK
+    01=KOI#01           /* EXCEPTION ANALYSIS, GENERAL INFO
+    02=KOI#02           /* ANALYZE ONE IMS REGION
+    03=KOI#03           /* ANALYZE ALL DEPENDENT REGIONS
+    04=KOI#04           /* PROGRAM SPECIFICATION BLOCKS
+    05=KOI#05           /* DATABASE MANAGEMENT BLOCKS
+    06=KOI#06           /* TRANSACTIONS
+    07=KOI#07           /* LOGICAL TERMINALS
+    08=KOI#08           /* SCHEDULING CLASSES
+    09=KOI#09           /* DEVICE STATISTICS (DASD  TAPE)
+    10=KOINOSHI         /* SELF EDUCATION FACILITY REPLACED
+    11=KOI#11           /* NO ASSIGNMENT YET
+    12=KOISWCH          /* COMMAND MODE/MENU MODE TOGGLE
+    13=KOI#13           /* IMS INITIALIZATION PARAMETERS
+    14=KOI#14           /* IMS DATASETS STATISTICS
+    15=KOI#15           /* REAL, VIRTUAL MEMORY UTILIZATION
+    16=KOI#16           /* IMS POOL STATISTICS
+    17=KOI#17           /* DATABASE BUFFER POOL STATISTICS
+    18=KOI#18           /* DUMPING IMS CONTROL BLOCKS
+    19=/U               /* SCROLL UP
+    20=/D               /* SCROLL DOWN
+    21=/PRINT           /* PRINT THE CURRENT SCREEN
+    22=KOI#22           /* CONTROLLING EXCEPTION ANALYSIS
+    23=KOI#23           /* CONTROLLING EXCEPTION GROUPS
+    24=KOISWCH          /* CMD/MENU MODE TOGGLE
```

Figure 9. Default PF keys for the command interface

You can define new PF key settings for your current session with the .PFK command. For example, rather than typing /DEF ON and /DEF OFF each time you create a screen space, you can assign /DEF ON to PF19 and /DEF OFF to PF20. Then, you can use the PF keys to turn definition mode ON while you create a screen space and OFF when you finish. Define the keys and type comment text after a slash and asterisk (/*) as shown in the following example.

```
.PFK19=/DEF ON    /* Turns definition mode on
.PFK20=/DEF OFF   /* Turns definition mode off
```

Note: The PF keys that you define with .PFK are in effect only for the current session.

Your installation can allow you to assign screen spaces or INFO-line commands to up to 99 PF keys with the .PFK immediate command. To invoke the function that is associated with one of the 99 logical keys, you can type the PF key number on the INFO-line, then press **Enter**.

You can redefine several PF keys at the same time without having to reenter the .PFK command.

1. Beginning in column 1, type E.PFK, then press **Enter**. OMEGAMON for IMS gives you an extended display of all current PF key assignments, and inserts .PFK before each key number as shown in the following example.

```
E.PFK
+.PFK01=KOI#01          /* EXCEPTION ANALYSIS, GENERAL INFO
+.PFK02=KOI#02          /* ANALYZE ONE IMS REGION
+.PFK03=KOI#03          /* ANALYZE ALL DEPENDENT REGIONS
+.PFK04=KOI#04          /* PROGRAM SPECIFICATION BLOCKS
+.PFK05=KOI#05          /* DATABASE MANAGEMENT BLOCKS
+.PFK06=KOI#06          /* TRANSACTIONS
+.PFK07=KOI#07          /* LOGICAL TERMINALS
+.PFK08=KOI#08          /* SCHEDULING CLASSES
+.PFK09=KOI#09          /* DEVICE STATISTICS (DASD  TAPE)
+.PFK10=KOINOSHI        /* SELF EDUCATION FACILITY REPLACED
+.PFK11=KOI#11          /* NO ASSIGNMENT YET
+.PFK12=KOISWCH         /* COMMAND MODE/MENU MODE TOGGLE
+.PFK13=KOI#13          /* IMS INITIALIZATION PARAMETERS
+.PFK14=KOI#14          /* IMS DATASETS STATISTICS
+.PFK15=KOI#15          /* REAL, VIRTUAL MEMORY UTILIZATION
+.PFK16=KOI#16          /* IMS POOL STATISTICS
+.PFK17=KOI#17          /* DATABASE BUFFER POOL STATISTICS
+.PFK18=KOI#18          /* DUMPING IMS CONTROL BLOCKS
+.PFK19=/U              /* SCROLL UP
+.PFK20=/D              /* SCROLL DOWN
+.PFK21=/PRINT          /* PRINT THE CURRENT SCREEN
+.PFK22=KOI#22          /* CONTROLLING EXCEPTION ANALYSIS
+.PFK23=KOI#23          /* CONTROLLING EXCEPTION GROUPS
+.PFK24=KOISWCH         /* CMD/MENU MODE TOGGLE
```

2. For each new assignment, blank out the plus sign (+) in front of `.PFK` for the targeted PF keys and type the new settings after the equal signs. When you press **Enter**, the PF key assignments take effect for the duration of the session.

Delaying automatic updating

The delay and hold features temporarily defer updating when you are in dedicated or VTAM mode with automatic updating in effect.

Delay feature

While OMEGAMON for IMS is automatically updating, you can continue to enter commands. If OMEGAMON for IMS detects a cursor movement since the last update, it defers processing to avoid executing half-entered input. The words `I/O Delay` appear on the INFO-line, and the screen is not updated for the number of cycles that is specified with the `IODELAY` keyword of the `.SET` command.

Hold feature

If your screen display contains data that you want to study for longer than the normal automatic update interval, you can use the hold feature to temporarily freeze the screen image. To do so, place the cursor in the Home position, then move it back one space to the blank space in column 1 of the INFO-line. The words `Hold Mode` appear on the INFO-line, and the information on the screen does not change until you move the cursor away from row 1, column 1.

Screen logging

The OMEGAMON for IMS logging facility supports your printing screen spaces, output appearing on the logical screen, and selected lines from the screen. When the log is on, a copy of every screen display is written to the log. The `OUTP` major command sets the characteristics of the REPORT file.

OMEGAMON for IMS can log exception analysis screens automatically with the exception logging facility (XLF).

Activating the log

To turn on the log, enter the `OPTN` immediate command in the input area of the main body of the screen. Two columns of session options appear as shown in the following example.

```
 OPTN
:       ASF          = OFF          BELL         = ON
:       BELLINT      =    60.00     DATEFORMAT   = USA
:       FIRSTSCREEN  = KOINITZZ     LOG          = OFF
:       MINORCASE    = LOWER        SCREENCASE   = MIX
:       SCROLL       = PAGE         TSF          = OFF
:       XLF          = OFF          ZEROS        = OFF
```

The status of the log (ON or OFF) displays after the LOG= entry. To initiate logging, type ON over the OFF entry. The word LOG appears on the INFO-line when the log is activated. As an alternative, you can use the .LOG immediate command to turn the log on and off (.LOGON and .LOGOFF).

When the log is on, OMEGAMON for IMS logs the screen output on each cycle. If you freeze the screen with the hold feature during automatic updating OMEGAMON for IMS logs only one time until you move the cursor from row 1, column 1, to resume automatic updating.

To force printing of the log, enter the /LOGOUT INFO-line command or the .LOGOUT immediate command. These commands close the current log file and dynamically reallocate it so that it is immediately reopened. If you set new parameters for the log file, you must issue a LOGOUT command for the new parameters to take effect.

To turn off the log, reenter the OPTN command and type OFF as the value for the LOG= entry. Or enter the .LOGOFF immediate command. The word LOG no longer displays on the INFO-line.

Checking the page limit

The OMEGAMON for IMS profile in effect at your site contains a default limit on the number of pages that are printed before the log stops. The PAGELIMIT= keyword of the .SET immediate command controls the page limit. You can also adjust the limit for your session by using the .PLM immediate command.

Before the log begins to print, .SET displays the current default page limit. To change the limit for your session enter .SET and type a new value over the current value for the PAGELIMIT= keyword, or enter .PLM*nnnnn* to set the limit.

During printing, the number that is displayed by .SET or .PLM decreases to reflect the number of pages that can be printed before the limit is reached. You can check the progress of the log by entering .SET or .PLM while logging. When the page limit display reaches zero, the screen space clears and a message appears to inform you that the page limit was reached. Press **Enter** to restore the screen display.

Logging a single display

To print a single screen image without turning on the log, use the /PRINT (or /P) INFO-line command.

The page limit does not affect the /PRINT command. /PRINT continues to work even when the counter is at zero.

Logging part of a display

To print selected lines from a screen space, use the .PRT command. The lines that precede the .PRT command are printed to the log.

```
DISK    CPM023   DBRCPROD  DLSPROD IRLMPROD  MPP01   MPP02
dadr       4F3        4F4      4F5      4F6    4F7     4F8
>.PRT   >> Screen Printed up to this line <<
dalc         8       16         6      12        24      16      32       8
```

In this example, OMEGAMON for IMS logs a copy of the lines that precede the .PRT command, and then changes the command to a comment (>.PRT). To log the lines continually, add the H (Hold) argument to .PRT (.PRTH), which prevents OMEGAMON for IMS from changing the command to a comment.

Chapter 3. Screen spaces

Through its powerful screen space feature, OMEGAMON for IMS can store, recall, and invoke a set of commands.

The OMEGAMON for IMS component includes a number of predefined screen spaces, which provide you with detailed information by category. You can also customize your own screen spaces.

Invoking screen spaces

You can invoke an IBM-defined screen space by selecting a menu option, or by pressing certain PF keys (if you are working in the command interface). You can also create custom screen spaces and recall them by typing the screen space name on the INFO-line, or by assigning the screen space name to a PF key.

When you invoke a screen space, its commands replace the commands currently on the screen. The commands then run in the same way as they would if you entered them individually. You must set up screen spaces in advance of an OMEGAMON for IMS session in order to use the OMEGAMON for IMS automatic screen facility, the timed screen facility, and the zooming feature.

Creating and modifying screen spaces

You can create a screen space at any time on any screen by simply typing in a group of commands, assigning a name to them, and saving them.

To create or modify a screen space, follow these steps:

1. Use definition mode to inhibit updating and prevent OMEGAMON for IMS from running the commands that you enter.
   a. If you create a single screen space, enter the `.DEFON` immediate command or the `/DEFON` INFO-line command to place OMEGAMON for IMS in definition mode. Saving the screen space automatically turns off definition mode. Issuing `.DEFOFF` or `/DEFOFF` also turns off definition mode.
   b. If you create several screen spaces at once, use `/DEF HOLD` or `.DEFHO` to preserve definition mode. Definition mode is preserved until you issue a `/DEFOFF` or `.DEFOFF` command.
2. Enter the desired commands on the screen.
3. Use the `/SAVE` INFO-line command to save the screen. To replace an existing screen space with a new screen space of the same name, use the `/REP` command. See the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for the format of `/SAVE` and `/REP`.
4. If you turned on definition mode with the HOLD option in step 1, use `/DEFOFF` or `.DEFOFF` to restore automatic updating.

When you create screen spaces, consider the following tips:

- If you include commands that OMEGAMON for IMS comments out after execution, use definition mode when you design the screen. Definition mode stops OMEGAMON for IMS from running the commands while you create the screen, which prevents the comment character (>) from appearing in column 1 when you save the screen.
- Use comment lines wherever appropriate to explain the commands. Begin all lines of comment text with a greater-than sign (>) in column 1.
- Include separator lines in screen spaces to make the screens more readable. Use the `====` immediate command to have OMEGAMON for IMS automatically draw a separator line across the screen. The format of the command is *c*`====`*aa*, where *aa* are the characters to use for the line. If you extend color on your terminal, you can use *c* in column 1 to specify a color for the line; otherwise, leave column 1 blank.

- You cannot include INFO-line commands as part of a screen space. Instead, use the equivalent immediate command.
- OMEGAMON for IMS does not save blank lines at the end of a screen space.
- Use the INFO-line /REP or /SAVE commands to save the cursor in a particular position on the screen.

  The default cursor position is the first position of the INFO-line. To save the cursor in another position, type the /SAVE or /REP command on the INFO-line, move the cursor to the desired position, then press **Enter** to save or replace the screen space. The cursor appears in that position whenever OMEGAMON for IMS invokes the screen.
- You can use a standard text editor to create or alter screen spaces. When you use a text editor to view or edit a screen, keep in mind the following point:
  - You can add or change the cursor position in a saved screen by adding or changing CURS=(*n*,*m*).
- You can use variables as arguments for commands. Use the .VAR immediate command to set variable symbols for use in designing screen spaces. You can define variables at OMEGAMON for IMS startup or at any other time during your session. For more information about using variables, see "Setting and using variables" on page 26.

The following figure shows an example of a user-defined screen space named SAMPLE. When SAMPLE is invoked, OMEGAMON for IMS runs the ISYS immediate command, followed by MSYS, LXIMS, and CONF.

```
 _________________ SAMPLE   VTM     OI-II    V530./C I91C 03/25/15  9:16:32    B
>=================  DISPLAY GENERAL IMS INFORMATION  ==========================
>
 ISYS
>
>=================  DISPLAY OVERVIEW MVS INFORMATION ==========================
>
 MSYS
>
>=================  DISPLAY EXCEPTIONAL CONDITIONS ============================
>
LXIMS
>
>=================  DISPLAY RESOURCE CONFLICTS  ===============================
>
 CONF
>
```

Figure 10. Typical user-created screen space

Loading screen spaces

The LSCR immediate command loads screen spaces from disk storage to main storage.

By placing screen spaces in main storage using LSCR, you make them more available and more easily fetched. If a disk is not available, you can continue to invoke the screen spaces that you loaded into main storage.

The LSCR immediate command has the following format:

```
LSCR cccccccc cccccccc . . . cccccccc
```

where cccccccc is a screen space name. You can specify one or more blank-separated screen space names, as can fit on the input line. In the following example, OMEGAMON for IMS is instructed to load screen spaces ZZ1, ZZ2, and ZZ3 from disk to main storage.

```
LSCR ZZ1 ZZ2 ZZ3
```

Listing screen spaces

The SCRN immediate command lists screen spaces in main storage and in the disk data sets pointed to by the RKOIPCSV and RKOIPROC DD statements.

You can use arguments to limit the list to just screens in main storage or to just screens on disk. You can also limit the list to a range of screen space names, or use a wildcard character to list just screen spaces whose names begin with specific characters. See the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for details about the SCRN immediate command.

The following figure shows a typical default screen space listing. OMEGAMON for IMS organizes the list by data set, with in-storage screens first, followed by RKOIPCSV, then each data set in the RKOIPROC concatenation.

```
>SCRNB  $         thru  99999999
>  In-storage screen facility        5 members      756 bytes used
>      #01      #02      #03      SAMPLE   VSAM
>  RKOIPCSV              TDIMST.I5420SMP.IP10.I91C.RKOIPCSV
>      #01      SAMPLE   VSAM
>  RKOIPROC              TDIMST.I5420SMP.IP10.I91C.RKOIPCSV
>      #01      SAMPLE   VSAM
>  RKOIPROC+01           TDIMST.I5420SMP.IP10.RKOIPROC
>      #01      #02      #03      #04      #05      #06      #07      #08
>      #09      #10      #11      #13      #14      #15      #16      #17
>      #18      #19      #20      #21      #22      #23      A        AD
>      ADA      ADADA    ADADB    ADADC    ADADD    ADADE    ADADF    ADADG
>      ADADH    ADB      ADBDA    ADBDB    ADBDC    ADBDD    ADBDE    ADBDF
>      ADBDG    ADC      ADCDA    ADCDB    ADCDC    ADCDD    B        BD
>      BDA      BDB      BDC      BDD      C        CD       CDA      CDADA
>      CDADB    CDADC    CDADD    CDADE    CDB      CDBDA    CDBDB    CDBDC
>      CDC      CDCDA    CDCDB    CDCDC    CDCDD    CDD      CDDDA    CDDDB
>      CDDDC    CDDDD    CDDDE    CDDDF    CDDDG    CDE      CDEDA    CDEDB
>      CDEDC    CDEDD    CDEDE    CDEDF    CDEDG    CDEDH    CDEDI    CDEDJ
```

Figure 11. Default screen space listing

Renaming a screen space

The RENM immediate command renames a screen space.

By default, RENM renames the screen space in main storage and in the data set pointed to by the RKOIPCSV DD statement. However, you can specify an argument on RENM to restrict the command to rename just the screen space in main storage or to rename just the screen space in the data set. See the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for details about the RENM immediate command.

To rename the SAMPLE screen space to EXAMPLE in both main storage and RKOIPCSV, enter:

```
RENM SAMPLE EXAMPLE
```

The following message appears:

```
 >> Member "SAMPLE " Renamed to "EXAMPLE " both In-storage and in RKOIPCSV
<<
```

The screen space SAMPLE no longer exists; it is now named EXAMPLE in both main storage and the RKOIPCSV data set.

Deleting a screen space

The DELT immediate command deletes a screen space.

By default, DELT deletes the specified screen space from main storage and the data set pointed to by the RKOIPCSV DD statement. However, you can specify an argument on DELT to restrict the command to delete just the screen space in main storage or to delete just the screen space in the data set. See the

IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference for details about the DELT immediate command.

To delete the SAMPLE screen space from both main storage and RKOIPCSV, enter:

```
DELT SAMPLE
```

The following message appears:

```
 >> Member "SAMPLE " deleted both In-storage and from RKOIPCSV
<<
```

Invoking screen spaces automatically

OMEGAMON for IMS provides the capability of chaining together a group of screen spaces, so that a series of screens can execute without operator intervention.

An .SG0 or .FG0 immediate command that is entered in a predefined screen space, fetches the next screen automatically. The .FG0 (fast go) and .SG0 (screen go) commands perform identical functions, but .SG0 displays the screens as they execute, whereas .FG0 bypasses the OMEGAMON for IMS cycle and the terminal display.

The screen space fetch feature is useful when you use the OMEGAMON for IMS Automatic Screen Facility (ASF) or Timed Screen Facility (TSF). You use the ASF to automatically invoke a screen space in reaction to problem conditions that occur in the system. The ASF can invoke predefined screen spaces with commands that investigate the problem condition in detail and then log the output. By using the TSF, you can schedule monitoring of tasks to run at certain times of the day or at regular intervals.

See the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for an explanation of how to set up the ASF and the TSF.

Conditional screen space fetching

The .FG0 and .SG0 immediate commands give you the flexibility of conditional screen space fetching.

You can enter an argument, which might include relational operators, to fetch a screen space only if certain conditions are true. Use relational operators to compare the CPU serial number, the mode of operation, the operating system level, the profile in use, the SMF ID, the OMEGAMON for IMS console address, or any variable that you set with the .VAR command. For example, to specify that you want to fetch screen space SAMPLE only if you are running in an ESA 3.1 environment, enter:

```
.SGO SAMPLE OPSYS=310
```

See “Setting and using variables” on page 26 for more information about conditional settings.

Delayed screen space fetching

The *n*.SG0 immediate command delays the fetching of a screen space for the specified number of OMEGAMON for IMS cycles.

You might want to use *n*.SG0 to accommodate commands that take more than one OMEGAMON for IMS cycle to initialize (gather data). You might also want to use *n*.SG0 to log several successive executions of a screen space before moving on to the next screen space. The label in front of .SG0 specifies the delay.

```
n.SGO screenname
```

where *n* can be a number that represents a delay of 1-9 cycles or a letter from A-Z representing a delay of 10-35 cycles.

Looping screen spaces

To protect against the possibility of a looping condition due to an improper sequence of .FGO screens, OMEGAMON for IMS limits the number of consecutive fetches that are allowed.

By default, OMEGAMON for IMS limits the number of consecutive .FGO screens to 64. After OMEGAMON for IMS reaches the limit, it treats subsequent .FGO commands as if they are .SGO commands so that executing screen spaces display on each cycle. Once .FGO screen spaces cause a loop, you must correct the condition and re-enable .FGO.

To re-enable .FGO, use the FGOLOOP keyword of the .SET command. The FGOLOOP keyword is set to OFF until the limit of consecutive fetches is reached. When the limit is reached, OMEGAMON for IMS sets FGOLOOP to ON, indicating the probability of a loop. To reset .FGO, issue the .SET command and replace the ON argument with OFF.

Testing .FGO routines

Because FGOLOOP=ON causes .FGO *not* to bypass the OMEGAMON for IMS cycle and the terminal display, you might want to turn it on yourself to test your screen space fetch routines.

Manipulating the log within screen spaces

Use the PUSH and POP arguments on the .LOG immediate command to selectively log screen spaces.

You specify .LOGPUSH and .LOGPOP in screen spaces so that you can change the ON or OFF status of the log when you branch to other screen spaces, and return the log to its original state when the screen routines complete. Use .LOGPUSH to save the state of the log. Use .LOGPOP to restore the state of the log to what was in effect when the last .LOGPUSH ran.

For example, if you have a series of four screen spaces chained together with .FGO and you want to log only the last two, you can use .LOGPUSH and .LOGPOP in the following manner:

1. At the end of screen space 2, enter .LOGPUSH to have OMEGAMON for IMS record the previous status of the log.
2. Enter OPTN LOG=ON to turn on the log at the beginning of screen space 3.
3. Enter .LOGPOP at the end of screen space 4. This causes the log to be restored to its original status when your branching routine completes.

The .LOGPUSH and .LOGPOP functions are performed automatically when you log screen spaces by using the Exception Logging Facility (XLF), the Automatic Screen Facility (ASF), or the Timed Screen Facility (TSF).

Chapter 4. Advanced commands and features

OMEGAMON for IMS also provides advanced operational features, including variable substitution and zooming, that you can use when you customize your sessions.

The following topics describe these advanced features.

Rate and difference command arguments

For minor commands that normally display numeric values, you can use arguments to change the output to a rate or to a difference between OMEGAMON for IMS intervals.

You enter rate or difference arguments in columns 6 and 7 after the command. The rate and difference command arguments are:

.S or .R
Displays the output as a rate per second.

.M
Displays the output as a rate per minute.

.H
Displays the output as a rate per hour.

.D
Displays the output as a difference between the two most recent values of the parameter (that is, between OMEGAMON for IMS cycles).

In the following example, the RGNA major command selects all regions for display, and the JPUI minor command displays the number of private area page-ins. When the .R argument is entered after the JPUI command, OMEGAMON for IMS displays a rate of .4 page-ins per second for the region BMPRGN06.

```
RGNA  BMPRGN01 BMPRGN02 BMPRGN03 BMPRGN04 BMPRGN05 BMPRGN06 BMPRGN07
jpui       921      134      258      179       69     1074       50
jpui.R                                                  .4
```

Figure 12. .R argument

To calculate a rate or difference, OMEGAMON for IMS requires data from two cycles. On the first cycle (the initialization cycle), a row of eight periods (. . . . . .) displays. The rate appears on the next cycle. The rate and difference arguments are not effective in the following cases:

- If a major command selects different items from cycle to cycle. For example, the DSKB major command might select different busy disks at each screen update. When a rate argument is used with a minor of DSKB, the periods might display after each update, indicating that OMEGAMON for IMS is initializing each time.
- If a command displays a value that is reset to zero by the system between OMEGAMON for IMS intervals.

For commands that normally display time values (for example, CPU time), any rate that is calculated represents a scaled percentage of utilization (expressed as a decimal value), where the real time of the interval equals 100%.

Setting and using variables

You can use OMEGAMON for IMS predefined variables and your own variables in your OMEGAMON for IMS screen spaces.

By using variables, you can exploit the powers of various other OMEGAMON for IMS features. For example:

- Build generic screen spaces that pick up values and analyze any number of like items, such as devices. The OMEGAMON for IMS zooming feature uses this capability.
- Set up conditional branches to other screen spaces (using `.FG0`) based on relationships of variable values.
- Pick up values in screen spaces designed for OMEGAMON for IMS automating and logging features: exception logging facility (XLF), automatic screen facility (ASF), and timed screen facility (TSF).

You can use variables in several ways.

- You can define your own variables using the `.VAR` immediate command. For example:

```
.VAR SET &NXTSCRN MONITOR
.VAR SET &DEVICE 123
```

- You can use `.VAR` with relational operators to set a variable equal to a value under the condition specified. For example, you can specify that a variable is resolved only if a device address is greater than 150.
- You can use variables that are internally defined by OMEGAMON for IMS at initialization. They are:
  - &ZFRSTSS - first screen space name
  - Zoom command variables (see /ZOOM in the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference*)
  - Exception variables (*cccc* is the exception name):

    &ZX*cccc*T
    Threshold value

    &ZX*cccc*V
    Last trip value

    &ZX*cccc*W
    Worst trip valu
- You can use the following keywords for conditional setting of variables. Their values are initialized by OMEGAMON for IMS.

  CPSER
  The CPU serial number.

  DIR
  The ID assigned to the director in cross system mode.

  MODE
  The mode of operation for OMEGAMON for IMS.

  OPSYS
  The operating system level.

  PREFIX
  The OMEGAMON for IMS product code.

  IMSID
  The system ID from the SYS= startup parameter.

  UNIT
  The device number from the UNIT= startup parameter.

  USER
  The profile suffix from the USER= startup parameter.

&var
A variable. Allows you to set any comparison you want.

For example, to pass values to screen spaces with .SG0, enter the following commands:

```
.VAR SET &NXTSCRN MONITOR
.VAR SET &DEVICE 123
```

This sets values for NXTSCRN and DEVICE. You can now use those variables in a screen space:

```
DEV &DEVICE
DIO
.SGO &NXTSCRN
```

OMEGAMON for IMS interprets the screen space entries as if you entered the following:

```
DEV 123
DIO
.SGO MONITOR
```

You can also set variables conditionally. In the following example, the variable *SYSTEM* is set to A if the variable *SWITCH* is set to YES; *SYSTEM* is set to B if *SWITCH* is set to NO; and *SYSTEM* is set to C if *SWITCH* is set to MAYBE.

```
C.VAR SET &SYSTEM A &SWITCH=YES
C.VAR SET &SYSTEM B &SWITCH=NO
C.VAR SET &SYSTEM C &SWITCH=MAYBE
```

In the following example, the variable *TOKEN* is set to IMS only if the product prefix is OI:

```
C.VAR SET &TOKEN IMS PREFIX=OI
```

The zooming feature

The OMEGAMON for IMS zooming feature simplifies the investigation of system conditions by supplying a detailed level of information at the touch of the Zoom key.

The zooming feature uses the /ZOOM Info-line command which substitutes the value at the cursor position for a variable that is contained in a predefined screen space. In OMEGAMON for IMS, /ZOOM is assigned to the **PF11** key allowing you to position your cursor, then press **PF11** to zoom to additional details.

You can use zooming to perform the same operation on a series of items. By using the cursor as a pointer and pressing the Zoom key, you can get a detailed analysis of any device, volume serial number, or address space.

The OMEGAMON for IMS menu system uses the zooming feature extensively. For example, when you are looking at a display of databases, you can place your cursor on a database name and press **PF11**. OMEGAMON for IMS zooms to a panel that gives detailed information about that database.

In the menu system, when there are fields on a display that respond to the Zoom key, such as exception names or device names, **Zoom PF11** is shown after the INFO-line as shown in the following example.

```
_________________  KOISYS  VTM     OI-II    V530./C I91C 03/25/15  9:16:32    B
> Help PF1          Back PF3          Up PF7          Down PF8        Zoom PF11
================================================================================
```

Figure 13. Zoom PF11

You can use zooming in the command interface by setting up customized investigative screen spaces and zooming on command or exception names. For example, a systems programmer might want to set up a screen space to monitor an intermittent performance problem. The screen space can include commands that give specific information about the problem area, in addition to a command to turn on the log. When

the problem recurs, an operator can zoom to the screen space. OMEGAMON for IMS executes the screen and logs the information for the programmer to examine later.

For more information about the zooming feature, see the /ZOOM INFO-line command in the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference*.

Consider the following guidelines when you set up screen spaces for use with the /ZOOM command.

- The screen space name must start with a four-character prefix that begins with an alpha or national character (@ZOM is the default) and is followed by the command or exception name (@ZOM*cccc*).
- When you create your own zooming screen spaces, you can name them with your own prefix (*aaaa*) instead of @ZOM. To invoke a zooming screen space that has your *aaaa* prefix, use one of the following methods:
  - Type /ZOOM *aaaa* on the INFO-line, move the cursor to the data, and press **ENTER**.
  - Type *aaaa* on the INFO-line, move the cursor to the data, and press the **Zoom** key.
  - Redefine the Zoom key, PF11, or assign another PF key to /ZOOM *aaaa*. Move the cursor to the data, and press the **Zoom** key.

Secondary console control

If you run OMEGAMON for IMS in dedicated mode, you can set up a secondary console for output display only. The secondary console is a *repeater console*; it echoes everything that appears on the primary console, but accepts no input of any kind.

To use a secondary console, first define the unit, and then open it up for OMEGAMON for IMS output display. To define the console, enter the .CNxxx immediate command, where xxx is the hexadecimal address of the secondary console. Then, enter .CN OP to open the console for OMEGAMON for IMS output display. The secondary console, like the dedicated console, must be a non-SNA local device.

To close a secondary console, enter the .CN CL command. You can also enter the .CN SW command to switch the primary and secondary console functions.

Chapter 5. Operating from the menu and command interface

You can log on to the OMEGAMON for IMS menu and command interface directly in VTAM, ISPF, TSO, and dedicated mode.

From the menu and command interface, you can monitor IMS systems and manage problems by running tasks to:

- Start exception analysis
- View exception analysis summary information
- Respond to exception messages
- Control and customize exceptions
- Perform message exception analysis

Logging on to the menu and command interface directly

If you log on to the OMEGAMON for IMS menu and command interface directly, you can do so in several different modes of operation. These include VTAM, ISPF, TSO, and dedicated modes.

Each of these modes and their advantages are described as follows. For information about how to install and start OMEGAMON in each mode, see the *IBM OMEGAMON for IMS on z/OS: Planning and Configuration Guide*.

VTAM mode

In VTAM mode, OMEGAMON for IMS is connected directly to VTAM terminals, without the intervention of an intermediate online application such as TSO. VTAM mode allows up to 99 persons to operate OMEGAMON for IMS, each from an individual terminal, without requiring access to TSO.

In VTAM mode, you can set OMEGAMON for IMS so that the screen refreshes automatically as in dedicated mode, but also responds immediately when you press **Enter** or any other program function key, as in TSO mode. This mode also assures the availability of OMEGAMON for IMS if TSO is experiencing problems or is inoperable.

ISPF mode

In ISPF mode, users use ISPF to communicate with OMEGAMON for IMS through TSO. In this mode, the screen does not refresh automatically. It refreshes when you press **Enter** or any other program function key.

OMEGAMON for IMS can run in ISPF split screen mode. ISPF split screen mode supports your swapping back and forth between multiple OMEGAMON for IMS sessions or between OMEGAMON for IMS and another ISPF application.

TSO mode

In TSO mode, OMEGAMON for IMS communicates with the TSO address space via VTM1, an IBM-supplied VTAM application. TSO mode allows up to 99 persons to operate OMEGAMON for IMS, each from an individual terminal. Because TSO use is widespread, this mode can provide many users with convenient access to OMEGAMON for IMS. In TSO mode, the OMEGAMON for IMS screen does not refresh automatically. It refreshes when you press **Enter** or any program function key.

Dedicated mode

In dedicated mode, OMEGAMON for IMS is connected to one or optionally two dedicated consoles, each of which is a local non-SNA device. Dedicated mode offers the highest OMEGAMON for IMS availability because it is least affected by system problems such as a VTAM outage. In dedicated mode, OMEGAMON for IMS uses no telecommunications access methods; it communicates with the terminal via EXCP. By operating this way, OMEGAMON for IMS can report hardware and software problems, even if VTAM is not available or the MTO console is disabled.

In dedicated mode, OMEGAMON for IMS refreshes the screen automatically every 5 seconds without operator intervention. The default five-second interval can be changed to suit your reporting requirements. See the *IBM OMEGAMON for IMS on z/OS: Planning and Configuration Guide* for more information about customizing this interval.

Specifying a user profile in ISPF, VTAM, or TSO mode

By default, your OMEGAMON for IMS session uses the profile specified on the USER= parameter in your startup JCL or CLIST. However, you can override the default.

To override the default, enter the two-character suffix that you assigned to your profile as follows:

- In ISPF mode, on the USER SUFFIX option of the ISPF logon menu.
- In VTAM mode, on the USER= startup parameter.

  Use the following format to start OMEGAMON for IMS and specify the USER parameter:

  ```
  LOGON APPLID(applid) DATA(USER='cc')
  ```

- In TSO mode, on the USER parameter in the CLIST.

After the OMEGAMON for IMS session starts, the suffix of the current session profile displays on the INFO-line next to the product version number. The following example of the INFO-line shows that a profile named SW is in use.

```
_____________ KOIMENU  VTM     OI-II    V530.SW I91C 03/25/15  9:34:13    B
```

Figure 14. Profile SW in use

Working with exceptions

An *exception* is an unusual condition or situation that might affect system availability or performance. Exception analysis is a key factor in the logical tuning approach. It helps you determine the problems in the system.

OMEGAMON for IMS includes defaults for each exception. However, because each IMS environment is different, you might want to adjust some exceptions to meet the needs of your site.

The various factors of exception analysis are described in the following topics.

- "Exceeding exception thresholds" on page 31
- "Responding to exception messages" on page 31
- "Starting exception analysis" on page 32
- "Exception analysis summary commands" on page 33
- "Controlling and customizing exception analysis" on page 34
- "Exception analysis for IMS messages" on page 37

Exceeding exception thresholds

Exception analysis alerts you to system problems, by producing messages on your terminal whenever exceptions to normal system performance occur.

Your site defines normal system performance in the form of exception thresholds. Exception analysis compares IMS operating statistics to the exception values in your current profile and automatically warns you when threshold limits are exceeded or when unexpected problem conditions occur. The following figure shows an example of an exception analysis display.

```
 _________________ KOIMENU  VTM     OI-II    V530./C I91C 03/25/15  9:36:27    B
> Help PF1       Back PF3       Up PF7        Down PF8        Zoom PF11
>
> For an explanation of an exception, place the cursor on the exception
> name and press PF11.

================================================================================
>                            Systemwide Exceptions

LXIMS       OMEGAMON/IMS Exception Analysis
+ DISP ########################################################################
+      #   OMEGAMON/IMS's dispatching priority is lower than IMS's            #
+      ########################################################################
+ BQHI Fast Path available buffers for new PST use =   40 (High)
+ DLTR DL/I Trace ON
+ DSTR DISPATCHER Trace ON
+ LKTR LOCK Trace ON
+ ICHI Control Region: I/O Rate = 4.44/second  (High)
================================================================================
```

Figure 15. Systemwide exceptions display

Responding to exception messages

An exception trips when the performance value it monitors exceeds the threshold you set or an incident occurs. Tripped exceptions indicate warning or critical conditions. When an exception trips, you decide whether to change the exception threshold, gather more information to help you interpret the exception message, or take immediate action.

Setting exception thresholds

OMEGAMON for IMS includes a default set of threshold values that you can use immediately. However, you can also set new threshold values to conform to your installation performance standards. Because exception conditions vary in each site, you need to customize OMEGAMON for IMS to define which exceptions should execute and to set valid thresholds. Determining your exception thresholds is a continuing process. You need to establish system parameters for:

- Environment (CPU, I/O, working set size)
- Storage utilization (storage availability, violations)
- Task activity (response time, limit situations)

Your parameters should be defined so that an exception message is generated only when a value indicates that a condition reached a critical level and action is needed. If you set exception criteria improperly, operators might spend too much time reacting to exceptions that do not represent real problems.

When deciding on appropriate thresholds for your site, you might want to check some current system values to determine what a normal value is for your system, and then set the threshold appropriately. You can test an exception through the selections on the **Profile Menu** (Option **P** on the **Main Menu**).

Investigating an exception

You can use the following features to help you investigate exception conditions.

- By using the zooming feature, you can investigate an exception condition with the touch of a key. You can place your cursor on an exception and press **PF11** to zoom to a Help panel that contains recommended actions for the exception. You can also place your cursor on fields in a display such as volume serial numbers, device names, and address space names and press **PF11** to zoom to greater detail.
- The Automatic Screen Facility (ASF) automatically reacts when an exception trips by invoking user-specified screen spaces and logging the command output, all without operator intervention.
- The Exception Logging Facility (XLF) automatically turns on the log to capture detailed information about performance exceptions when they occur. You can use this feature to ensure documentation and subsequent correction of intermittent performance problems.
- OMEGAMON for IMS supplies a number of display panels that analyze various areas, such as IMS regions, device statistics, and memory utilization. These display panels are accessed through a set of menus.

See the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for a detailed explanation of ASF and XLF.

Starting exception analysis

You can start exception analysis for all exceptions or for a limited group of exceptions.

All exceptions

To start exception analysis:

1. Select option **E** from the Main menu.
2. From the Exceptions menu, select option **A** to start group exception analysis or option **B** to display systemwide exceptions. When exception analysis is running, a warning message appears whenever an exception condition occurs.

   When no exception conditions exist in your system, OMEGAMON for IMS displays the following message:

   ```
   No exceptions tripped this cycle
   ```

3. You can customize this message on the Set All Clear Message panel. Type P.F.A on the INFO-line and press **Enter**.

   OMEGAMON for IMS displays the **Set All Clear Message** panel that is shown in the following figure.

```
 _________________ KOIMENU  VTM     OI-II    V530./C I91C 03/25/15  9:37:15    B
> Help PF1       Back PF3        Up PF7        Down PF8       Save Profile PF22
================================================================================
>                          Set All Clear Message

>  The display below shows the current message that appears when exception
>  analysis detects no components above their exception threshold. To change
>  the message, type a new one of up to 60 characters enclosed in quotes after
>  XTXT.  To make the change permanent, be sure to save the profile.

 XTXT
+      '==> *** NO EXCEPTIONS TRIPPED ON THIS CYCLE *** >==         '

================================================================================
```

*Figure 16. **Set All Clear Message** screen*

Exceptions by groups

OMEGAMON for IMS organizes exceptions into logically related types, which you can use to execute, display, and customize as a group. To display exception groups, you can select an option on the Exceptions menu. For example, the Master Terminal Operator Exceptions panel displays the exceptions that are related to IMS internals, and those exceptions that are related to DASD logging (DL group).

You can see a list of the existing exception groups at your site. From command mode (press **PF12** to toggle to command mode from menu mode), type GDFN with no arguments. You can also use OMEGAMON for IMS to define your own exception groups with GDFN.

Exception analysis summary commands

You can display exception analysis summary information by using the XSUM or XTRP commands or by using the **History of All Tripped Exceptions** panel.

You can use this information to help you set appropriate threshold values. For example, if an exception frequently trips, the threshold value might be set too low. After you fine-tune the threshold value for each exception, you can use this information to accurately monitor your IMS system for performance problem areas.

The summary display shows whether the exceptions are on or off, the threshold settings, the Automatic Screen Facility (ASF) parameters, and trip times and values. To display the **History of All Tripped Exceptions** panel, type E.D on the INFO-line of any panel and press **Enter**. The following figure shows a partial display of the **History of All Tripped Exceptions** panel.

```
 _________________ KOIHIST  VTM     OI-II    V530./C I91C 03/25/15  9:38:21    B
> Help PF1       Back PF3        Up PF7        Down PF8        Zoom PF11
>
> To have the Exception History update, remove the > preceding the XIMS
> command.  The XIMS command must be executed to drive exception analysis.
> Exception analysis must be performed to create a history of tripped
> exceptions.  For an explanation of an exception, place the cursor on the
> exception name and press PF11.
>
================================================================================
>                      History of All Tripped Exceptions

>XIMS
 XTRP                        LIST=A
+----------+----------+-----------+--------------+-----------+----------------+
+ DISP      Threshold  Trip Value  Time Occurred  Total Trips Trips Since Reset
+ State=On
+ Last                             03/25   08:40:11          5                5
+ Worst                            03/25   08:40:11
+ Group=ST  Limit=0  Persist=0  Auto=Off Log=Off
+----------+----------+-----------+--------------+-----------+----------------+
+ DLTR      Threshold  Trip Value  Time Occurred  Total Trips Trips Since Reset
+ State=On
+ Last                             03/25   08:40:11          5                5
+ Worst                            03/25   08:40:11
+ Group=ST  Limit=0  Persist=0  Auto=Off Log=Off
+----------+----------+-----------+--------------+-----------+----------------+
```

*Figure 17. **History of All Tripped Exceptions***

The Total Trips column shows the number of times that the exception tripped since the OMEGAMON for IMS session started. The exceptions are displayed in alphabetical order.

The displays for the XTRP and XSUM commands are similar; however, XSUM displays information for all exceptions, whereas XTRP displays information only for tripped exceptions. If you use the XSUM or XTRP commands to display the summary information, the following keywords are available:

GROUP=*cc*
: You can limit the exceptions that are displayed to a specified exception group. Enter any two-character code for an IBM-supplied exception group or a user-defined group.

LIST=I
: List exceptions in order of invocation. If you omit the LIST keyword, or specify LIST=A, the exceptions are listed in alphabetical order.

RESET
: Enter RESET to reset the last and worst trip values to 0. By resetting these values, you can change the default thresholds to ones that meet your installation performance standards. Resetting the values can also be helpful when you want statistics on a specific job, or if you want to track exception activity in addition to cumulative activity.

Note: The XTRP command generates the summary display. The XSUM command displays all exceptions that are set, whether they trigger or not. You can include the XSUM RESET or XTRP RESET command in a Timed Screen Facility (TSF) screen space for automatic resetting at periodic intervals. Resetting either XSUM or XTRP resets the counters for both commands.

For more information about XSUM, XTRP, and the TSF, see the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference*.

Controlling and customizing exception analysis

Although customizing exception analysis is generally part of the installation process, OMEGAMON for IMS allows individual users to customize their sessions and save the settings in profiles for later recall.

You can customize exception analysis in the following ways:

- Group definition
- Exception group switches
- Exception control
- Invocation order

You can save the settings that you define in a user profile. New group settings are not saved in the user profile. To reuse those settings in future OMEGAMON for IMS sessions, save them in a screen space and invoke the screen space at the start of your session.

Defining group exceptions

You can define your own exception groups by using the GDFN command. You might want to supplement or change the default groupings to organize exceptions in groups that are related to your application. You can also group highly critical exceptions that have a potentially severe impact on the system.

Some advantages of defining exception groups are:

- Related or critical exception messages appear when you invoke exception analysis by group. They are more visible because they are shown at the beginning of the display.
- A summary of the last and worst occurrences of exception warnings by group displays on the **History of all Tripped Exceptions** panel.
- You can set group switches by using the XGSW command to determine the invocation state of the exception group as a whole. To display the existing groups, enter XGSW.

See the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for more information about the GDFN and XGSW commands.

Setting group switches

You can control the state of all exceptions within a specified group by using the XGSW command. For example, you can turn all exceptions in a group on or off at once, force a sample warning message for each exception in a group for testing purposes, or suppress the display of messages for a group even though the exception switch is on. The latter option is useful for the Exception Logging Facility (XLF) and Automatic Screen Facility (ASF).

The group switch overrides individual exception settings (unless you define a null state for the group).

You can list the existing groups or change them. To change the status of a group, add the keywords on the XGSW command.

The following example of XGSW specifies that the IM group of exceptions is on and can be logged, but does not display on the terminal.

```
XGSW GROUP=IM STATE=NDSP
```

See the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for more information about the XGSW command.

Controlling individual exceptions

OMEGAMON for IMS provides a set of panels from which you can view the current characteristics of an exception or change the characteristics of an exception. On these panels, you can dynamically change the settings of each keyword in the display by typing over the displayed value and pressing **Enter**. You can access these panels from the Profile menu (option **P** on the Main menu). Any new definitions that you create can be saved in a user profile for future OMEGAMON for IMS sessions.

Some of the options on this panel focus attention on an exception message. For example, you can cause the terminal bell to ring, control the color in which a warning displays, and assign display attributes that highlight the message. The following figure shows an example of the **Set Communications External Subsystem Pool Exceptions** panel that shows the current characteristics for the ACEA exception (option **P.A.A**).

```
 _______________ KOIODFB  VTM     OI-II    V530./C I91C 03/25/15  9:42:00    B
> Help PF1       Back PF3        Up PF7        Down PF8       Save Profile PF22
================================================================================
>            Set Communications External Subsystem Pool Exceptions

> To display the threshold of an exception, remove the > preceding XACB,
> and type the exception name following LIST=.

> To change the setting for an exception, type over the current setting
> and press ENTER. To make your changes permanent, you must SAVE your
> OMEGAMON profile.

>XACB LIST=cccc

> The CESS exceptions is:

>          ACEA  Utilization > n%.
================================================================================
```

*Figure 18. **Set Communications External Subsystem Pool Exceptions** panel*

Use the panel to specify five types of parameters for each exception.

Display
Specifies display characteristics for the exception, such as the two-character group name that identifies the type of exception, whether the exception is ON or OFF, and whether to activate an audible alarm when the exception trips.

Box
Specifies whether you want the warnings for this exception to be enclosed in a box. If not, specify NOBOX. Otherwise, you can specify the characteristics for the box, including the box color, intensity, and attributes such as blinking, reverse video, and underlining.

Threshold
Sets the exception threshold, typically numeric. You can also set display color and attributes for the exception message if you do not request a boxed message.

Cycle
Limits OMEGAMON for IMS exception checking, which restricts the use of CPU time to test high overhead exceptions.

The EXNCYC keyword sets the frequency for checking exceptions. For example, you can choose to have OMEGAMON for IMS check for a particular exception condition only every 5 or 10 cycles. See the .NXE immediate command in the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for information about controlling the frequency of display.

The STOP keyword stops the checking of exceptions after they trigger the specified number of times. It also displays how many times an exception triggered since STOP= was reset.

The CUMULATIVE keyword is informational, indicating how many times an exception triggered during the session.

XLF
For a description of the XLF parameters, see the exception logging facility in the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference*.

The following keywords can be used with the XACB command shown in Figure 18 on page 35.

LIST=
Allows you to list the exceptions to display or modify.

GROUP=
Allows you to limit the list of exceptions to those exceptions in the specified exception group.

FORCE
Displays the current value of the exception as a sample exception message.

TERSE
Displays an abbreviated, single-line status for each defined exception, showing the threshold value, display color, exception state, and the state of the bell.

The following example shows output from XACB commands that use the TERSE keyword.

```
 _________________ KOIODFB  VTM     OI-II    V530./C I91C 03/25/15  9:43:18    B
> Help PF1       Back PF3        Up PF7        Down PF8       Save Profile PF22
================================================================================
            Set Communications External Subsystem Pool Exceptions

> To display the threshold of an exception, remove the > preceding XACB,
> and type the exception name following LIST=.

> To change the setting for an exception, type over the current setting
> and press ENTER. To make your changes permanent, you must SAVE your
> OMEGAMON profile.

 XACB LIST=ACEA TERSE
: ACEA          Threshold=60       Display=DEFAULT   State=ON    Bell=OFF

 The CESS exceptions are:

>          ACEA  Utilization > n%.
================================================================================

 XACB TERSE
: DNRS Threshold=N/A  Display=Red   State=ON     Bell=ON
: TNRS Threshold=N/A  Display=Blue  State=TEST   Bell=OFF
: WSHI Threshold=2500 Display=Pink  State=ON     Bell=OFF
: WSLO Threshold=300  Display=Blue  State=NDSP   Bell=OFF
```

Figure 19. TERSE keyword display

Reordering the display

You can display a list of the exceptions and the order in which OMEGAMON for IMS executes and displays them by using the LEXC command. The following figure shows a partial display of the exceptions in the OMEGAMON for IMS default order:

```
 _________________ KOIMENU  VTM     OI-II    V530./C I91C 03/25/15  9:44:43    B
 LEXC
:      INAC =  1   TCOI =  2   TCOT =  3   DISP =  4   DNRS =  5   TNRS =  6
:      DRDY =  7   TRDY =  8   IORC =  9   SPAH = 10   QBKH = 11   SMGH = 12
:      LMGH = 13   RDSH = 14   MFSH = 15   TMFH = 16   ACBH = 17   OSBL = 18
:      SAPW = 19   ITWH = 20   COMW = 21   SDSP = 22   CROL = 23   ARSP = 24
            .           .           .           .           .           .
            .           .           .           .           .           .
            .           .           .           .           .           .
```

Figure 20. Exception order displayed by the LEXC command

To dynamically change the order of the exceptions, type over an exception name or its number. You can save the new definition in your user profile.

Exception analysis for IMS messages

Message exception analysis is an OMEGAMON for IMS facility that you can use to capture your IMS messages as exceptions.

Message exception analysis is activated from any OMEGAMON for IMS terminal with the ICNS command. To ensure that message exception analysis is activated, define the ICNS command in an initialization panel that is invoked at OMEGAMON for IMS session initialization. For more information, see Chapter 3, "Screen spaces," on page 19, the ICNS and OPTN commands in the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference*, and the *IBM OMEGAMON for IMS on z/OS: Planning and Configuration Guide*.

Listing, defining, and deleting messages with menus

OMEGAMON for IMS includes a group of predefined IMS messages. To view or modify this list through the menu system, follow these steps.

1. From the **Main** menu, select option **P, Profile**.

   The **Profile** menu displays.

2. Select option **F, Messages**, from the **Profile** menu.

   You see the **Set Exception Messages** menu.

3. Select option **B, Messages**.

   You see the **SPECIFY EXCEPTION MESSAGES** panel, which displays a list of IMS/MTO messages that are currently defined as shown in the following example.

```
 _________________ KOIMSGD  VTM     OI-II    V530./C I91C 03/25/15  9:46:59    B
> Help PF1        Back PF3        Up PF7        Down PF8       Save Profile PF22
>
================================================================================
>                           SPECIFY EXCEPTION MESSAGES
> This is a list of all currently defined IMS/MTO messages (such as DFSnnn or
> ICEnnn) that display under Exception Analysis.

 MSGD
+ M001  DFS144    OPTION = BUFSHOW
+ M002  DFS236    OPTION = BUFSHOW
+ M003  DFS243    OPTION = BUFFER
    .      .         .          .
    .      .         .          .
    .      .         .          .

+ M024  DFS2179   OPTION = BUFSHOW
+ M025  DFS2473   OPTION = BUFSHOW
+ M026  DFS2474   OPTION = BUFSHOW

> To add an IMS message, remove the > before MSGD below, and enter the specific
> DFS message number.

>MSGD ADD DFSnnn

> To add an MVS message generated by an IMS region, remove the > before MSGD
> below and enter the specific message number.

>MSGD ADD ICEnnn

> To delete an existing IMS/MTO message, remove the > before MSGD below, and
> enter the specific DFS or MVS message number.

> MSGD DELETE DFSnnn
================================================================================
```

Figure 21. Display of predefined IMS/MTO messages

4. Follow the instructions on the panel to define or delete messages.

Defining message exception display characteristics

To define the display characteristics of each message exception, complete the following steps:

1. First, define the messages for message exception analysis on the **SPECIFY EXCEPTION MESSAGES** panel (option **P.F.B** from the **Main** menu).
2. Next, enter the XACB command with the name of the message exception whose display characteristics you want to change. For example, enter:

   ```
   XACB LIST=M001
   ```

   Sample output is shown in the following figure.

```
 XACB LIST=M001
: M001
+      DISPLAY Parameters:   THRESHOLD Parameters:   XLF Parameters:
:        State=ON             Threshold=N/A          Auto=OFF
:        Group=IM             Display=DEFAULT        Log=OFF
:        Bell=OFF             Attribute=NONE         Limit=0 (0)
:      BOX Parameters:       CYCLE Parameters:       Repeat=NO
:        Boxchar=NO BOX       ExNcyc=0               Persist=0
:        Boxclr=NONE          Stop=0 (0)             SS=
:        Boxattr=NONE         Cumulative=0
```

   Figure 22. Defining message exception display characteristics
3. Type over the setting for the display characteristic that you want to change. For example, if you want the terminal bell to ring when this exception trips, type ON after the BELL= parameter for an audible signal.
4. To retain your changes after the current session, save them in a user profile. Use that profile for subsequent OMEGAMON for IMS sessions.

Chapter 6. Customization procedures for the Realtime Monitor

After you use PARMGEN to configure OMEGAMON for IMS, there are features that you might want to customize for the Realtime Monitor.

Profiles

Profiles control the characteristics of an active OMEGAMON for IMS session. Both the installer and the general user community can create and save customized profiles.

Users can configure profile options according to their needs. Profile options include all thresholds that you can define in the system and the start-up profile.

Types of profiles

There are three types of OMEGAMON for IMS profiles.

IBM-supplied
This profile contains session configuration defaults and default exception analysis thresholds.

With this profile, you can easily install OMEGAMON for IMS without customization and you can always initialize an OMEGAMON for IMS session even if there are no other profiles defined.

The IBM-supplied profile is always available. You cannot change this profile.

Installation-defined
This profile allows the installer to define default settings for your installation that are different from the IBM-supplied profile settings.

You can specify this customized profile as the default for all OMEGAMON for IMS sessions at your installation.

This profile is optional and can exist independently of the other profiles.

User-defined
This profile allows users to customize their individual OMEGAMON for IMS sessions.

This profile is optional and can exist independently of the other profiles.

Profile suffixes

Every profile has a unique two-character suffix. The suffixes for the three types of OMEGAMON for IMS profiles are as follows.

/C
IBM-supplied profile.

/I
Installation-defined profile.

OMEGAMON for IMS automatically assigns the suffix `/I` when you save an installation profile.

cc
User-defined profile where *cc* is any two alphanumeric characters.

Users specify the suffix for a user-defined profile when they save the profile.

Profile search order

During OMEGAMON for IMS initialization, OMEGAMON for IMS always loads the IBM-supplied profile. It also loads the installation-defined profile and user-defined profiles if they exist.

When you start OMEGAMON for IMS, you can specify which profile you want OMEGAMON for IMS to use. Specify the profile suffix on the USER parameter of your OMEGAMON for IMS startup JCL, CLIST, or VTAM logon data stream, or the USER SUFFIX option on the ISPF logon menu.

OMEGAMON for IMS checks the value on the USER parameter to determine which profile to use for the current session.

Table 5. Profile search order

IF...	**THEN OMEGAMON for IMS uses...**
USER is not specified	the IBM-supplied profile
/C is specified	the IBM-supplied profile
/I is specified	the installation-defined profile If no installation profile is found, OMEGAMON for IMS defaults to /C, the IBM-supplied profile.
A user-defined (*cc*) profile is specified	the user-define profile If OMEGAMON for IMS cannot find the user member, OMEGAMON for IMS defaults to /I, the installation-defined profile. However, if no installation profile is found, OMEGAMON for IMS defaults to /C, the IBM-supplied profile.

The suffix of the profile that is in effect for the session displays on the INFO-line. The following example shows that the installation-defined profile (/I) is in effect.

```
_____________ ZMENU    VTM     OI-II    V530./I IA1W 06/10/15 14:56:25    B
```

Profile data sets

IBM stores the IBM-supplied profile in the OMEGAMON for IMS load library. You cannot change this profile. It is always available.

OMEGAMON for IMS stores the installation-defined profile and user-defined profiles in the profile data set that the RKOIPFSV DD statement references (*rhilev*.*IMSID*.RKOIPFSV).

Create and implement the installation-defined profile

You can change some or all of the IBM-supplied profile defaults to customize OMEGAMON for IMS for your installation.

Customization includes determining, selecting, and saving appropriate options and thresholds to create an installation-defined profile. Customization for an installation-defined profile also includes specifying the profile as the default for your installation.

Users follow the same option and threshold customization methodology to create user-defined profiles.

Step 1: Establish default options

To establish default options for your installation-defined profile, run OMEGAMON for IMS with the IBM-supplied profile to become familiar with basic OMEGAMON for IMS session and exception analysis options. You can then determine what options your installation requires, so that you can create an installation-defined profile.

Step 2: Select session and exception analysis options

Use the OMEGAMON for IMS profile facility to specify the default session and exception analysis options for your installation.

Select the P Profile option from the OMEGAMON for IMS **Main Menu** panel. The **Profile Menu** panel displays.

```
 _______________ KOIOPT   VTM     OI-II    V530./C IA1W 06/17/15 10:37:46    B
> Help PF1      Exit PF3       Save Profile PF22
>               Enter a selection letter on the top line.
================================================================================
>                                 Profile Menu
>                     Exceptions
_ A  POOLS ............... Set pool utilization and fragmentation exceptions
_ B  DATABASE/FAST PATH... Set database, DASD logging, and fast path exceptions
_ C  INTERNALS ........... Set IMS internal, virtual storage and XRF exceptions
_ D  OPERATING SYSTEM .... Set operating system-related exceptions
_ E  VSAM/STATIC ......... Set VSAM, trace, and other static exceptions
_ F  MESSAGES ............ Set exception messages
_ O  OTMA ................ Set OTMA exceptions
>                     Configuration
_ G  CONFIGURE ........... Set default start-up configuration
_ H  SAVE/DELETE ......... Create, delete, save profiles
>                     Quick-set Options
_ I  COLOR ............... Set color mode and colors
_ J  BACKGROUND .......... Set background processing (XLF, ASF, and TSF)
_ K  AUTO ON ............. Set automatic updating ON
_ L  AUTO OFF ............ Set automatic updating OFF
_ M  LOGGING ............. Log on, log off, log out, log options
>                     ATF Options
_ N  APPLICATION TRACE ... Set ATF default options

>
> Changes you make from this menu become permanent when you save your profile.
> Use PF22 to save the profile.
================================================================================
```

*Figure 23. OMEGAMON for IMS **Profile Menu***

You can specify settings through the **Profile Menu** and use them for the current session only, or you can save them in your installation-defined profile or a user-defined profile for subsequent sessions.

You can choose as many or as few of the menu options as you want to customize the profile.

Press **PF1** for online help on each option or consult the *IBM OMEGAMON for IMS on z/OS: Realtime Commands Reference* for details on individual commands.

"Step 3: Set default startup configuration options" on page 41 provides more information about setting configuration and installation options in your profile. For more information about setting the exception options in your profile, refer to "Controlling and customizing exception analysis" on page 34 and "Exception analysis for IMS messages" on page 37.

Step 3: Set default startup configuration options

Select option G Configure from the **Profile Menu** to specify default startup configuration options for OMEGAMON for IMS sessions.

```
 _______________ KOIOPTE  VTM     OI-II    V530./C IA1W 06/17/15 10:59:25    B

> Help PF1                      Back PF3                      Save Profile PF22
>                 Enter a selection letter on the top line.
================================================================================
>                       Set Startup Configuration

_ A  DISPLAY ............... Display options
_ B  CONTROL ............... Control function options
_ C  ROUTING ............... Log sysout class, destination, and printer options
_ D  PLOT .................. IMS plot thresholds

> Most changes you make from this menu path become permanent when you save your
> profile.  Press PF22 to save your profile.

================================================================================
```

The following table summarizes the display, control, and routing options that you access from the **Set Startup Configuration** menu. These options can also be specified by using OMEGAMON for IMS

commands, which are identified in the table. The table also includes color options (option `I` on the **Profile Menu**, then option `D` Set Colors) and the `IOPT` command, which controls installation options that can be saved in the profile.

Table 6. Setting display, control, routing, color, and installation profile options

Command function	Command	Description
Controls session and display options	**OPTN**	Activates and deactivates the: • Automatic screen facility (ASF) • Timed screen facility (TSF) • Exception logging facility (XLF) • Terminal bell • Log Controls display characteristics: • The date (USA or EUROPEAN) • Minor commands (UPPER or LOWER case) • All command output (UPPER or MIXED case) • Scroll amount (PAGE or CSR) • The first screen when you start OMEGAMON for IMS • The interval for the terminal bell **Important:** OMEGAMON for IMS does not save the setting for the ZEROS keyword in a profile.
Sets operational parameters	**.SET**	Sets parameters for: • The screen space fetch feature (**.FGO**) • The interval for OMEGAMON for IMS cycles • The number of entries in the device name table • Guarding against loops that are caused by the **PEEK** command • The automatic updating delay cycle • The size of the REPORT file for logging screens • The size of the work area for the **PEEK** command

Table 6. Setting display, control, routing, color, and installation profile options (continued)		
Command function	**Command**	**Description**
Sets print output options	**OUTP**	The minor command settings that can be saved in a profile are: **COPY** Specifies number of copies to print. **DDNM** Specifies ddname to override standard ddname. **DEST** Specifies the report destination. **DSTU** Specifies the user ID for a report. **FOLD** Specifies whether lowercase is folded to uppercase. **FORM** Specifies the name of the form on which to print. **HOLD** Specifies that OMEGAMON for IMS place the output in the hold queue and retrieve the output from TSO. **ID1** Requests separator pages and page headers that identify output from different OMEGAMON for IMS sessions. **ID2** Defines up to 16 characters on the left side of the separator page. **ID3** Defines up to 16 characters in the center of the separator page. **ID4** Defines up to 16 characters on the right side of the separator page.
Sets color options	**.SCC**	Sets color, highlighting, and extended attribute options for each field on the OMEGAMON for IMS display.
Sets installation profile options	**IOPT**	Controls installation options, such as: • Issuing DASD reserves when OMEGAMON for IMS saves members in *rhilev*.*IMSID*.RKOIPCSV • Whether OMEGAMON for IMS storage is page-fixed in memory

Step 4: Save the installation-defined profile

You can change the setting of any installation-defined profile option at any time during an OMEGAMON for IMS session. OMEGAMON for IMS uses the changed settings during the current session except for the **IOPT** command. You can use the **IOPT** command to effect global installation changes, however, except for the RESERVE parameter, the **IOPT** changes do not take effect until your next session.

To save the changed profile as the installation-defined profile for future sessions, select option H, Save/Delete, from the **Profile Menu**. Then, select option E, Save Install, to save the profile as the installation-defined profile. Alternatively, you can press **PF22** to access the profile save screen or you can issue the **IPRF** command as shown in the following example.

```
IPRF SAVE
```

OMEGAMON for IMS automatically assigns the /I suffix to the profile that you save with the **IPRF** command.

Important: The saved profile picks up not only the settings that you changed, but it also picks up the current settings for *all* profile-definition commands.

You can delete the installation-defined profile by issuing the **IPRF** command as in the following example, or select H, Save/Delete, from the **Profile Menu**, then option F, Delete Install.

```
IPRF DELETE
```

Users can also save and delete user-defined profiles to use for future sessions. To save the changes as a user profile, select option H, Save/Delete, from the **Profile Menu**, then select option C, Save User. Alternatively, you can press **PF22** to access the profile save screen or you can issue the **PPRF SAVE** command to save the profile as a user-defined profile. You must provide a two-character suffix for user-defined profiles.

By distinguishing between **IPRF** and **PPRF**, you can restrict update access to the installation-defined profile while allowing the general user community to customize their own profiles.

Step 5: Secure the installation-defined profile commands

The **IPRF** and **IOPT** commands that are specific to the installation-defined profile are included in the OMEGAMON for IMS program as unsecured so that you can easily install and start the program.

However, if you create another installation-defined profile, you might want to protect the profile. There is no need for users to have access to the installation-defined profile because each user can create and save a unique profile by using the **PPRF** command. This user-defined profile overrides the installation-defined and default profiles.

To protect the installation-defined profile, you can use either the default internal security or the IMS interface to external security packages, such as RACF® or CA-ACF2.

Step 6: Specify the installation-defined profile as the default

To have the installation-defined profile be the default profile for your site, set the USER parameter to /I in your CLIST startup procedure or VTAM logon data stream.

For ISPF mode, specify /I in the **USER SUFFIX** field on the ISPF invocation panel.

Screen space and profile data set concatenation

OMEGAMON for IMS reads screen spaces from the data sets referenced by the RKOIPROC DD statement in the OMEGAMON for IMS procedure. OMEGAMON for IMS writes screen spaces that you create or modify to the data set referenced by the RKOIPCSV DD statement. OMEGAMON for IMS reads profiles from the data set referenced by the RKOIPROF DD statement and writes profiles, both installation and user-defined, to the data set referenced by the RKOIPFSV DD statement.

Screen spaces

Screen space that OMEGAMON for IMS provides, which are used in the menu and command interfaces, are stored in the *rhilev*.RKOIPROC data set. To create, modify, or delete screen spaces for your use without modifying either the standard screens or screens of other users, create one or more additional data sets called *cccccccc*.RKOIPCSV, where the *cccccccc* prefix can be for your site or for an individual user. The PARMGEN configuration tool allocates one RKOIPCSV data set for each IMS ID, *rhilev*.*imsid*.RKOIPCSV.

OMEGAMON for IMS writes the members that you change to the data set that the DD statement RKOIPCSV references. If you want OMEGAMON for IMS to use those members, your *cccccccc*.RKOIPCSV data set must be concatenated with the *rhilev*.RKOIPROC data set on the RKOIPROC DD statement.

The following example shows sample DD statements for the screen space data sets.

```
//* OMEGAMON for IMS saves screen spaces in the RKOIPCSV data set
//RKOIPCSV DD DISP=SHR,DSN=rhilev.imsid.RKOIPCSV
```

```
//* OMEGAMON for IMS reads screen spaces from the RKOIPROC data sets
//RKOIPROC DD DISP=SHR,DSN=rhilev.imsid.RKOIPCSV
//         DD DISP=SHR,DSN=rhilev.RKOIPROC
```

Profiles

When you save an installation-defined or user-defined profile, OMEGAMON for IMS writes the profile to the data set referenced by the RKOIPFSV DD statement in the OMEGAMON for IMS procedure. The PARMGEN configuration tool allocates one RKOIPFSV data set for each IMS ID, *rhilev*.*imsid*.RKOIPFSV. OMEGAMON for IMS reads profiles from the data sets referenced by the RKOIPROF DD statement.

In many cases, the RKOIPROF and RKOIPFSV DD statements can reference the same data set, for example, *rhilev*.*imsid*.RKOIPFSV. However, you might want to restrict users from updating the installation-defined profile by placing it in a separate data set that is concatenated in the RKOIPROF DD statement. Alternatively, you can implement security so that general users cannot issue the **IOPT** and **IPRF** commands. You can also implement security for specific commands to restrict users from being able to change selected parameters in their own user-defined profiles, but allow them to customize others.

Note: The IBM-supplied default profile is stored in the OMEGAMON for IMS load library. You cannot change this profile. It is always available. If you do not specify another profile when you start your OMEGAMON for IMS session, the IBM-supplied default profile is used.

Using KIPGLB to customize workload parameters

After you install and configure OMEGAMON for IMS, there are a number of global parameters that you might want to change to suit your installation's needs. These global parameters define groups of transactions, PSBs, logical terminals (LTERMs), and classes that you want to monitor, and operating characteristics for the Bottleneck Analysis and Response Time Analysis (RTA) components.

KIPGLB members in the RKIPGLBL DD data set are source members that contain the default global parameters. When OMEGAMON for IMS starts, it loads global defaults from the KIPGLBxx source member that is identified by GLOBAL=xx in the PARM setting of the startup procedure. All OMEGAMON for IMS users monitoring the same IMS system share the same global defaults. Users can interactively change some of the global settings, such as the time intervals for the RTA component. When changes are made interactively, the latest change remains in effect until the OMEGAMON for IMS address space stops, the KIPGLB member is reloaded, or another KIPGLB member is loaded.

KIPGLB members contain a series of statements that define groups and group items, and control default Bottleneck Analysis options and RTA options. You create your KIPGLB members during post-configuration steps by using JCL that PARMGEN creates in your xKANSAMU data set. The JCL members include KIPGLBCR, which can be run at any time to create a KIPGLB source member with the default settings, and KIPGLBVT, which can be run at any time to verify the contents of a KIPGLB source member.

As you operate OMEGAMON for IMS, you might determine that you need to permanently change global settings. You can edit the KIPGLB source member that the OMEGAMON for IMS started task uses or edit another KIPGLB source member to use for testing, for example. Save the changes, then run KIPGLBVT to verify the contents. When you are ready to implement the changes, you do not have to stop OMEGAMON for IMS to apply them. You can run the GLBL command to load the KIPGLB member, and your changes automatically go into effect. If you implement your changes in another KIPGLB member and want that member's default global settings to automatically be loaded when you start OMEGAMON for IMS, make sure that you update GLOBAL=xx in the PARM setting of the startup procedure to specify the new suffix.

See *IBM OMEGAMON for IMS on z/OS: Planning and Configuration Guide* for details about KIPGLB members, including the syntax and descriptions of the global parameters.

Chapter 7. Reference: The KIPWIPER utility

IBM Software Support provides fixes that occasionally require that you run an *IPL* (initial program load) procedure on a z/OS system to successfully apply the maintenance. To eliminate delays in applying the maintenance due to this requirement, run the KIPWIPER utility to clean up OMEGAMON for IMS resources.

When you run the KIPWIPER utility, it performs the following tasks.

1. Determines if any OMEGAMON 3270 monitoring tasks are active, and terminates them if requested.
2. Discovers all active IMS systems.
3. Releases common storage that relates to IMS console messages.
4. Releases common storage that relates to z/OS console messages.
5. Provides a log (SYSPRINT) of all activity performed.

Parameters

The KIPWIPER utility operates in one of two modes: REPORT and CLEAN. The REPORT option provides a non-invasive method for determining all active OMEGAMON for IMS monitoring sessions. The CLEAN option, with the FORCE parameter specified, provides a method for removing OMEGAMON artifacts from memory and for releasing any common storage.

The parameters are:

REPORT
This option directs the KIPWIPER utility to report any active OMEGAMON for IMS (3270) monitoring tasks and IMS systems. All information is written to the activity log (SYSPRINT). The **REPORT** parameter is mutually exclusive of **CLEAN** and **FORCE**.

CLEAN
This option directs the KIPWIPER utility to release all common storage in use by the OMEGAMON program because some common storage remains even after the OMEGAMON program terminates. This option first discovers all active OMEGAMON for IMS (3270) monitoring tasks and issues a z/OS STOP (P) command for each task. The utility waits up to 5 minutes to ensure that all OMEGAMON tasks terminate. If any OMEGAMON tasks are still active after 5 minutes, the KIPWIPER utility terminates the tasks with a return code of 8 (RC=8).

FORCE
This option can either be specified alone or with **CLEAN** option. The **FORCE** option operates in the same way as the **CLEAN** option, but includes an additional function. In the case where an OMEGAMON task does not terminate within 5 minutes, the **FORCE** option issues a z/OS cancel on the OMEGAMON task. Exercise caution with this option; the primary reason for the OMEGAMON task not terminating within this period is that the OMEGAMON task is actively monitoring an IMS application in a DL/I call. Canceling the OMEGAMON task can cause IMS to terminate as well.

DEBUG
This option logs activity for IBM Software Support. Use this option only when directed by IBM Software Support personnel.

Sample JCL

Member KIPWIPER in the *rtehilev*.TKANSAM library contains sample JCL to run the KIPWIPER utility.

The following figure shows the sample JCL.

```
//KIPWIPER JOB ()
//*
//* THIS IS THE SAMPLE JCL TO EXECUTE THE KIPWIPER PROGRAM.
//*
//* THIS PROGRAM WILL REMOVE OMEGAMON ARTIFACTS FROM COMMON
//* STORAGE (PARM=CLEAN) OR REPORT ON ACTIVE OMEGAMON
//* 3270 MONITORING TASKS (PARM=REPORT).
//*
//* THE FOLLOWING PARAMETERS MAY BE SPECIFIED:
//*
//* REPORT - GENERATES A REPORT OF ACTIVE OMEGAMON 3270 MONITORING
//*          TASKS.  MUTUALLY EXCLUSIVE WITH CLEAN/FORCE PARAMETERS.
//*
//*
//* CLEAN  - STOPS ACTIVE OMEGAMON 3270 MONITORING TASKS VIA THE
//*          Z/OS STOP (P) COMMAND.  WAITS FOR ALL OMEGAMONS TO
//*          TERMINATE AND THEN REMOVES RESIDUAL OMEGAMON ARTIFACTS
//*          FROM COMMON STORAGE.
//*
//* FORCE  - OPERATES THE SAME AS CLEAN AND MAY BE SPECIFIED WITH
//*          CLEAN OR BY ITSELF.  THIS OPTION WILL WAIT FOR OMEGAMONS
//*          TO TERMINATE AND WILL CANCEL THE TASKS IF OVER 5 MINS.
//*          RESIDUAL OMEGAMON ARTIFACTS WILL THEN BE REMOVED FROM
//*          COMMON STORAGE.
//*
//KIPWIPER EXEC PGM=KIPWIPER,REGION=0M,PARM='CLEAN'
//STEPLIB  DD DISP=SHR,DSN=RTEHLEV.TKANMOD
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
```

Figure 24. KIPWIPER JCL

Note: Replace **RTEHLEV** on the STEPLIB DD statement with the high-level qualifier of your runtime environment. All activity is logged and written to the SYSPRINT DD statement.

KIPWIPER log

All activity from the KIPWIPER utility is written to the SYSPRINT output file.

Figure 25 on page 48 depicts a sample log (with line numbers) where OMEGAMON tasks for IMS systems are active and common storage is released.

```
1.  OMEGAMON for IMS on z/OS Wiper Utility      Date:2010.039  Time:19:02:18
2.
3.
4.  The following option(s) are enabled: CLEAN with FORCE
5.  Stopping OMEGAMON 3270 monitoring task: PLOIIP17
6.  Waiting 5 seconds for 3270 monitoring shutdown
7.  OMEGAMON 3270 monitoring task now stopped: PLOIIP17
8.  GWHA of length=004096, freed
9.  MTO hook has been removed from IMSID=IMSK
10. MTO SSCT of length=004096, freed
```

Figure 25. Sample log

Description of log events:

Lines 1 - 4
KIPWIPER header and parameters selected for this run.

Lines 5 - 7
An OMEGAMON 3270 monitoring task (PLOIIP17) was identified and a z/OS stop command was issued. The utility waited for 5 seconds before checking the status of the task. When the utility became active after a 5-second interval, the OMEGAMON 3270 monitoring task (PLOIIP17) was found to have terminated normally.

Lines 8
The OMEGAMON for IMS Global work area (GWHA) is released from common storage.

Lines 9 - 10
The OMEGAMON for IMS on z/OS console hook is removed from IMSID IMSK and is released from common storage.

Figure 26 on page 49 depicts a sample log (with line numbers) where no OMEGAMON tasks for IMS systems are active.

```
1.  OMEGAMON for IMS on z/OS Wiper Utility      Date:2010.039  Time:18:59:18
2.
3.
4.  The following option(s) are enabled: CLEAN with FORCE
5.  No OMEGAMON for IMS tasks active
6.  GWHA SSCT not found, SSCT chain is clean
7.  No IMS systems are active at this time
8.  MTO SSCT not found, SSCT chain is clean
```

Figure 26. Sample log 2

Description of log events:

Lines 1 - 4
KIPWIPER header and parameters selected for this run.

Lines 5
No OMEGAMON 3270 monitoring tasks were active.

Lines 6
The OMEGAMON for IMS global work area (GWHA) was not found in common storage. Either OMEGAMON was never active or the KIPWIPER utility was executed and freed the storage before this run.

Lines 7
No IMS systems were active, indicating the MTO hook is not active. Either an OMEGAMON task was never active or the KIPWIPER utility was executed and freed the storage before this run.

Chapter 8. Reference: Startup operation and interface commands

The OMEGAMON for IMS product interface is a set of z/OS console commands and associated displays that you can use to communicate with or control various tasks in OMEGAMON for IMS.

During normal operation, the interface is transparent. When you start your system, the system defaults to take all necessary actions automatically.

This topic acquaints you with the functions and facilities of the product interface, including:

- OMEGAMON for IMS startup operation of the interface
- Commands to the interface

Startup operation

The startup parameters to KOIIA00 (the product interface) determine how the OMEGAMON for IMS interface runs and which IMS system the interface monitors based on the IMSID.

When you start OMEGAMON for IMS, it checks the dispatching priority to ensure that priority of OMEGAMON for IMS is higher than the priority of the IMS system. If it is not higher, OMEGAMON for IMS issues a warning message to the console.

Note: DEXAN values might be inaccurate when OMEGAMON for IMS has a lower priority than IMS.

z/OS IDs

The product interface has two z/OS IDs: stepname and internal ID.

Important: These two z/OS IDs cannot be the same. The task name is used as the stepname unless you override it.

The z/OS console operator can address the stepname z/OS ID and issue z/OS STOP and MODIFY commands. The z/OS STOP command terminates the OMEGAMON for IMS address space.

The internal ID (sometimes called the *modify ID*), which the interface uses to communicate with the OMEGAMON, DEXAN, and EPILOG components, accepts only z/OS MODIFY commands from a z/OS operator. The interface does not accept z/OS STOP commands.

Note: Security routines might restrict the z/OS Modify command. Contact your security administrator for assistance.

The internal z/OS ID

To create an internal ID for itself, the product interface prefixes two characters from the MPREFIX= parameter in the startup JCL to the IMSID of the IMS system it is monitoring. The product interface notifies z/OS that it accepts z/OS MODIFY commands addressed to that ID.

Use the MPREFIX= parameter in the startup JCL to specify the prefix. The default prefix is M0. When OMEGAMON for IMS initializes, it displays a message similar to the following example on the z/OS console:

```
OIB025: MODIFY ID ASSIGNED IS: M0IMSA
```

For example, if you run the IMS control region with an IMSID of IMSA, and the MPREFIX for the product interface is M0, the interface asks z/OS to pass it all z/OS MODIFY commands that you enter for ID M0IMSA.

The interface processes only z/OS MODIFY commands; the interface rejects z/OS STOP commands for the internal ID with an error message.

Starting the interface

When the OMEGAMON for IMS interface starts, it runs a series of commands that are in member KOI*mp*P00 in the *rhilev*.RKANPAR library, where *mp* is the MPREFIX specified during startup. By default, the commands are in member KOIM0P00.

Note: IBM supplies a default series of commands with OMEGAMON for IMS. The commands in KOI*mp*P00 and the members that they might execute are also based on your PARMGEN configuration. You can tailor the commands for your installation.

When the interface starts, it establishes the internal ID. Then, the first command that it issues is the command to execute the startup member, KOI*mp*P00.

```
EXEC KOImpP00
```

The startup member is processed automatically, but only during the initial startup.

The OMEGAMON for IMS interface performs all of the actions that are defined in KOI*mp*P00. When those actions complete, you can then issue more interface commands to the internal ID by using the z/OS MODIFY command.

MODIFY command example

This example shows the use of the z/OS MODIFY command to start a dedicated session. In the example, the internal ID assigned to the interface was M0IMSA.

```
MODIFY M0IMSA,START SESSION,UNIT=560
```

Showing identifiers for the IBM monitor job

After you start the OMEGAMON for IMS interface, you can use the system command **D A,L** to display the identifier for the IBM monitor job and the internal ID assigned to the interface.

Displaying identifiers for the interface started as a started task

If you start the interface as a *started task*, you can modify the STEPname to produce a unique z/OS ID (for example, IMSMON).

```
START OMIMS.IMSMON
```

The **D A,L** command shows the following sample output.

```
JOBname    STEPname   PROCSTEPname
-------    --------   ------------
OMIMS      IMSMON     IMSPROD        NSW   S
OMIMS      M0IMSA     IMSMON         NSW   S
```

In this example, the interface internal ID is M0IMSA and the z/OS ID is IMSMON. The second line shows the internal ID that the interface builds.

For this example, you can terminate the OMEGAMON for IMS interface with any of the following MODIFY and STOP commands.

```
STOP IMSMON
P IMSMON
MODIFY IMSMON,STOP
F IMSMON,STOP
```

Displaying identifiers for the interface started as a batch job

If you start the interface as a *batch job* with an IMSID of IMSA, an MPREFIX of M0, and a JOBname of MONIMS, the **D A,L** command shows the following sample output.

```
JOBname    STEPname   PROCSTEPname
-------    --------   ------------
MONIMS     IMS        IMSPROD        NSW   J
M0IMSA     M0IMSA     IMSMON         NSW   J
```

In this example, the z/OS ID is MONIMS and the interface internal ID is M0IMSA. The second line shows the internal ID that the interface builds.

Interface commands

OMEGAMON for IMS supports a set of interface commands that you can submit to the interface by using the z/OS MODIFY command.

The following commands are supported:

*****
Comment

DISPLAY
Displays active interface subtasks

EXEC
Executes the interface commands in a member

HELP
Displays help for interface commands

IF
Conditionally processes an EXEC, START, or STOP command

LIST
Displays active interface subtasks

LOG
Sends a message to the z/OS console

MODIFY MERGE
Starts VSAM message logging

P
Stops an interface subtask

S
Starts an interface subtask

START
Starts an interface subtask

STOP
Stops an interface subtask

Note:

- The MODIFY command and the MODIFY ID must precede all commands from the console.
- The commands in the EXEC members can start in any column if the command word completes before column 72. To continue a command, place any character in column 72.

COMMENT

The COMMENT command places comments in the members of the *thilev*.TKANPAR library. The interface ignores these comments.

Format

```
*<comment>
```

A non-blank character in column 72 indicates a continuation of the comment.

Examples

The following example shows a sample comment line in an EXEC member.

```
* THIS COMMENT CAN SAY ANYTHING YOU WISH.
```

DISPLAY

The DISPLAY command displays the program name and internal ID of all tasks that are currently active.

Format

```
F M0IMSA,DISPLAY
```

Synonym

LIST is a synonym for DISPLAY.

Example Output

The example output from the DISPLAY command is shown as follows.

```
OIR043: OM/IMS - THE FOLLOWING TASK IDS ARE ACTIVE:
OIR044:  ID=OMU448      PROGRAM=KOIOICR
OIR044:  ID=OIVTAM      PROGRAM=KOBVTAM
OIR047:    VTAM APPLID=CTDOI
OIR048:    SLU=R08A03
OIR048:    SLU=L566
OIR044:  ID=DX          PROGRAM=KOIDXCR
OIR044:  ID=MR          PROGRAM=KOIMRAR
```

IMS task IDs and DISPLAY

OMEGAMON for IMS builds each task with a unique ID.

The OMEGAMON for IMS sessions that run under OMEGAMON for IMS VTAM support do not have a separate ID; the OMEGAMON for IMS VTAM support ID controls all of the sessions.

OMEGAMON for IMS in dedicated mode has the task ID of OMU*cuu* where *cuu* is the dedicated terminal address.

The task ID of the DEXAN component collector is DX.

When OMEGAMON for IMS VTAM support is active, the interface DISPLAY command shows its VTAM application ID and the secondary logical unit (SLU) names of all active tasks that use it.

You cannot use SLU names to terminate individual sessions by using interface commands. You might, however, use them in VTAM commands that you issue from a z/OS console to stop an active session. See “STOP” on page 62.

EXEC

The EXEC command processes a member in either the *rhilev*.RKANPAR or the *rhilev*.TKANPAR library that contains a predefined set of commands.

You enter this command by using MODIFY or as a command in an EXEC member to process another predefined set of commands.

Format

```
EXEC member_name
```

Examples

The following examples assume that the internal modify ID is M0IMSA.

Assume that member_a contains the following commands.

```
START SESSION,UNIT=53E,...
EXEC member_b
START DEXAN
```

Assume that member_b contains the following commands

```
LOG *** OM/IMS VTAM interface START - APPLID=CTDOI ***
START cccccccc,APPLID=cccccccc,UMAX=05
```

where *cccccccc* is the logon applid for OMEGAMON for IMS to VTAM that you specified by using PARMGEN.

When you enter `F M0IMSA,EXEC member_a` at the console, the effect is the same as if you entered the following commands at the console:

```
F M0IMSA,START SESSION,UNIT=53E,...
F M0IMSA,LOG *** OM/IMS VTAM interface START - APPLID=cccccccc
F M0IMSA,START cccccccc,APPLID=cccccccc,UMAX=05
F M0IMSA,START DEXAN
```

Limitations

You cannot nest EXEC commands more than 10 deep at any one command invocation. This prevents EXEC loops, where A EXECs B and B EXECs A.

EXEC members procedure

You can think of these members as a JCL procedure or as a TSO CLIST.

The EXEC member can contain any interface command, including another EXEC command.

When an EXEC member runs another EXEC command, the called EXEC command runs inline as if its statements replace the EXEC statement. The called EXEC command is treated like an INCLUDE statement in other programming languages.

HELP

The HELP command displays the commands that the interface supports. It can also display help information for a specific command.

Format

```
HELP <command-name>
```

Examples

The following examples assume that the internal modify ID is M0IMSA.

Type the following command to display help about all of the available interface commands.

```
F M0IMSA,HELP
```

The result of this command looks similar to the following figure.

```
LOG ‘HELP’ Command
Syntax: HELP <command-name>

Description:  The ‘HELP’ command is used to display the help information available on the
commands that are used
 to control the OMEGAMON for IMS interface.

HELP is available for all the commands below:

*         - Comment (ignored by the interface)
EXEC      - Execute the commands in the member specified
DISPLAY   - Display active interface subtasks
HELP      - Displays help for all or specific interface
            commands
LIST      - Alias of DISPLAY - Display active interface
            subtasks
LOG       - Send a message to the MVS Console
START     - Start an interface Subtask
STOP      - Stop an interface Subtask
```

To obtain help information for a specific command, follow HELP with the name of the command.

If you do not specify a command name or if OMEGAMON for IMS does not recognize the command name that you specify, the help text for HELP appears at the console.

IF

The IF command conditionally processes the EXEC, START, or STOP command that follows it on the same command input.

IF is especially useful when you want to use the same members of the *rhilev*.RKANPAR library to control copies of OMEGAMON for IMS that run with different IMS systems. By using the IF command, you can reduce the maintenance effort in certain environments.

Format

```
IF <IMSID=cccc>          Then <EXEC  ...>
   <SMFID=cccc>               <P     ...>
   <CPUID=ccccccccccc>        <S     ...>
   <IMSTYPE=ccc>              <START ...>
                              <STOP  ...>
```

Test values and their descriptions

IF permits you to test several different values to determine whether the command that follows the THEN keyword will run.

The following table shows the various IF test values that you can specify.

Table 7. IF parameter values

Parameter	Value	Description
CPUID	ccccccccccc	The 12-character hardware CPUID of the machine. (See the title line on the first page of a dump.)
	cccccc	The 6-character hardware CPU serial number of the machine. It is available from the RMF CPU report. For a multiprocessor, OMEGAMON for IMS compares the CPUID with all those within the multiprocessing complex.
IMSID	cccc	IMS ID of the IMS or DBCTL system you are measuring.
SMFID	cccc	SMF ID of the z/OS system that you you are executing upon. This information is in SYS1.PARMLIB(SMFPRM*nn*).

Table 7. IF parameter values (continued)		
Parameter	**Value**	**Description**
IMSTYPE	CTL DBC	Determines the set of interface commands that are executed, depending on whether the IMS environment is a DB/DC (CTL) or a DBCTL (DBC) environment.

If the test is successful, OMEGAMON for IMS issues the normal messages for the conditionally processed command. If the test fails because of an invalid value in the command, OMEGAMON for IMS issues a message that indicates this outcome.

The IF keyword supports your testing several different values to determine whether the command that follows its THEN keyword runs.

Output

The output of the IF command depends upon the success of its tests.

LIST

The LIST command displays the program name and internal ID of each currently active task. The LIST command is an alternate name for the DISPLAY command.

For a description of the DISPLAY command, see “DISPLAY” on page 54.

Format

```
F M0IMSA,LIST
```

LOG

The LOG command displays a message at the system console.

Use the LOG command in your EXEC members to indicate the commands that you process in that member.

The interface supports the following commands: LOG OMEGAMON sends this message to the system console

Format

```
LOG OMEGAMON sends this message to the system console
```

Examples

You can use log messages to display the name of the currently processing member, such as:

```
LOG *** Processing KOIM0P00. ***
```

Another typical use is to indicate the start of a task such as the Bottleneck Analysis (DEXAN) collector.

```
LOG *** Starting DEXAN ***
```

The message that displays at the system console is exactly what is specified on the LOG command, including the command itself.

MODIFY MERGE

The MODIFY MERGE command merges and chronologically sorts a copy of IMS messages that go to the z/OS console and to the Master Terminal Operator (MTO) console.

The command writes the messages to a VSAM data set.

Format

```
F M0IMSA, MODIFY MERGE DSN='rhilev.ims',ARCH=prefix
```

where

rhilev
The high-level qualifier of the VSAM data set to which messages are logged.

This high-level qualifier might be different from the high-level qualifier for other OMEGAMON for IMS data sets.

ims
The imsid that the system monitors.

prefix
The prefix of the archive job to copy a full VSAM data set to a backup data set.

OMEGAMON for IMS appends 1 or 2 to the job name specified. It uses *prefix1* to archive *rhilev*.*ims*.LOG1, and *prefix2* to archive *rhilev*.*ims*.LOG2. KI2ARCH is the default name for *prefix*.

If you use a different name, it must not exceed 7 characters.

This syntax assumes that M0IMSA is the internal modify ID.

How MODIFY MERGE works

The MERGE task sets up a pair of VSAM data sets (*rhilev*.*ims*.LOG1 and *rhilev*.*ims*.LOG2) for logging. When one of the data sets fills, OMEGAMON for IMS automatically switches to the second data set, and archives and reinitializes the first data set.

Another way to run MODIFY MERGE

You can also execute MODIFY MERGE by entering the EXEC KI2VSM*mp* interface command, because the KI2VSM*mp* member contains the MODIFY MERGE command.

START

The START command starts the OMEGAMON for IMS features.

You can start the following features.

- Response time analysis (RTA) component
- RTA data collector
- Display controller session
- DEXAN collector
- OMEGAMON for IMS VTAM support
- EPILOG collector
- ATF support

Table 8. START command format

Description	**Format of the START command**	
Start Response Time Analysis (RTA)	START RTA	<,IRTA=ON> <,CMPAT=YES|NO>
Start the RTA data collector	START DATACOL	<,BUFNO=*nnn*> <,CMPAT=YES|NO>
Start the DEXAN for IMS collector	START DEXAN	<,IDEG=BEGN>
Start dedicated controller session	START SESSION	<,COLS=*nnn*> <,DIR=*cccc*> <,LROWS=*nnn*> <,MODE=*cc*> <,ROWS=*nn*> <,SYS=*cccc*> <,UNIT=*cuu*> <,USER=*cc*>
Start VTAM support	START ccccccccc	<,COLS=*nnn*> <,LROWS=*nnn*> <,ROWS=*nn*> <,SYS=*cccc*> <,USER=*cc*> <,APPL=*ccccccccc*> <,AUP=YES|NO> <,PRTCT=*ccccccccc*> <,PSWD=*ccccccccc*> <,UMAX=*nn*> <,DATA=*nn*> <,TIMOUT=*nn*>
Start ATF support	START ATF	<,ATFACT=ON|OFF> <ATFBUFF=*nnnn* <,AUTORESTART=YES|NO> <DETLLOGR=*rtename.imsid*.DL> <,SANDBOX=ON|OFF|*nnn*> <SUMMLOGR=*rtename.imsid*.SM> <SUMXLOGR=*rtename.imsid*.SX>

Format

```
START RTA      <,IRTA=ON>    (start RTA)
               <,CMPAT=YES|NO>
- or -
START DATACOL  <,BUFNO=nnn>  (start RTA data collector)
               <,CMPAT=YES|NO>
- or -
START DEXAN    <,IDEG=BEGN>  (start the DEXAN for IMS collector)

- or -
START SESSION  <,COLS=nnn>   (start dedicated controller session)
               <,DIR=cccc>
               <,LROWS=nnn>
               <,MODE=cc>
               <,ROWS=nn>
               <,SYS=cccc>
               <,UNIT=cuu>
               <,USER=cc>

- or -
START cccccccc <,COLS=nnn>   (start OMEGAMON for IMS VTAM support)
               <,LROWS=nnn>
               <,ROWS=nn>
               <,SYS=cccc>
               <,USER=cc>
               <,APPL=cccccccc>
               <,AUP=YES/NO>
               <,PRTCT=cccccccc>
               <,PSWD=cccccccc>
               <,UMAX=nn>
               <,DATA=nn>
               <,TIMEOUT=nn>
- or -
START ATF      <,ATFACT=ON|OFF>   (start ATF support)
               <ATFBUFF=nnnn
               <,AUTORESTART=YES|NO>
               <DETLLOGR=rtename.imsid.DL>
               <,SANDBOX=ON|OFF|nnn>
               <SUMMLOGR=rtename.imsid.SM>
               <SUMXLOGR=rtename.imsid.SX>
```

START command parameters

The figure uses the following notation conventions:

- *n* denotes operands that are numeric only
- *c* denotes operands that are character data
- *cuu* denotes a control unit address

Numbers are allowed in character data, however, for some operands the first character must be a letter.

The length of the strings of *n* or *c* show you the maximum length of the operand.

Operands can be shorter than the figure shows, if that is appropriate in the individual case.

For example, you can code the UMAX= parameter as UMAX=1 or UMAX=01 to limit the number of VTAM terminals that can access OMEGAMON for IMS.

Items that are enclosed in angle brackets (< >) can be written in any order and can have defaults. OMEGAMON for IMS does not require you to specify those parameters that have defaults.

You can enter the parameters that are marked with an asterisk (*) in the *START Command Parameters* table in the *IBM OMEGAMON for IMS on z/OS: Planning and Configuration Guide* in the VTAM logon data stream to override the setting in the VTAM START procedure.

Most of the parameters that you can specify have defaults that are taken from the interface or from the started task. You can change some of these defaults if you use an installation or user profile.

Synonym

S is a synonym for START.

Starting OMEGAMON Classic VTAM support

Start OMEGAMON for IMS VTAM support with the START command.

The parameters that you specify with the START command become the defaults for any OMEGAMON for IMS sessions that OMEGAMON for IMS VTAM support creates in response to LOGON requests.

To change a default value or any other command at logon time, use the DATA keyword of the VTAM LOGON command to override it. The following example shows the DATA parameter in the LOGON command:

```
LOGON APPLID(cccccccc) DATA('USER=01')
```

where *cccccccc* is the logon applid for OMEGAMON for IMS to VTAM that you specified by using PARMGEN.

What to do if you stop OMEGAMON Classic VTAM support

If you stop OMEGAMON for IMS VTAM support, any OMEGAMON for IMS display controller sessions that are running also stop, and you must restart the sessions manually. The EPILOG collector, however, continues to collect data, even if you stop the EPILOG display controller session or OMEGAMON for IMS VTAM support.

Examples

The following examples all assume that M0IMSA is your OMEGAMON for IMS installation modify ID. For more information about the modify ID, see "z/OS IDs" on page 51.

Type these commands at the SDSF z/OS console to restart sessions:

- To start a Bottleneck Analysis (DEXAN) collector, type

  ```
  /F M0IMSA, START DEXAN
  ```

- To start a display controller to the dedicated terminal at 53E, enter:

  ```
  /F M0IMSA, START SESSION,UNIT=53E
  ```

- To start a display controller to the dedicated terminal at 53A with 43 physical rows and 255 logical rows, enter:

  ```
  /F M0IMSA, START SESSION,ROWS=43,LROWS=255,UNIT=53A
  ```

- To start VTAM support, enter:

  ```
  /F M0IMSA, START cccccccc APPL=OIAPPLID,UMAX=05
  ```

  where *cccccccc* is the logon applid for OMEGAMON for IMS to VTAM that you specified by using PARMGEN.

- To start a display controller in cross system mode, enter:

  ```
  /F M0IMSA, START SESSION,MODE=XS,LROWS=255,SYS=IMSA,DIR=*
  ```

  where * implies use of cross system mode by using a collector ID of IMSA.

- To start a display controller in cross memory mode with an ID of SYSA, enter

  ```
  /F M0IMSA, START SESSION,MODE=XM,LROWS=255,SYS=IMSA,DIR=SYSA
  ```

Location of sample START command

The *rhilev*.RKANPAR(KOI*mp*P00) contains a sample START command for OMEGAMON for IMS for your installation.

STOP

The STOP command stops any interface subtask (for example, OMEGAMON for IMS VTAM support) that might not be functioning, due to a problem such as a terminal error.

The system console operator usually enters the STOP command by using the z/OS MODIFY command. The STOP command needs a task ID to know which task to stop. To find this ID, use the DISPLAY or LIST command.

Format

```
F M0IMSA,STOP ID=cccccccc
```

where *cccccccc* is the interface subtask. If you are stopping OMEGAMON for IMS VTAM support, then *cccccccc* is the logon applid for OMEGAMON for IMS to VTAM that you specified by using PARMGEN.

Synonym

P is a synonym for STOP.

OUTPUT

The output from the STOP command is one or more task termination messages followed by a task detached message. If the task does not promptly honor the interface request for termination, the interface detaches it.

Stopping VTAM tasks

Sessions that run under OMEGAMON for IMS VTAM support do not have an interface task ID that you can use to stop them. You can use VTAM commands to detach an individual session that runs under OMEGAMON for IMS VTAM support.

The commands you enter from a z/OS console are:

```
V NET,INACT,I,ID=sluname
```

and

```
V NET,ACT,ID=sluname
```

The first command causes OMEGAMON for IMS VTAM support to stop the task that runs at that secondary logical unit (or terminal). The message `NODE NOW INACTIVE` appears to indicate that OMEGAMON for IMS VTAM support removed the task.

Wait until OMEGAMON for IMS VTAM support removes the task before you issue the second command. The second command makes the terminal available for use again by VTAM.

Note: If you use the STOP command in the format for RTA, the buckets are not cleared.

Chapter 9. Reference: IMS exceptions

The following table contains an alphabetical list of the OMEGAMON for IMS exceptions. The table includes a short description of what activity each exception monitors and the name of the exception group.

Note: In the following table, the term "queue length" refers to the difference between ENQ and DEQ counts.

Table 9. IMS exceptions

Exception ID	Description	Exception group
ABUF	Displays if sequential buffering storage utilization is > *nn*%.	Pools (Other)
ACBH	Displays if ACBLIB data set I/O rate is > *nn* per second.	I/O Rates (Data sets)
ACEA	Displays if utilization is > *nn*% for the communication external subsystem pool.	Pools (CES)
ACIO	Displays if the communications I/O pool (CIOP) utilization is > *nn*%.	Pools (CIO)
ACWA	Displays if the communications work area pool (CWAP) utilization is > *nn*%.	Pools (CWA)
ADBH	Displays if Application database call count is > *nn*. The default value is 100. **Note:** This exception is only available for IMS v10 and higher.	Application Execution (AE)
ADBW	Displays if database work pool utilization is > *nn*%.	Pools (Other)
ADHI	Displays if area DASD I/O per second is > *nn*. The value of *nn* is the average DASD read + write rate for a DEDB area within a dataspace.	Fast Path (High)
ADLO	Displays if area DASD I/O per second is < *nn*. The value of *nn* is the average DASD read + write rate for a DEDB area within a dataspace.	Fast Path (Low)
ADMB	Displays if database management block (DMB) pool utilization is > *nn*%.	Pools (DMB)
ADSU	Displays if the data entry database (DEDB) area is unavailable.	Fast Path (Alerts)
AEPC	Displays if the extended PCB pool utilization is > *nn*% for IMS systems that were generated with Fast Path.	Pools (Other)
AESH	Displays if Application External Subsystem Attach Facility (ESAF) call count is > *nn*. The default value is 100. **Note:** This exception is only available for IMS v10 and higher.	Application Execution (AE)
AETH	Displays if Application elapsed time in milliseconds is > *nn*. The default value is 10. **Note:** This exception is only available for IMS v10 and higher.	Application Execution (AE)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
AFRE	Displays if the fetch request element (FRE) pool utilization is > *nn*%. There is no such thing as an FRE pool, but for convenience you can think of FRE that way. Use the IMS FRE= parameter to specify the number of fixed FREs to allocate when IMS builds the message format block pool (MFP). If all of the fixed FREs are ever in use at the same time, the AFRE exception shows the pool as 100% utilized. For more FREs, IMS must carve space out of the MFP buffer pool. These FREs are dynamic and are available as long as IMS is using them. **Note:** The FREP command displays the number of dynamic FREs that IMS allocates.	Pools (Other)
AHIO	Displays if the high I/O pool (HIOP) utilization is > *nn*%.	Pools (Other)
AIOH	Displays if Application Total I/O count is > *nn*. The default value is 10. **Note:** This exception is only available for IMS v10 and higher.	Application Execution (AE)
ALMD	Displays if the long message data set utilization is > *nn*%.	Pools (Data Set Utilization)
AMFS	Displays if the message format services (MFS) pool utilization is > *nn*%.	Pools (Other)
AMSG	Displays if the message queue buffer pool utilization is > *nn*%.	Pools (Other)
AORH	Displays if Application OSAM I/O READ count is > *nn*. The default value is 10. **Note:** This exception is only available for IMS v10 and higher.	Application Execution (AE)
APIE	Displays if the program isolation (PI) pool utilization is > *nn*%.	Pools (Other)
APSB	Displays if the active program specification block (PSB) pool utilization is > *nn*%.	Pools (PSB)
APSW	Displays if the PSB work pool (PSBW) utilization is > *nn*%.	Pools (PSB)
AQBD	Displays if the queue blocks data set utilization is > *nn*%.	Pools (Data Set Utilization)
ARAU	Displays if the receive any pool utilization is > *nn*%.	Pools (CIO)
ARCB	Displays if the receive any buffers in use is > *nn*.	Pools (CIO)
ARSP	Displays if the average response time > *nn*.	Response Time Analysis (RTA)
ASAP	Displays if the save area prefix (SAP) pool utilization is > *nn*%.	Pools (Other)
ASHI	Displays if the area dataspace I/O per second is > *nn*. The value of *nn* is the average dataspace read + write rate for a DEDB area within a dataspace.	Fast Path (High)
ASLO	Displays if the area dataspace I/O per second is < *nn*. The value of *nn* is the average dataspace read + write rate for a DEDB area within a dataspace.	Fast Path (Low)
ASMD	Displays if the short message data set utilization is > *nn*%.	Pools (Data Set Utilization)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
AVRH	Displays if Application VSAM I/O READ count is > *nn*. The default value is 10. **Note:** This exception is only available for IMS v10 and higher.	Application Execution (AE)
BLGH	Displays if the balancing group input is > *nn*.	Fast Path (High)
BQHI	Displays if the number of Fast Path available buffers for new PST use is > *nn*.	Fast Path (High)
BQLO	Displays if the Fast Path available buffers for new PST use are < *nn*.	Fast Path (Low)
CBHI	Displays if BMP region CPU utilization is > *nn*%.	CPU (High)
CBLO	Displays if BMP region CPU utilization is < *nn*%.	CPU (Low)
CCHI	Displays if control region CPU utilization is > *nn*%.	CPU (High)
CCLO	Displays if control region CPU utilization is < *nn*%.	CPU (Low)
CILO	Displays if the number of free control intervals in independent overflow for a DEDB area is < *nn*. This means that you might need to reorganize the database.	Fast Path (Low)
CILP	Displays if the percentage of free control intervals in independent overflow for a DEDB area is < *nn*%. The default value is 10.	Fast Path (Low)
CLHI	Displays if the IRLM region CPU utilization is > *nn*%.	CPU (High)
CLLO	Displays if the IRLM region CPU utilization is < *nn*%.	CPU (Low)
CMHI	Displays if the MPP region CPU utilization is > *nn*%. CPU utilization is the percentage of the total CPU that the MPP region used over the last OMEGAMON cycle. CPU utilization ranges from 0% to 100% for all online processors in the complex. The default OMEGAMON cycle is five seconds.	CPU (High)
CMLO	Displays if the MPP region CPU utilization is < *nn*%. CPU utilization is the percentage of the total CPU that the MPP region used over the last OMEGAMON cycle. CPU initilization ranges from 0% to 100% for all online processors in the complex. The default OMEGAMON cycle is five seconds.	CPU (Low)
CPUA	Displays if the IMS CPU utilization is >= *nn* %.	CPU (Low)
CRHI	Displays if the DBRC region CPU utilization is > *nn*%.	CPU (High)
CRLO	Displays if the DBRC region CPU utilization is < *nn*%.	CPU (Low)
CSHI	Displays if the DLS region CPU utilization is > *nn*%.	CPU (High)
CSLO	Displays if the DLS region CPU utilization is < *nn*%.	CPU (Low)
CSVC	Displays if IMS control task is waiting in SVC code.	IMS Status (Alerts)
CUOW	Displays if one Fast Path region is in unit-of-work contention with another Fast Path region.	Fast Path (Alerts)
CVAH	Displays if LU 6.2 total active asynchronous conversations equal or exceed thresholds.	IMS Status (Other)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
CVHI	Displays if LU 6.2 total active conversations equal or exceed thresholds.	IMS Status (Other)
CVSH	Displays if LU 6.2 total active synchronous conversations equal or exceed thresholds.	IMS Status (Other)
DBWE	Displays if an I/O error against a database occurred.	Databases (Alerts)
DCMN	Displays if IMS DC monitor is active.	Traces (Alerts)
DDHI	Displays if the dataspace DASD I/O per second is *nn*. The value of *nn* is the average dataspace read + write rate for a dataspace.	Fast Path (High)
DDLO	Displays if the dataspace DASD I/O per second is < *nn*. The value of *nn* is the average dataspace read + write rate for a dataspace.	Fast Path (Low)
DISP	Displays if the dispatching priority of OMEGAMON is = the dispatching priority of IMS.	IMS Status (Alerts)
DLTR	Displays if the DL/I trace table is on.	Traces (Alerts)
DMBE	Displays the names of the databases that have dynamic backout errors.	Databases (Alerts)
DMER	Displays if a Fast Path DEDB area has an I/O error.	Fast Path (Alerts)
DMFF	Displays if free space in DMB pool is fragmented.	Pools (Alerts)
DNRS	Displays if an I/O issued to a DASD device allocated to the IMS control region took longer than one OMEGAMON cycle to complete.	Resources (Alerts)
DRDY	Displays if DASD device drops ready.	Resources (Alerts)
DSHI	Displays if the dataspace I/O per second is *nn*. The value of *nn* is the average dataspace read + write rate.	Fast Path (High)
DSLO	Displays if the dataspace I/O per second is < *nn*. The value of *nn* is the average dataspace read + write rate.	Fast Path (Low)
DSPI	No areas are loaded in dataspace.	Fast Path (Alerts)
DSTR	Displays if dispatcher trace is on.	Traces (Alerts)
DSWP	Displays if a dependent region is swapped out.	Resources (Alerts)
ESNC	Displays if an external subsystem is defined to the control region, but not to any dependent region.	External Subsystem (Alerts)
ESND	Displays if an external subsystem is defined to a dependent region, but not to the control region.	External Subsystem (Alerts)
ESTH	Displays if the number of active threads for an external DB2® subsystem is *nn*.	External Subsystem (High)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
FCIO	Displays if the largest free block of the communications I/O pool (CIOP) is < *nn* bytes.	Fragmentation (Low)
FCWA	Displays if the largest free block of the communications work area pool (CWAP) is < *nn* bytes.	Fragmentation (Low)
FDBW	Displays if the largest free block of the database work pool is < *nn* bytes.	Fragmentation (Low)
FDMB	Displays if the largest free block of the database management block (DMB) is < *nn* bytes.	Fragmentation (Low)
FEPC	Displays if the largest free block of the extended PCB pool is < *nn* bytes in IMS systems generated with Fast Path.	Fragmentation (Low)
FHIO	Displays if the largest free block of the high I/O pool (HIOP) is < *nn* bytes.	Fragmentation (Low)
FMFS	Displays if the largest free block of the message format services (MFS) pool is < *nn* bytes.	Fragmentation (Low)
FPSB	Displays if the largest free block of the PSB pool is < *nn* bytes.	Fragmentation (Low)
FPSW	Displays if the largest free block of the PSBW is < *nn* bytes.	Fragmentation (Low)
FPTR	Displays if a Fast Path region exists, there is activity in the FP region and the Fast Path trace is on. The exception requires an FPTRACE DD statement in the IMS Fast Path region to indicate that the Fast Path trace is on.	Traces (Alerts)
HSBH	Displays if the HSSP private area buffer pool usage is > *nn*%.	Fast Path (High)
HSBL	Displays if the HSSP private area buffer pool usage is < *nn*%.	Fast Path (Low)
IBHI	Displays if the BMP region I/O rate is > *nn* EXCPs per second over the last OMEGAMON cycle.	I/O Rates (Regions High)
IBLO	Displays if the BMP region I/O rate is < *nn* EXCPs per second over the last OMEGAMON cycle.	I/O Rates (Regions Low)
ICHI	Displays if the control region I/O rate is > *nn* EXCPs per second over the last OMEGAMON cycle.	I/O Rates (Regions High)
ICLO	Displays if the control region I/O rate is < *nn* EXCPs per second over the last OMEGAMON cycle.	I/O Rates (Regions Low)
ILHI	Displays if the IRLM region I/O rate is > *nn* EXCPs per second over the last OMEGAMON cycle.	I/O Rates (Regions High)
ILLO	Displays if the IRLM region I/O rate is < *nn* EXCPs per second over the last OMEGAMON cycle.	I/O Rates (Regions Low)
IMHI	Displays if the message processing region I/O rate is > *nn* EXCPs per second, during the last OMEGAMON cycle. The default OMEGAMON cycle is five seconds.	I/O Rates (Regions High)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
IMLO	Displays if the message processing region I/O rate is < *nn* EXCPs per second, during the last OMEGAMON cycle. The default OMEGAMON cycle is five seconds.	I/O Rates (Regions Low)
INAC	Displays if IMS is inactive.	IMS Status (Alerts)
IORC	Displays if a device allocated to IMS is in I/O error recovery.	Resources (Alerts)
IRCS	Displays if the CSA usage in the IRLM is > *nn*% of MAXCSA.	Resources (High)
IRFC	Displays if the false contention rate is > 70 per second. **Note:** This exception applies only to IRLM version 2.1 and higher versions.	Resources (High)
IRGC	Displays if the IRLM is not connected to a data sharing group. **Note:** This exception applies only to z/OS version 5.1, 5.2, and OS/390®.	Resources (Alerts)
IRHI	Displays if the DBRC region I/O rate is > *nn* EXCPs per second during the last OMEGAMON cycle.	I/O Rates (Regions High)
IRIN	Displays if the required IRLM is not available for IMS. **Note:** This exception applies only to IRLM version 2.1 and higher versions.	Resources (Alerts)
IRLO	Displays if the DBRC region I/O rate is < *nn* EXCPs per second during the last OMEGAMON cycle.	I/O Rates (Regions Low)
IRQH	Displays if the number of IRLM locks by region exceeds the threshold.	I/O Rates (Regions Low)
IRRC	Displays if the real contention rate is > 70 per second. **Note:** This exception applies only to IRLM version 2.1 and higher versions.	Resources (High)
IRRU	Displays if the IRLM RLE usage is > 70%. **Note:** This exception applies only to IRLM version 2.1 and higher versions.	Resources (High)
IRTP	Displays if the IRLM pass-the-buck (PTB) trace is active.	Traces (Alerts)
IRTR	Displays if the IRLM resource handler (RH) trace is active.	Traces (Alerts)
ISHI	Displays if the DLS region I/O rate is > *nn* EXCPs per second during the last OMEGAMON cycle.	I/O Rates (Regions High)
ISLO	Displays if the DLS region I/O rate is < *nn* EXCPs per second during the last OMEGAMON cycle.	I/O Rates (Regions Low)
ITWH	Displays if the ITASKS waiting for dynamic SAPs are > *nn*.	Pools (Other)
LALO	Displays if the LSQA storage assurance is < *nn* K.	Virtual Storage (Low)
LDMB	Displays if the DMB pool blocks loaded <= *nn*%.	Pools (DMB)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
LKTR	Displays if the lock trace is on.	Traces (Alerts)
LLBR	Displays if the OLDS buffer waits per second are > *nn*.	Logging (OLDS)
LLCH	Displays if the WADS checkwrite requests per second are > *nn*.	Logging (WADS High)
LLKW	Displays if the region status is WT-IRLM or WT-PIENQ and the lock wait elapsed time > *nn*. The default threshold is one second.	Long Lock Waits
LMGH	Displays if the long message data set I/O rate is > *nn* per second.	I/O Rates (Data Sets)
LMLO	Displays if the LSQA maximum free block size is < *nn* K.	Virtual Storage (Low)
LPEX	Displays if the the number of writes to WADS is > *nn* per second.	Logging (WADS High)
LPOQ	Displays if all logical terminals, except video-type, have an output queue length > *nn*.	LTERMS
LPOR	Displays if the OLDS reads (dynamic backout) are > *nn* per second.	Logging (OLDS)
LPOW	Displays if the OLDS writes are > *nn* per second.	Logging (OLDS)
LPSB	Displays if the PSB pool blocks loaded <= *nn*%.	Pools (PSB)
LSLO	Displays if the LSQA total free storage is < *nn* K.	Virtual Storage (Low)
LTOQ	Displays if a video-type, logical terminal has an output queue length > *nn*.	LTERMS
LTWA	Displays if the log tape write-ahead is not active.	Resources (Alerts)
LVOQ	Displays if a video-type, virtual terminal has an output queue length > *nn*.	LTERMS
MDHI	Displays if the message dequeue rate is > *nn* per second.	Message Processing (High)
MDLO	Displays if the message dequeue rate is < *nn* per second.	Message Processing (Low)
MFLD	Displays if the TMEMBER is in a flood condition which occurs if the number of TIBs in use is 100%. The number of TIBs in use reaches 100% if the TIBs in use equal the maximum TIB count.	IMS OTMA
MFSH	Displays if the MFS data set I/O rate is > *nn* per second.	I/O Rates (Data Sets)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
MIRT	Displays the number of message inserts that the specified region did to the message queue. A sample MIRT message is MSG INSERT COUNT FOR REGION xxxxxxxx = *nn*, where xxxxxxxx is the transaction and *nn* is the count. The count field displays the number of get calls the region did to the message queue. If the count field remains constant and the nn value increases, it might indicate that the application program is in a loop.	Message Processing (High)
M*nnn*	Displays dynamic exceptions you create by using the MSGD command. They display if they detect special IMS message numbers on the log. **Note:** You can see these exceptions only in the menu/command interface. For more information, See the MSGD command in the *IBM Tivoli OMEGAMON for IMS Realtime Commands Reference*.	n/a
MPCH	Displays if the MPP region database calls are > *nn*.	Message Processing (High)
MSDI	Displays if an MSDB has an invalid packed field. IMS resets only the packed field if IMS restarts.	Fast Path (Alerts)
MSDO	Displays if an MSDB has an overflowing field. **Note:** IMS resets the overflowing field at the next synchronization point.	Fast Path (Alerts)
MSGE	Displays if the ICNS command is not issued.	IMS Status (Alerts)
MTBR	Displays if the TIB rate for a TMEMBER is > *nn*.	IMS OTMA
MTBU	Displays if the percentage of TIBs in use for a TMEMBER is 70% or higher.	IMS OTMA
NACB	Displays if VTAM ACB is not open.	IMS Status (Alerts)
NDIR	Displays if the systems programmer does not define the $$IMSDIR table. The NDIR analysis detects an undefined $$IMSDIR table and alerts you to the potential cause of any MFS overhead your system might be incurring.	Resources (Alerts)
NDRE	Displays if the $$IMSDIR table entry is not in the MFS format library. OMEGAMON did not find a $$IMSDIR table entry in the MFS format library; you are using critical storage incorrectly.	Resources (Alerts)
NILU	Displays if the IMSLU connection with APPC/MVS is not enabled. This exception trips only on START and FAILED.	IMS Status (Alerts)
NLOQ	Displays if there is an unavailable video-type, logical terminals with an output queue length > *nn*.	LTERMS
NOFB	Displays if a region is in buffer wait due to a lack of Fast Path buffers.	Fast Path (Alerts)
NOOT	Displays if all output threads are in use and there are buffers queuing up for OTHRs.	Fast Path (Alerts)
NPDL	Displays if there is no parallel DL/I.	IMS Status (Alerts)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
NPOQ	Displays if there is an unavailable non-video-type, logical terminals with an output queue length > *nn*.	LTERMS
NQRE	Displays if a RECON data set is enqueued by another job.	Resources (Alerts)
NSDC	Displays if IMS does not perform START DC.	IMS Status (Alerts)
NTIQ	Displays non-competing transactions with an input queue length > *nn*. A non-competing transaction is a transaction that is unable to run for some reason other than the competition for IMS resources. Examples are a transaction where you stopped the transaction code or a transaction that requires the use of a stopped database.	Transactions
NVAP	Displays if there is no VTAM authorized path. Running an IMS VTAM network without the VTAM authorized path option can have significant performance penalties.	IMS Status
NVOQ	Displays if there is an unavailable virtual video-type terminal with an output queue length > *nn*.	LTERMS
OBAU	Displays if a region is currently using the Fast Path overflow buffer allocation.	Fast Path (Alerts)
ODIE	Displays if fewer than three OLDS are still active.	Logging (Alerts)
OHLO	Displays if the ISAM/OSAM hit ratio is < *nn*%.	Buffer Pools
OLER	Displays if OLDS *nn* encountered a write I/O error.	Logging (Alerts)
OLNA	Displays if OLDS auto archiving is not active.	Logging (Alerts)
OLST	Displays if OLDS *nn* is stopped.	Logging (Alerts)
ONLC	Displays if an online change is in progress.	IMS Status (Alerts)
ONLO	Displays if an online change occurred.	IMS Status (Alerts)
ORER	Displays if the number of OLDS with I/O errors is > *nn*.	Logging (OLDS)
ORIP	Displays if the number of OLDS inactive is > *nn*.	Logging (OLDS)
ORST	Displays if the number of OLDS that are stopped is > *nn*.	Logging (OLDS)
OSBL	If there are any ISAM/OSAM database buffer pools locked due to a write error, OSBL displays the number that are locked.	Pools (Alerts)
OSDN	Displays if: There is only one OLDS available. The rest of the OLDS are stopped or have write errors. IMS is terminating because the last available OLDS is damaged.	Logging (Alerts)
OXHI	Displays if the OSAM database data set EXCP rate is > the user-specified limit and applies to all OSAM databases.	Databases (Alerts)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
OXLO	Displays if the OSAM database data set EXCP rate is < the user-specified limit and applies to all OSAM databases.	Databases (Alerts)
PAQC	Displays if the asynchronous output queue length for a TPIPE is > *nn*.	IMS OTMA
PBTR	Displays if PSB trace facility is on.	Traces (Alerts)
PIBC	Displays if the BMP common area page-in rate is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PIBP	Displays if the BMP private area page-in rate is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PICC	Displays if the common area page-in rate for the control region is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PICP	Displays if the private area page-in rate for the control region is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PIDC	Displays if the common area page-in rate for DBRC is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PIDP	Displays if the private area page-in rate for DBRC is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PILC	Displays if the common area page-in rate for IRLM is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PILP	Displays if the private area page-in rate for IRLM is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PIMC	Displays if the message processing region common area page-in rate is > *nn* per second during the last OMEGAMON cycle. The default OMEGAMON cycle is five seconds.	Virtual Storage (Page-In Rate)
PIQC	Displays if the input queue count for a TPIPE is > *nn* (IMS V10 or higher).	IMS OTMA
PIQH	Displays if the number of PI enqueue locks held by the indicated thread is > *nn*.	Locks
PIQR	Displays if the input queue rate for a TPIPE is > *nn* (IMS V10 or higher).	IMS OTMA
PIRP	Displays if the message processing region private area page-in rate is > *nn* per second during the last OMEGAMON cycle. The default OMEGAMON cycle is five seconds.	Virtual Storage (Page-In Rates)
PISC	Displays if the common area page-in rate for the DLS region is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PISP	Displays if the private area page-in rate for the DLS region is > *nn* per second during the last OMEGAMON cycle.	Virtual Storage (Page-In Rates)
PITR	Displays if the program isolation trace facility is on.	Traces (Alerts)
POQC	Displays if the output queue length for a TPIPE is > *nn*.	IMS OTMA
POQR	Displays if the output queue rate for a TPIPE is > *nn*.	IMS OTMA
PROQ	Displays if the printer is unable to receive output.	Resources (Alerts)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
PSTP	Displays if the status of a TPIPE is stopped or input stopped.	IMS OTMA
PSVC	Displays if IMS physical logger task waiting in SVC code.	Resources (Alerts)
PWTA	Displays if the status of a TPIPE is WAITA or WAIT, which are two different types of waits for the transaction pipe on a synchronous message. These states indicate that IMSis waiting for an ACK or waiting for a NAK for a commit-then-send, commit-mode 0 (CM0), output response.	IMS OTMA
QBKH	Displays if the queue blocks data set I/O rate is > *nn* per second.	I/O Rates (Data Sets)
RDSH	Displays if the restart data set I/O rate is > *nn* per second.	I/O Rates (Data Sets)
RGNW	Displays if region waiting time is > *nn* minutes.	Regions
RGSH	Displays if checkpoints taken for an IMS BMP are > *nn*.	Regions
RGSI	Displays if the region sync point interval is > *nn* minutes. The RGSI alerts the customer if current time minus time of the latest system checkpoint is greater than *nn* minutes and the region has insert and/or update activity.	Regions
ROHI	Displays if the message region occupancy is > *nn*%. OMEGAMON calculates the occupancy factor by sampling each message region once every OMEGAMON cycle, to see whether OMEGAMON scheduled a transaction. As this is a statistical method, the data is not significant until there is a relatively large number of samples. OMEGAMON bypasses this exception until it takes at least 120 samples. If the interval setting for the OMEGAMON is five seconds, there is a 10 minute delay for OMEGAMON to calculate occupancy. OMEGAMON does not automatically treat WFI region occupancy as 100%, and considers only a WFI region occupied if the region is not in the waiting for input state. For the occupany factor calculation, OMEGAMON maintains only samples fewer than 60 minutes old. Therefore, the region occupancy is an average over the preceding hour. As message regions stop and restart, OMEGAMON begins the calculation again. A sample exception message is ROHI MPP 'MESSAGE': Region Occupancy = 93.84% (High).	Message Processing (High)
ROLO	Displays if the message region occupancy is < *nn*%. OMEGAMON calculates the occupancy factor by sampling each message region once every OMEGAMON cycle, to see whether OMEGAMON scheduled a transaction. Because it is a statistical method, the data is not significant until there is a relativley large number of samples. OMEGAMON bypasses this exception until it takes at least 120 samples. If the interval setting for the OMEGAMON is five seconds, there is a 10 minute delay for OMEGAMON to calculate occupancy. OMEGAMON does not automatically treat WFI region occupancy as 100%, and considers only a WFI region occupied if the region is not in the waiting for input state. For the occupancy factor calculation, OMEGAMON only maintains samples fewer than 60 minutes old. Therefore, the region occupancy is an average over the preceding hour. As message regions stop and restart, OMEGAMON begins the calculation again. A sample exception message is ROHI MPP 'MESSAGE': Region Occupancy = 6.72% (Low).	Message Processing (Low)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
RSRV	Displays if there is no VTAM connection to the RSR Tracking System. The VTAM connection between the ACTIVE IMS and the TRACKING IMS is not available. The VTAM connection is only available from the ACTIVE IMS. **Note:** Because the TRACKING IMS can function for multiple ACTIVE IMS systems, we cannot identify an IMS that is not connected but should be.	IMS Status (Alerts)
SAPW	Displays if IMS puts an ITASK into the IWAIT state because no dynamic SAPs (save area prefix sets) are available. The SAPW exception message might display with the SDSP (selective dispatching) message. Running out of dynamic SAPs is one reason why IMS activates selective dispatching.	IMS Status (Alerts)
SCTR	Displays if the scheduler trace is active.	Traces (Alerts)
SDLO	Displays if the number of free control intervals in the sequential dependent part of the DEDB area is < *nn*%. The default value is 10.	Fast Path (Low)
SDSP	Displays if selective dispatching is active. IMS invokes selective dispatching, when there is a shortage of storage for some of the IMS internal resources. IMS must restrict the scheduling of new work until IMS relieves the shortage.	IMS Status (Alerts)
SMGH	Displays if the short message data set I/O rate is > *nn* per second.	I/O Rates (Data Sets)
TCOI	Displays if the Time Controlled Operations (TCO) is inactive.	IMS Status (Alerts)
TCOT	Displays if the time controlled operations (TCO) trace is active.	Traces (Alerts)
THHI	Displays if the number of active threads is > *nn*.	Threads (High)
THHP	Displays if the number of active threads is > *nn*% of all available threads.	Threads (High)
THLO	Displays if the number of active threads is < *nn*.	Threads (Low)
THLP	Displays if the number of active threads is < *nn*% of all available threads.	Threads (Low)
TMFH	Displays if the test MFS data set I/O rate is > *nn* per second.	I/I Rates (Data Sets)
TMSI	Displays if the Transport Manager Subsystem (TMS) is not active. **Note:** This also causes a break in the VTAM connection. Without TMS, you cannot re-establish the VTAM connection from the ACTIVE IMS to the TRACKING IMS.	IMS Status (Alerts)
T*nnn*	Displays a dynamic exception that you create by using the THIN command. This exception Displays if it detects that a CCTL exceeded its percentage of threads in use threshold. For more information, see the THIN command in the *IBM Tivoli OMEGAMON for IMS Realtime Commands Reference*.	n/a
TNRS	Displays if a tape device is not responding to an I/O request.	Resources (Alerts)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
TPSB	Displays a dynamic exception that you create by using the TTIM command. This exception Displays if it detects that a PSB exceeded a time threshold. **Note:** You can see this exception only in the command/menu interface. For more information, see the TTIM command in the *IBM Tivoli OMEGAMON for IMS Realtime Commands Reference*.	n/a
TRDY	Displays if a tape device drops ready.	Resources (Alerts)
TXIQ	Displays if there are competing transactions with an input queue length > *nn*. The TXIQ analysis examines all competing transactions to identify those transactions with an input message queue length <= the threshold n, which the user sets. **Note:** A transaction might queue if a message region of the appropriate class is not currently available to run the transaction. A non-competing transaction is a transaction that is unable to run for some reason other than the competition for IMS resources. Examples are a transaction where you stopped the transaction code or a transaction that requires the use of a stopped database.	Transactions
VCAS	Displays if database VSAM control area splits are > per minute.	VSAM
VCIS	Displays if database VSAM control interval splits are > *nn* per minute.	VSAM
VHLO	Displays if the VSAM hit ratio is < *nn*%.	Buffer Pools
VMEX	Displays if the number of extents for the VSAM data set is increasing.	VSAM (Alerts)
VMLO	Displays if IMSCTL maximum private free block size is < *nn* K.	Virtual Storage (Low)
VROQ	Displays if logical terminal is unable to receive output.	IMS Status (Alerts)
VSLO	Displays if IMSCTL total private free block size is < *nn* K.	Virtual Storage (Low)
VTLO	Displays if IMSCTL free block size is < *nn* K.	Virtual Storage (Low)
VWRC	Displays if the VSAM writecheck is ON for a database.	VSAM (Alerts)
VXHI	Displays if the VSAM database data set EXCP rate is > the user-specified limit. **Note:** This exception applies to all VSAM databases.	Databases (Alerts)
VXLO	Displays if the VSAM database data set EXCP rate is < the user-specified limit. **Note:** This exception applies to all VSAM databases.	Databases (Alerts)
WBHI	Displays if BMP working set size is > *nn* K.	Working Sets (High)
WBLO	Displays if BMP working set size is < *nn* K.	Working Sets (Low)

Table 9. IMS exceptions (continued)

Exception ID	Description	Exception group
WCHI	Displays if the control region working set size is > *nn* K.	Working Sets (High)
WCLO	Displays if the control region working set size is < *nn* K.	Working Sets (Low)
WDNA	Displays if the write-ahead data sets (WADS) are inactive.	Logging (Alerts)
WDNB	Displays if the number of spare WADS remaining is < *nn*.	Logging (WADS Low)
WLHI	Displays if the IRLM working set size is > *nn* K.	Working Sets (High)
WLLO	Displays if the IRLM working set size is < *nn* K.	Working Sets (Low)
WMHI	Displays if the message processing region working set size is > *nn* K. The working set size is the number of real pages the region currently has in memory. Under MVS/ESA, the working set size includes expanded storage.	Working Sets (High)
WMLO	Displays if the message processing region working set size is < *nn* K. The working set size is the number of real pages the region currently has in memory. Under MVS/ESA, the working set size includes expanded storage.	Working Sets (Low)
WRHI	Displays if DBRC working set size is > *nn* K.	Working Sets (High)
WRLO	Displays if DBRC working set size is < *nn* K.	Working Sets (Low)
WSHI	Displays if DLS working set size is > *nn* K.	Working Sets (High)
WSLO	Displays if DLS working set size is < *nn* K.	Working Sets (Low)
XCNF	Displays if a Program Isolation (PI) or IMS/VS Resource Lock Manager (IRLM) resource conflict exists.	Locks (Alerts)
XRAT	Displays if XRF automatic takeover is not active.	XRF (Alerts)
XRAV	Displays if XRF availability manager is not active.	XRF (Alerts)
XRIP	Displays if I/O prevention is in progress on the active IMS system.	XRF (Alerts)
XRIT	Displays if I/O toleration is in progress on the standby IMS system.	XRF (Alerts)
XRNS	Displays if XRF surveillance is not active.	XRF (Alerts)
XRPH	Displays if the number of PSTs held on the standby system is > *nn*.	XRF
XRSR	Displays if no secondary RDS is allocated.	XRF (Alerts)
XRTO	Displays if an XRF takeover is in progress.	XRF (Alerts)

Chapter 10. Reference: IMS Fast Paths

By using fast path navigation, you can move directly to a panel instead of navigating through a series of panels to reach the one that you want.

1. Tab over to **Options** on the Action Bar and press **Enter**.
2. Key in 2 (Set Preferences) and press **Enter**.
3. Set mnemonics to ON and press **Enter**. Exit from this panel.
4. Now you can use a fast path from any panel that has an Action Bar.
5. Enter the mnemonic string in the home entry field at the upper left of the panel and press **Enter**. The panel you selected displays.

Use the mnemonics in the following table as a fast path to IMS panels.

Table 10. IMS fast path mnemonics

Mnemonic	**Go To**
GB/G1	Buffer Pools
GDG2	Databases
GO/G3	I/O
GM/G4	Message Queue
GS/G5	System Status
GC/G6	Zoom to underlying OMEGAMON session
GI/G7	Index
Move to **GOTO** on the Action Bar and select Index. The following mnemonics are in the Index.	
GIT	Traces
GIB	DB2
GII	I/O
GIX	XRF
GIO	OSAM Pools
GIV	VSAM Pools
GID	Databases
GIP	Storage Pools
GIL	Logging
GIN	Conflicts
GIF	FastPath Status
GI%	Device Statistics
GI(	Logging Buffers and Status
GI/	Logging Details
GI#	Conflicts CI

Table 10. IMS fast path mnemonics (continued)	
Mnemonic	**Go To**
GI*	Conflicts Latch
GIC	CPU
GIS	Virtual Storage
GIR	Regions
GI1	Databases OP
GI3	Logging OP WADS
GI+	Logging OP OLDS
GI5	Programs OP
GI7	Regions OP
GIZ	Transactions
GIM	Terminals
GIQ	Message Queue
GI@	Pools Description
GIE	Conversations OP
GI2	Lines OP
GI4	LTERMS OP
GI6	PTERMS OP
GI8	Transactions OP
GI9	VTAM Nodes OP
GI)	Fast Path Balancing Groups
Note: If RTA is active, then the following mnemonics are active:	
GIA	Response Time All
GI=	Bottlenecks
From the **Options** pull-down, select **Issue IMS Queries**. Under **IMS Startup Parameters and Overrides**, you see item: **Expandable Storage Pool Upper Limits**. Use any *one* of the following mnemonics for this item; each one takes you to the same popup: OISE OIS5 OI1E O5SE O5S5 O51E O515	

Accessibility

Accessibility features help users with physical disabilities, such as restricted mobility or limited vision, to use software products successfully.OMEGAMON monitoring products support several user interfaces. Product functionality and accessibility features vary according to the interface.

The major accessibility features in this product enable users in the following ways:

- Use assistive technologies, such as screen-reader software and digital speech synthesizer, to hear what is displayed on the screen. Consult the product documentation of the assistive technology for details on using those technologies with this product.
- Operate specific or equivalent features using only the keyboard.
- Magnify what is displayed on the screen.

In addition, the product documentation was modified to include the following features to aid accessibility:

- All documentation is available in both HTML and convertible PDF formats to give the maximum opportunity for users to apply screen-reader software.
- All images in the documentation are provided with alternative text so that users with vision impairments can understand the contents of the images.

Some content presented in IBM Knowledge Center might not yet be in a format that a screen reader can process. If you need help, contact ibmkc@us.ibm.com.

Interface information

The Tivoli Enterprise Portal interface offers the greatest range of functionality, but is not entirely accessible. The OMEGAMON enhanced 3270 user interface offers more limited functionality, but is entirely accessible. (The enhanced 3270 user interface supports all the accessibility features supported by your emulator. If you are using IBM Personal Communications, you can find information about its accessibility features in the Using Emulator Sessions topic. If you are using a third-party emulator, see the documentation for that product for accessibility information.)

The OMEGAMON ("classic") interface uses an ISPF style interface. Standard and custom PF Key settings, menu options, and command-line interface options allow for short cuts to commonly viewed screens. While basic customization options allow for highlights and other eye-catcher techniques to be added to the interface, the customization options are limited.

Related accessibility information

Some content presented in IBM Knowledge Center might not yet be in a format that a screen reader can process. If you need help, contact ibmkc@us.ibm.com.

IBM and accessibility

See the IBM Human Ability and Accessibility Center for more information about the commitment that IBM has to accessibility.

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

Online
Go to the IBM Software Support site at http://www.ibm.com/software/support/probsub.html and follow the instructions.

Troubleshooting Guide
For more information about resolving problems, see the product's Troubleshooting Guide.

Product legal notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing IBM Corporation North Castle Drive Armonk, NY 10504-1785 U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing Legal and Intellectual Property Law IBM Japan, Ltd. 19-21, Nihonbashi-Hakozakicho, Chuo-ku Tokyo 103-8510, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement might not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Corporation 2Z4A/101 11400 Burnet Road Austin, TX 78758 U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be

the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

If you are viewing this information in softcopy form, the photographs and color illustrations may not appear.

Trademarks

IBM, the IBM logo, and ibm.com® are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Java™ and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Privacy policy considerations

IBM Software products, including software as a service solutions, (“Software Offerings”) may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering’s use of cookies is set forth below.

Depending upon the configurations deployed, this Software Offering may use session cookies that collect each user's user name for purposes of session management, authentication, and single sign-on configuration. These cookies cannot be disabled.

If the configurations deployed for this Software Offering provide you as customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent.

For more information about the use of various technologies, including cookies, for these purposes, See IBM's Privacy Policy at http://www.ibm.com/privacy and IBM's Online Privacy Statement at http://www.ibm.com/privacy/details the section entitled "Cookies, Web Beacons and Other Technologies" and the "IBM Software Products and Software-as-a-Service Privacy Statement" at http://www.ibm.com/software/info/product-privacy.

Index

Special Characters

A

B

C

D

E

F

G

H

I

J

K

L

M

O

P

R

S

T

U

V

X

Z

Product Number: 5698-T02