

IBM IMS Sysplex Manager for z/OS
1.3

User's Guide and Reference



Note:

Before using this information and the product it supports, read the information in [“Notices” on page 325](#).

10th Edition (November 2022)

This edition applies to Version 1.3 of IBM IMS Sysplex Manager for z/OS (program number 5655-P01) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this information

IBM® IMS Sysplex Manager for z/OS® (also referred to as IMS Sysplex Manager) is an IMS Tools product that lets you manage multiple IMS systems in a sysplex or IMSplex environment. IMS Sysplex Manager provides a real-time and centralized display of IMS sysplex and IMSplex-related information through a single interface.

These topics provide instructions for installing, configuring, and using IMS Sysplex Manager.

To use these instructions, you must have already installed IMS Sysplex Manager by completing the instructions in the *Program Directory for IBM IMS Sysplex Manager for z/OS* (GI10-8683), which is included with the product media and is also available on the IMS Tools Product Documentation page.

These topics are designed to help database administrators, system programmers, application programmers, and system operators perform the following tasks:

- Understand the capabilities of the functions that are associated with IMS Sysplex Manager
- Install and operate IMS Sysplex Manager
- Customize your IMS Sysplex Manager environment
- Diagnose and recover from IMS Sysplex Manager problems
- Use IMS Sysplex Manager with other IMS products

To use these topics, you should have a working knowledge of:

- The z/OS operating system
- ISPF
- SMP/E
- IMS

Always refer to the IMS Tools Product Documentation web page for complete product documentation resources:

<https://www.ibm.com/support/pages/node/712955>

The IMS Tools Product Documentation web page includes:

- Links to [IBM Documentation](#) for the user guides ("HTML")
- PDF versions of the user guides ("PDF")
- Program Directories for IMS Tools products
- Recent updates to the user guides, referred to as "Tech docs" ("See updates to this information!")
- Technical notes from IBM Software Support, referred to as "Tech notes"
- White papers that describe product business scenarios and solutions

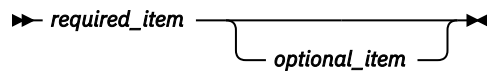
How to read syntax diagrams

The following rules apply to the syntax diagrams that are used in this information:

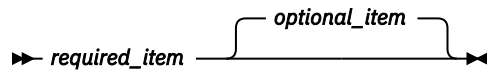
- Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
 - The >>--- symbol indicates the beginning of a syntax diagram.
 - The ---> symbol indicates that the syntax diagram is continued on the next line.
 - The >--- symbol indicates that a syntax diagram is continued from the previous line.
 - The --->< symbol indicates the end of a syntax diagram.
- Required items appear on the horizontal line (the main path).

➤ *required_item* ➤

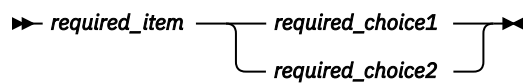
- Optional items appear below the main path.



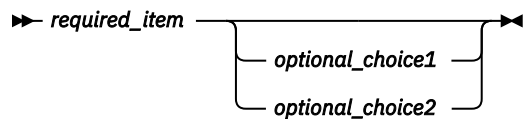
If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.



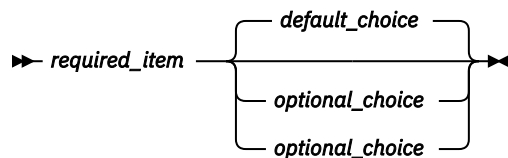
- If you can choose from two or more items, they appear vertically, in a stack.
If you *must* choose one of the items, one item of the stack appears on the main path.



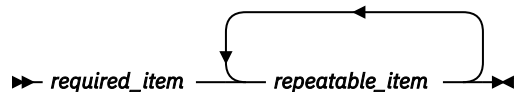
If choosing one of the items is optional, the entire stack appears below the main path.



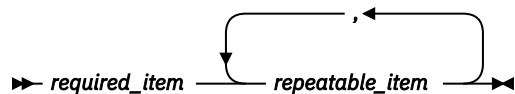
If one of the items is the default, it appears above the main path, and the remaining choices are shown below.



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

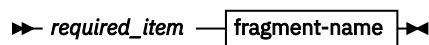


If the repeat arrow contains a comma, you must separate repeated items with a comma.

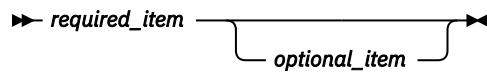


A repeat arrow above a stack indicates that you can repeat the items in the stack.

- Sometimes a diagram must be split into fragments. The syntax fragment is shown separately from the main syntax diagram, but the contents of the fragment should be read as if they are on the main path of the diagram.



fragment-name



- A b symbol indicates one blank position.
- Keywords, and their minimum abbreviations if applicable, appear in uppercase. They must be spelled exactly as shown. Variables appear in all lowercase italic letters (for example, *column-name*). They represent user-supplied names or values.
- Separate keywords and parameters by at least one space if no intervening punctuation is shown in the diagram.
- Enter punctuation marks, parentheses, arithmetic operators, and other symbols exactly as shown in the diagram.
- Footnotes are shown by a number in parentheses; for example, (1).

Part 1. IMS Sysplex Manager overview

IBM IMS Sysplex Manager for z/OS (also referred to as IMS Sysplex Manager) runs in your IMS environment to help you manage multiple IMS systems.

The topics in this section provide you with an overview of IMS Sysplex Manager:

Topics:

- [Chapter 1, “IMS Sysplex Manager overview,” on page 3](#)
- [Chapter 2, “Product scenario and solutions,” on page 15](#)

Chapter 1. IMS Sysplex Manager overview

IBM IMS Sysplex Manager for z/OS (also referred to as IMS Sysplex Manager) runs in your IMS environment to help you manage multiple IMS systems.

Topics:

- [“What's new in IMS Sysplex Manager” on page 3](#)
- [“What does IMS Sysplex Manager do?” on page 4](#)
- [“Product feature details” on page 5](#)
- [“Hardware and software prerequisites” on page 9](#)
- [“IMS Sysplex Manager components” on page 9](#)
- [“IMS Sysplex Manager architecture” on page 11](#)
- [“Service updates and support information” on page 13](#)
- [“Product documentation and updates” on page 13](#)
- [“Accessibility features” on page 14](#)

What's new in IMS Sysplex Manager

This topic summarizes the technical changes for this edition.

New and changed information is indicated by a vertical bar (|) to the left of a change. Editorial changes that have no technical significance are not noted.

Revision markers follow these general conventions:

- Only technical changes are marked; style and grammatical changes are not marked.
- If part of an element, such as a paragraph, syntax diagram, list item, task step, or figure is changed, the entire element is marked with revision markers, even though only part of the element might have changed.
- If a topic is changed by more than 50%, the entire topic is marked with revision markers (so it might seem to be a new topic, even though it is not).

Revision markers do not necessarily indicate all the changes made to the information because deleted text and graphics cannot be marked with revision markers.

SC19-2471-09 - November 2022

Description	Related APARs
The fix for this APAR enables the logger user exit of IMS Sysplex Manager to be loaded by use of the USER_EXIT section of the DFSDFXxx PROCLIB member. The following topics have been updated: <ul style="list-style-type: none">• Chapter 3, “Configuration checklists,” on page 25• Chapter 4, “Configuring the IMS control region,” on page 29	PI80700
The fix for this APAR improves the message viewing function. The following topic has been updated: <ul style="list-style-type: none">• “Viewing and managing destination queue depths” on page 101	PI76820

Description	Related APARs
This enhancement improves the IMS command logging and auditing functionality.	PI75971
The following topics have been updated:	
<ul style="list-style-type: none"> • “IMS command logging and auditing (GJEAUDIT)” on page 144 • New messages GJE8101W and GJE8102E 	

SC19-2471-08 - September 2016

Description	Related APARs
Maintenance roll-up.	N/A
Packaged for inclusion in IBM IMS System Management for z/OS.	N/A

What does IMS Sysplex Manager do?

IMS Sysplex Manager enables you to manage multiple IMS systems in a sysplex or IMSplex environment. IMS Sysplex Manager provides a real-time and centralized display of IMS sysplex and IMSplex information through a single interface.

For example, IMS Sysplex Manager can display real-time data related to the CSL components that are associated with the IMSplex environment, data from the Coupling Facility (CF) structures used by IMS, or data that is generated by IMS systems that are running in a sysplex or IMSplex.

Additionally, IMS Sysplex Manager gives you more control over the operations of IMS systems in a sysplex environment, such as control over where a transaction or a group of transactions are processed.

And to help you monitor IMS systems in a sysplex, IMS Sysplex Manager provides a dashboard feature that allows you to monitor the health of IMS systems. You can use the dashboard to see critical data from key areas and see alerts that indicate when user-defined thresholds are exceeded.

In short, IMS Sysplex Manager has many functions and features that help you manage and monitor IMS systems. The following list shows just some of the benefits IMS Sysplex Manager can provide:

- The ability to manage data sharing, shared message queues, and IMSplex Common Service Layer (CSL) components such as the Operations Manager (OM), Resource Manager (RM), and Structured Call Interface (SCI).
- IMS local and global command support.
- A mechanism to capture console dumps for one or more IMS address spaces around the sysplex.
- Consolidated master terminal operator messages across an IMSplex in an audit log.
- Real-time IRLM/PI locking data is available.
- The ability to define transactions by name or by attribute that have an affinity to one or more IMS systems in the shared queue group and direct control over shared message queue workload balance to better manage availability.

Important: IMS Sysplex Manager differentiates between the terms IMSplex and SMplex when discussing IMS sysplex support, as shown in the following descriptions:

- The term *IMSplex* is used only to identify an IMS system that uses the Common Service Layer (CSL), which includes the Structured Call Interface (SCI), Operations Manager (OM), Resource Manager (RM), and Open Database Manager (ODBM) components.
- The term *SMplex* is used by IMS Sysplex Manager to refer to an environment where IMS exists in a sysplex or IMS sysplex.

Product feature details

The following topics provide more detailed information about some of the product features.

Topics:

- [“Types of IMS and sysplex data that can be accessed” on page 5](#)
- [“Sysplex operations” on page 6.](#)
- [“IMSplex support” on page 6.](#)
- [“IMS shared message queues support” on page 6.](#)
- [“IMS command security support” on page 7](#)
- [“Resource Manager structure information management” on page 7](#)
- [“IRLM data sharing long lock detection” on page 8](#)
- [“Transaction affinity routing in a shared queue environment” on page 8](#)

Types of IMS and sysplex data that can be accessed

You can use IMS Sysplex Manager to access the following types of IMS data: IMS system statistics, coupling facility structure data, destination queue depths, data sharing statistics, and IMSplex statistics.

IMS system statistics

Types of statistics that you can use IMS Sysplex Manager to view include:

- IMS system configuration options and parameters
- Destination queue depths for local queues
- IMS resource definitions for transactions, programs, databases, route codes, LTERMs, and nodes
- Summary of all active dependent regions
- Detailed profile information about an active dependent region
- Latch statistics
- IRLM statistics

Coupling facility structure data

In a sysplex environment, IMS Sysplex Manager gathers information that is related to the various CF structures that are being used. Information is gathered on the following structures:

- In a shared message queues environment, IMS Sysplex Manager returns structure information that relates to the MSGQ, EMHQ, MSGQ overflow, and EMHQ overflow structures. This information can be obtained dynamically if the IMS system is active, or can be defined statically for access when IMS is not active.
- In a data sharing environment, IMS Sysplex Manager returns structure information that is related to the IRLM lock table and any OSAM or VSAM structures.
- In an IMSplex environment, IMS Sysplex Manager returns structure information that is related to the Resource Manager (RM) resource structure.

Destination queue depths

Queue depth data, which includes queue counts for all destination types (transactions, LTERMs, MSNAMES, and TMEMBERS), is captured as part of IMS Sysplex Manager. In a shared message queues environment, both the local queues and the shared message queues are returned. This data is available by using the on-demand, real-time interface.

IMS Sysplex Manager displays only those destinations that have messages that are currently queued.

Data sharing statistics

IMS Sysplex Manager provides information that relates to IMS operating in a data sharing environment, including:

- IRLM statistics

- IRLM locking and lock contention
- General data sharing statistics
- PI locking and lock contention

IMSplex statistics

When operating in an IMSplex environment, IMS Sysplex Manager provides information that relates to IMSplex components, including:

- Resource Manager (RM) resource definitions. The interface displays resource definitions and enables you to delete these definitions.
- Resource Manager processing statistics in an aggregated and detailed view.
- Operations Manager (OM) processing statistics in an aggregated and detailed view.
- Structured Call Interface (SCI) processing statistics in an aggregated and detailed view.

Sysplex operations

IMS Sysplex Manager provides global access to all IMS systems that are participating in a sysplex. The IMS Sysplex Manager user interface address spaces can access any data collector that resides within the sysplex.

The IMS Sysplex Manager server can interact with any data collector in the common XCF group that is located within the same sysplex. You can select the component from which you want to gather real-time data.

IMS Sysplex Manager uses its own XCF group in the z/OS sysplex. In these topics, the components that share this XCF group are referred to as the *sysplex management group*. This group must be uniquely identified by its group name in the sysplex.

IMSplex support

To activate IMS Sysplex Manager IMSplex support, provide the IMSPLEX= parameter value in the data collector customization PROCLIB member.

When activated, the IMS Sysplex Manager IMSplex support provides the following benefits:

- Inclusion of IMSplex components in the IMS Sysplex Manager component selection list
- Access to SCI, OM, and RM statistical information
- The ability to view and selectively delete objects that are contained in the Resource Manager structure
- Access to statistical information about the Resource Manager coupling facility structure
- Integrated access to the IMS Single Point of Control (SPOC) ISPF interface through the IMS Sysplex Manager ISPF interface

IMS Sysplex Manager IMSplex support is optional. IMS Sysplex Manager supports IMS systems that are not using IMSplex. If you choose not to use IMS Sysplex Manager IMSplex support for IMS systems that are using IMSplex, omit the data collector IMSPLEX= parameter value.

IMS shared message queues support

IMS Sysplex Manager provides support for IMS shared message queues. IMS Sysplex Manager automatically detects the use of IMS shared message queues in an IMS system and connects to the Common Queue Server as a CQS client.

IMS Sysplex Manager shared message queues support provides the following benefits:

- A list of IMS destinations that have a depth of one or more messages queued
- Access to statistical information about the shared MSGQ and EMHQ coupling facility structures
- Access to Common Queue Server (CQS) internal statistics
- Filter based on destination name or ID

- Ability to browse, delete and recover messages

IMS Sysplex Manager shared message queues support is accessible even when IMS itself is not available. To make use of this stand-alone support, you must provide several parameters to the data collector.

Stand-alone support is optional. If you choose to not make use of stand-alone support, IMS Sysplex Manager accesses the shared message queues only after an IMS system becomes available, at the time that the IMS Sysplex Manager data collector initializes.

IMS command security support

Commands that are issued from IMS Sysplex Manager share the same security RACF profile with IMS.

Internal command security support is implemented through the Data Collector. The Data Collector performs the security verification within its own address space by using the SAF interface against the same security profile that IMS uses for command security.

As a result, RACF checking uses the same RACF database as the IMS system itself. Similar to IMS itself, the Data Collector creates in-storage profiles for IMS command security. The Data Collector also maintains a pool of cached ACEEs, which is similar to the technique currently used for the IMS Sysplex Manager server.

IMS command security must be implemented to provide for downward compatibility with the existing IMS Sysplex Manager security mechanism. The existing mechanism provides RACF/SAF protection for IMS commands as well as IMS Sysplex Manager-specific functions (RM entry delete).

The IMS Sysplex Manager server can optionally allow additional RACF checking for IMS commands within the IMS Sysplex Manager server through parameter IMSCMDCK=YES/NO.

- When IMSCMDCK=YES is specified, the IMS Sysplex Manager server performs the security check for IMS commands.
- When IMSCMDCK=NO is specified, the IMS Sysplex Manager server bypasses IMS command security checking.
- When RACF is inactive within the IMS Sysplex Manager server, the IMSCMDCK parameter is ignored completely.

When the Data Collector determines that the target IMS system is using RACF command security, the Data Collector automatically uses the same security profile that IMS uses. There is no option to negate this within the Data Collector. This mechanism prevents the creation of any trap door to IMS commands.

If your IMS systems use IMS SMU security, use the IMS Sysplex Manager server option IMSCMDCK=YES.

If your IMS systems use IMS RACF command security, use IMSCMDCK=NO to avoid duplicate RACF checking in the IMS Sysplex Manager server and Data Collector.

The addition of the IMSCMDCK parameter to the DC startup allows you to control the Data Collector's resident ACEE aging mechanism so that it is functionally identical to the RACFAGE parameter that is currently specified in the IMS Sysplex Manager server startup. If the RACFAGE parameter is not specified in the Data Collector, the system default is used.

Resource Manager structure information management

IMS Sysplex Manager allows you to delete resource information from Resource Manager (RM) structures.

The IMS base product does not allow you to delete specific resource information. This information is cleaned up automatically as an internal process. IMS Sysplex Manager gives you the ability to delete structure information that you no longer want in the Resource Manager.

The following events might require you to delete structure information:

- You might want to delete resource information if you made an error when creating a new LTERM or transaction.
- When using online change, resource information is not deleted. You might need to use IMS Sysplex Manager to delete resource information as a way to clean up the structures.

- If an IMS system is brought down, and you do not want to bring it up again, you might want to clean up the resource information by using IMS Sysplex Manager.
- For global IMS information:
 - If an IMS system creates a global attribute that all other IMS systems use, and that attribute is in error, the only way to repair the error is to delete the structure by using IMS, or by using IMS Sysplex Manager to delete the content of the structure.
 - If global online change creates information with errors on the resource structure, you must use IMS Sysplex Manager to delete the information.

Do not delete the resource in the structure if the resource is defined to an IMS system. Only delete resource information in extreme error situations, such as when a name has been entered in error.

Do not attempt to delete the following resources in the following situations:

- An LTERM, when that LTERM is logged on.
- A transaction that is defined in an IMS system.

IRLM data sharing long lock detection

An internal resource lock manager (IRLM) is a subsystem in a z/OS environment that provides lock management, and is used by multiple IMS systems to share data. IMS Sysplex Manager provides automatic IRLM data sharing long lock detection in real-time.

When the DEADLOCK timer expires, all IRLMs in a data sharing group gather waiter/blocker information from their IRLM/IMS pair. That information is used to determine if there is a valid TIMEOUT candidate.

If one is found, the waiter/blocker information is presented to the IMS TIMEOUT exit, which builds and writes an SMF 79 subtype 15. IMS Sysplex Manager gathers all SMF 79 subtype 15 records across the sysplex for each long lock cycle, analyzes and identifies the top blocker and waiters, and formats the data in a readable report.

IMS Sysplex Manager then performs the following tasks:

- Issues the formatted SMF 79.15 data to the z/OS console (where the IMS Sysplex Manager server is running) via write to operator (WTO).

The WTO messages can be turned off by coding the parameter UXITPARM=NOWTO in the IMS Sysplex Manager server configuration member.

- Records the same WTO messages to IMS Sysplex Manager history database
- Notifies interested IMS Sysplex Manager Time-Sharing Option (TSO) users about the exception

In addition, IMS Sysplex Manager provides a user exit interface that allows you to customize the way IMS Sysplex Manager handles exceptions processing.

Transaction affinity routing in a shared queue environment

IMS Sysplex Manager provides the ability to define transactions (by name or class) that have affinity to one or more IMS systems in the shared queue group.

By using IMS Sysplex Manager, you can create and update affinity for transaction destinations.

Affinity routing gives you more control over where a transaction or group of transactions should be processed. The end result is that you have direct control over shared message queue workload balance and can better manage availability.

IMS currently provides affinity capability for local destinations (process message only on input system) and serial transactions. IMS recommends that customers use message region classing, or the stopping of transactions on IMS systems where they do not want a transaction to execute. These methods can be difficult to implement and cumbersome to modify when an IMS system is lost and workload must be reassigned to other systems.

IMS Sysplex Manager uses the DFSMSCEO exit to allow shared queue transaction affinity routing. Routing options and definitions are stored and accessed via a common queue server (CQS) structure.

You can dynamically change or add IMS Sysplex Manager affinity definitions without restarting IMS or without deleting and reallocating CQS affinity structure.

Transaction affinity routing supports:

- A single IMS system
- A set of IMS systems with equal priority in distribution
- A set of IMS systems with skewed priority in distribution
- A single IMS system with the provision for the use of one or more backup IMS systems, in the event that the primary IMS system is not available
- A set of IMS systems with the provision for the use of one or more backup IMS systems, in the event that the primary IMS system is not available

Using the IMS Sysplex Manager ISPF interface allows you to view affinity options, definitions, and statistics.

Hardware and software prerequisites

IMS Sysplex Manager is installed by using SMP/E and standard RECEIVE, APPLY, and ACCEPT processing.

Complete information about installation requirements, prerequisites, and procedures for IMS Sysplex Manager is located in the *Program Directory for IBM IMS Sysplex Manager for z/OS*, GI10-8683.

Hardware prerequisites

IMS Sysplex Manager is designed to operate in any hardware environment that supports any supported release of IMS.

Software prerequisites

IMS Sysplex Manager is designed to operate with any version of z/OS that supports the version of IMS that you are running. All supported releases of IMS are supported by IMS Sysplex Manager.

IMS Tools Generic exits

To support the operation of IMS Sysplex Manager in an IMS environment, the following IMS Tools Generic exits must be configured:

- Generic Logger exit (DFSFLGX0)
- Generic TM and MSC Message Routing and Control user exit routine (DFSMSCEO)

See the *IMS Tools Base for z/OS IMS Tools Common Services User's Guide and Reference* for instructions for configuring the IMS Tools Generic exits.

IMS Sysplex Manager components

IMS Sysplex Manager is comprised of four components: an IMS control region, a data collector, an IMS Sysplex Manager server, and an IMS Sysplex Manager user interface. IMS Sysplex Manager requires these common components that are used to support the operations of IMS Sysplex Manager.

Topics:

- [“IMS control region” on page 10](#)
- [“Data collector” on page 10](#)
- [“IMS Sysplex Manager server” on page 10](#)
- [“IMS Sysplex Manager user interface” on page 11](#)

IMS control region

The IMS control region component establishes a presence within the IMS system during IMS system initialization. The presence in the IMS control region is established by using the IMS-supported logger exit routine, DFSFLGX0.

IMS Sysplex Manager operates in most types of IMS control regions, including DBCTL and DCCTL. However, IMS Sysplex Manager does not operate in the IMS Fast Database Recovery region or the IMS Connect address space.

Unless otherwise noted, the IMS control region, DBCTL, and DCCTL are referred to as the *IMS control region*. IMS Sysplex Manager must be installed in each IMS control region that is part of the same IMS Sysplex Manager group.

The IMS Sysplex Manager initialization routines receive control from IMS through the IMS-supported Physical Logger exit routine, DFSFLGX0. The IMS control region presence is established dynamically in the IMS control region through this interface.

Coexistence with any user- or vendor-supplied DFSFLGX0 is supported by the use of IMS Tools Generic exits, a mandatory common code component shipped with IMS Tools Base for z/OS.

Requirement: You must install and configure the IMS Tools Generic Logger exit in order for IMS Sysplex Manager to initialize successfully in the IMS Control Region. You also must configure the Generic MSC exit if you want to use the transaction affinity function of IMS Sysplex Manager.

You can quickly install or uninstall IMS Sysplex Manager in IMS by adding or removing the IMS Sysplex Manager's logger exit (GJEIINT0) from the Generic Logger exit PROCLIB member.

Data collector

The data collector address space is responsible for collecting IMS Sysplex Manager data by communicating with IMS systems, IMS Sysplex Manager servers, Common Queue Server address spaces, and Common Service Layer address spaces.

The data collector communicates with the following entities:

- One or more IMS systems that are being managed
- One or more IMS Sysplex Manager server address spaces
- One or more Common Queue Server address spaces that are associated with the IMS systems that are being managed
- One or more Common Service Layer (CSL) address spaces that are associated with the IMSplex that are being managed

The data collector runs in a separate address space on the same z/OS system as the IMS control region that is being monitored. You can start the data collector address space anytime before or after the IMS control region is started, or start it automatically by using the IMS control region.

If a data collector address space is not present, IMS systems that are running are not affected.

A single data collector is required for each z/OS system in the sysplex for which an IMS control region or other SCI component is part of the same IMS Sysplex Manager group. You cannot run multiple data collectors on the same z/OS system and have them be part of the same group.

IMS Sysplex Manager server

The IMS Sysplex Manager server address space interacts with one or more data collector address spaces to gather IMS sysplex-related data.

The IMS Sysplex Manager server also interacts with the TSO/ISPF user interface to service user requests.

The IMS Sysplex Manager server is responsible for recording and maintaining IMS Sysplex Manager exception data. System exception data is recorded and provided to the TSO/ISPF user interface for display.

The IMS Sysplex Manager server is responsible for collecting data at user-defined periods and evaluating the collected data for exceeding user-defined thresholds. The server sends dashboard and threshold exceptions data to client dashboard displays and records threshold exceptions in the history database for future viewing.

A single IMS Sysplex Manager server is required for an IMS Sysplex Manager group. You can use multiple servers to reduce the risk of a single point of failure.

You can run the IMS Sysplex Manager server on any z/OS system that is located within the same sysplex as the IMS control region and data collector address spaces.

IMS Sysplex Manager user interface

Use the IMS Sysplex Manager user interface to access IMS Sysplex Manager data from a TSO/ISPF environment.

You can use the IMS Sysplex Manager user interface to request real-time information from an IMS Sysplex Manager server address space.

You can run the IMS Sysplex Manager user interface on the same z/OS system or any z/OS system that is located within the same sysplex as the IMS Sysplex Manager server, the IMS control region, and the data collector address spaces.

IMS Sysplex Manager architecture

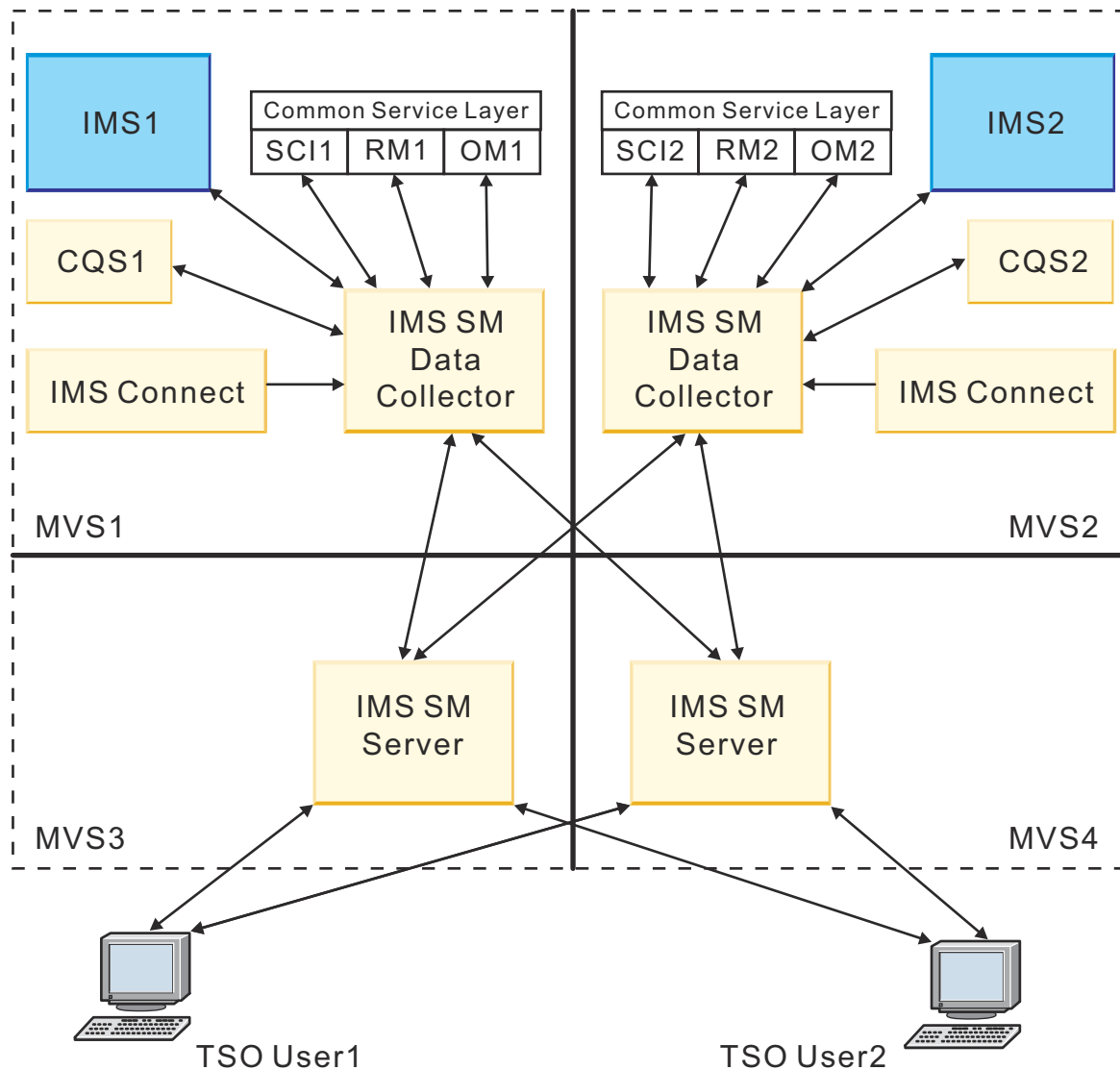
Collectively, the four IMS Sysplex Manager component types (IMS control region, data collector, IMS Sysplex Manager server, and IMS Sysplex Manager user interface) are referred to as an *IMS sysplex management group*.

An IMS sysplex management group must contain at least one of each component type. However, you can configure a group that contains multiple instances of each component type.

For example, you can create an IMS sysplex management group in an IMS sysplex that includes multiple IMS systems and data collectors, with a single user interface component. The advantage of this configuration is that it creates a single interface to the IMS sysplex.

Alternatively, for the same IMS sysplex, the IMS sysplex management group can contain multiple IMS Sysplex Manager servers, each serving as an interface to just one of the IMS systems. You control the components of each IMS sysplex management group.

The following diagram displays a sample IMS Sysplex Manager configuration in an IMS sysplex environment. This diagram illustrates a four-way sysplex environment:



IMS SM = IMS Sysplex Manager
 IMS SM Server = User Interface Server
 CQS = Common Queue Server

SCI = Structured Call Interface
 RM = Resource Manager
 OM = Operations Manager

Figure 1. IMS Sysplex Manager architecture

- IMS1 and IMS2 are installed on system MVS1 and system MVS2.
- The data collector address space interacts with the IMS control region and is responsible for collecting IMS Sysplex Manager data by communicating with IMS systems, IMS Sysplex Manager servers, Common Queue Server address spaces, and Common Service Layer (CSL) address spaces.

If you are running a shared queue, the data collector will interact with the CQS.

If you are running in IMSplex mode, the data collector will also communicate with the Common Service Layer components RM, OM, SCI, and ODBM.

- The IMS Sysplex Manager server address space interacts with one or more data collector address spaces to gather IMS sysplex-related data. The IMS Sysplex Manager server also interacts with the TSO/ISPF user interface to service user requests.

The user interface server works as a hub of receiving requests from the TSO users. The server determines which data collector will best serve the requests, forwards the requests to the data collector, receives output from the data collector, and returns the results back to the TSO users.

The user interface server also filters out duplicate and aggregate data when required.

Only one user interface server is required in the entire sysplex. The example presented here shows two user interface servers for redundancy.

- You can use the IMS Sysplex Manager user interface to access IMS Sysplex Manager data from a TSO/ISPF environment.

TSO users can log on from anywhere in the sysplex to access IMS Sysplex Manager services.

Service updates and support information

Service updates and support information for this product, including software fix packs, PTFs, frequently asked questions (FAQs), technical notes, troubleshooting information, and downloads, are available from the web.

To find service updates and support information, see the following website:

[IBM Support: IMS Sysplex Manager for z/OS](#)

Product documentation and updates

IMS Tools information is available at multiple places on the web. You can receive updates to IMS Tools information automatically by registering with the IBM My Notifications service.

Information on the web

Always refer to the IMS Tools Product Documentation web page for complete product documentation resources:

<https://www.ibm.com/support/pages/node/712955>

The IMS Tools Product Documentation web page includes:

- Links to [IBM Documentation](#) for the user guides ("HTML")
- PDF versions of the user guides ("PDF")
- Program Directories for IMS Tools products
- Recent updates to the user guides, referred to as "Tech docs" ("See updates to this information!")
- Technical notes from IBM Software Support, referred to as "Tech notes"
- White papers that describe product business scenarios and solutions

IBM Redbooks® publications that cover IMS Tools are available from the following web page:

<http://www.redbooks.ibm.com>

The IBM Information Management System website shows how IT organizations can maximize their investment in IMS databases while staying ahead of today's top data management challenges:

<https://www.ibm.com/software/data/ims/>

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4. Click **Continue** to specify the types of updates that you want to receive.
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To help us respond quickly and accurately, please include as much information as you can about the content you are commenting on, where we can find it, and what your suggestions for improvement might be.

Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use a software product successfully.

The major accessibility features in this product enable users to perform the following activities:

- Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.
- Customize display attributes such as color, contrast, and font size.
- Operate specific or equivalent features by using only the keyboard. Refer to the following publications for information about accessing ISPF interfaces:
 - *z/OS ISPF User's Guide, Volume 1*
 - *z/OS TSO/E Primer*
 - *z/OS TSO/E User's Guide*

These guides describe how to use the ISPF interface, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.

Chapter 2. Product scenario and solutions

The following topics can help you understand the many capabilities provided by the IMS Sysplex Manager product.

Topics:

- [“Scenario: Managing shared queues” on page 15](#)
- [“Solutions: IMS information and management” on page 16](#)
- [“Solutions: IMSplex information and management” on page 18](#)
- [“Solutions: Data sharing” on page 19](#)
- [“Solutions: Shared queue and CQS management” on page 20](#)
- [“Solutions: System health management” on page 21](#)

Scenario: Managing shared queues

By using IMS Sysplex Manager, Paul, a fictitious database administrator, was able to control where specific transactions were processed and therefore gain more control over shared queues.

Currently, the organization that Paul works for operates three IMS systems. One system is used for disaster recovery, and the other two are the main production systems that operate in a sysplex environment. One of the benefits of a sysplex environment is that Paul can enable shared queues. Shared queues make it easier to balance workloads and increase reliability.

Current challenges with shared queues

Paul has recently enabled shared queues but wants more control over affinities. For example, payroll transactions that are received on a particular system must be processed on that same system to complete successfully.

Even though IMS currently provides affinity capability for local destinations and serial transactions, IMS requires users to use message region classing or to stop transactions on the IMS systems where they do not want a transaction to execute. These methods can be difficult to implement and modify. To address these issues, Paul has installed and configured IMS Sysplex Manager, which includes transaction affinity routing.

Solution with transaction affinity routing

Transaction affinity routing gives Paul the ability to define transactions that have an affinity to one or more IMS systems in a shared queue group. By using transaction affinity routing, Paul has total control of which transaction are processed on what system. Paul assigns affinity to transactions by coding control statements in a PROCLIB member. These control statements are detailed in the following topic: [“Activating affinity routing” on page 37](#).

In the control statements, Paul assigns all the PAYROLL transactions that start with PAY* to be processed on the local system where the transactions are entered. By using IMS Sysplex Manager, Paul processes transactions without rerunning SYSGENs for the transactions that he specified. He also does not need to reassign processing classes of the affected dependent regions.

Additionally, by using transaction affinity routing, Paul eliminates false scheduling in IMS because IMS Sysplex Manager assigns affinity to each of the incoming transactions.

In summary, IMS Sysplex Manager transaction affinity routing gives Paul more control over where a group of transactions are processed. With direct control over the shared message queue, Paul is able to reduce processing time and improve transaction throughput.

Solutions: IMS information and management

IMS Sysplex Manager provides features that allow you to obtain information about the IMS systems in your sysplex environment. You can also perform certain management functions on these IMS systems.

Solutions:

- [“Component inventory” on page 16](#)
- [“Managing IMS system parameters” on page 16](#)
- [“Verifying IMS resource definitions” on page 16](#)
- [“Issuing IMS commands” on page 17](#)
- [“Maintaining a command audit trail” on page 17](#)
- [“Managing dependent regions” on page 18](#)
- [“Viewing IMS coupling facility structures” on page 18](#)

Component inventory

In an IMS environment, there are a multitude of address spaces, such as IMS control region, IMS DLI/SAS, IMS DBRC, IRLM, CQS, RM, OM, and SCI. IMS Sysplex Manager can help provide you with inventory information for these components.

Possible problems and questions that need solutions:

- How do you identify related IMS components across the sysplex?
- What is the status of these components?
- What version of IMS components are involved?
- How many resources are the components using from a z/OS perspective?

Product solutions:

Use the IMS Sysplex Manager structured TSO/ISPF interface to:

- Display all related IMS components across z/OS images
- Provide component ID, task or job name, version, status, and basic z/OS information such as CPU time and EXCP counts
- Drill down to detailed component information

Managing IMS system parameters

You can manage the many IMS system run time parameters.

Possible problems and questions that need solutions:

- How to identify sources of parameters? For example, DFSPBxxx and overrides via control region PARM=.
- Which parameters are being used?
- Are the parameters the same across the sysplex?

Product solutions:

The System Configuration Options and Parameters panel provides a real-time scrollable display of information:

- Resolved values
- Parameter values across all IMS systems for easy comparison

Verifying IMS resource definitions

You can verify the IMS resource definitions in a sysplex environment.

Possible problems and questions that need solutions:

- How to identify transactions, programs, databases, nodes, and LTERMS?
- Are the definitions the same across the sysplex?
- What is the resource status across the sysplex?
- How do you alter the status across the sysplex?

Product solutions:

Use the IMS Resource Information panels to:

- Query resources by status or attribute
- Provide real-time scrollable display of resources
- Display resource attributes and status across all IMS systems for easy comparison
- Use the integrated IMS type-1 command interface to alter resource status
- Drill down to related resource (for example, from transaction to PSB, from PSB to databases, and so forth)

Issuing IMS commands

You can issue type-1 and type-2 IMS commands to all IMS systems.

Possible problems and questions that need solutions:

- Can I use IMS commands to display the same resource type across the sysplex?
- Can I use IMS commands to alter resource status across the sysplex, with or without the use of IMS Operations Manager?

Product solutions:

IMS command are issued to each IMS system:

- Command output recorded to a command file and logged history file
- ISPF Browse (view) is used to display result
- Capability includes scrollable, primary, and line commands (for example, find, exclude)
- Retrievable list of previously entered commands is available

Maintaining a command audit trail

You can keep track of activity occurring on your IMS systems.

Possible problems and questions that need solutions:

- Do you require an audit trail of IMS commands and their responses for audit or problem determination purpose?
- Do you require an easy way of viewing all IMS system messages across multiple IMSs?
- Do you require an automatic archive facility for audit log?

Product solutions:

Capabilities of IMS Sysplex Manager history data sets include:

- Log most type-1 IMS commands, command responses, and MTO messages from all IMS images regardless of origins (for example, z/OS console, terminal, OTMA, and AOI programs using CMD or ICMDB interface)
- Searchable and filterable online viewing of log data using ISPF dialog
- Automatic archive full history data set for retention purposes
- Archive Directory to assist in locating archived data
- Issue type-1 and type-2 IMS commands while viewing log data (similar to z/OS SDSF)

Managing dependent regions

You can manage transaction workload backlog.

Possible problems and questions that need solutions:

- What dependent regions are available?
- What transaction classes do they handle?
- Are the dependent regions occupied with work?
- What are the dependent regions doing?

Product solutions:

Use the IMS Dependent Region Activity panels to display a scrollable list of all dependent regions across the sysplex:

- Show enhanced IMS /DISPLAY ACTIVE REG
- Display overall DL/I DB/TM call counts
- Resequence by primary or secondary classes
- Drill down to lower levels of detail

Viewing IMS coupling facility structures

You can view IMS coupling facility (CF) structure information.

Possible problems and questions that need solutions:

- How do I easily view structures that include data sharing, shared message queues, and Resource Manager?
- Can I single source listing of in-use structures and structure details?

Product solutions:

Use the Coupling Facility Structure panels to:

- Provide real-time display of the structure list
- Display statistics, connections, and coupling facility information

Solutions: IMSplex information and management

IMS Sysplex Manager provides features that allow you to obtain IMSplex information. You can also perform certain management functions across the IMSplex

Solutions:

- [“Managing CSL Resource Manager structure content” on page 18](#)
- [“Displaying aggregated SCI, RM, and OM statistics” on page 19](#)

Managing CSL Resource Manager structure content

You can manage Common Service Layer (CSL) Resource Manager (RM) component structure content.

Possible problems and questions that need solutions:

- Need to know global status of IMS resources in an IMSplex
- Need to determine IMSplex-wide status of transactions, LTERMs, and users
- Require the capability to view content
- Require the capability to alter and delete inconsistently defined resources

Product solutions:

Use the IMS Resource Management and IMS Resource Information panels to:

- Provide real-time display of RM structure content
- Select content by resource type and name filtering
- Delete selected resource definitions
- Eliminate the need to scratch and reallocate resource structure

Displaying aggregated SCI, RM, and OM statistics

You can manage the condition of Common Service Layer (CSL) address spaces.

Possible problems and questions that need solutions:

- There is a lack of tools that can obtain CSL statistical information
- There are multiple instances to check

Product solutions:

Use the View IMSplex Data panels to:

- Capture aggregated CSL address space information into a single system image
- Drill down for information from individual address spaces

Solutions: Data sharing

IMS Sysplex Manager provides features that allow you to obtain information on data sharing.

Solutions:

- [“Resolving data sharing long locks” on page 19](#)
- [“Viewing real-time IRLM and PI locking status” on page 19](#)
- [“Viewing aggregated IRLM statistics” on page 20](#)

Resolving data sharing long locks

You can resolve database lockouts caused by applications holding IRLM locks for an inordinate amount of time.

Possible problems and questions that need solutions:

- Lockouts can go unrecognized until they become critical
- There is a lack of supported tools to assist in the recognition and identification of this problem
- Manual intervention is usually required to resolve the problem

Product solutions:

Apply exception processing for long locks.

- Automatic real-time recognition when IRLM locks are detected
- Information is consolidated, analyzed for the top blocker, and displayed
- Information is recorded in the exceptions file and sent to the z/OS console
- Messages can be sent to the z/OS console using a user exit so that automated operations can be resolved
- Problems are quickly resolved without manual intervention

Viewing real-time IRLM and PI locking status

You can identify resource contentions.

Possible problems and questions that need solutions:

- Determine which IMS-dependent region and application is holding resources

- Untangle the queue of holders and waiters
- Determine those resources with contention

Product solutions:

Use the IRLM Locks panels to:

- Display those resources with contention
- Select by dependent region and drill down to resource
- Select by resource and drill down to dependent region

Viewing aggregated IRLM statistics

You can obtain information on the condition of one or more IRLMs.

Possible problems and questions that need solutions:

- Can you identify deadlocks, false contentions, and storage utilization?
- You have multiple IRLMs to check.

Product solutions:

Use the Aggregated IRLM Statistics panels to gather information from IRLMs across the sysplex:

- Information is aggregated into a single system image
- You can drill down to display information from individual IRLMs

Solutions: Shared queue and CQS management

IMS Sysplex Manager provides features that allow you to manage destination queue depth and the common queue server (CQS).

Solutions:

- [“Managing destination queue depth and CQS” on page 20](#)

Managing destination queue depth and CQS

You can manage destination queue depth and the common queue server (CQS).

Possible problems and questions that need solutions:

- There are limited tools to browse, delete and recover messages on shared queues
- There is a lack of tools for obtaining CQS statistical information and managing messages on shared queues
- You are required to optimize the shared queues environment

Product solutions:

Use the Destination Queue Depths and IMS Common Queue Server panels to:

- Display destination queue depth data and list of shared queue structures in use
- Filter data based on destination name or ID high level information and drill down to details
- Browse, Delete, and Recover messages from cold queue
- Show statistics for structure, rebuild, and checkpoint
- Display CQS processing counters

Solutions: System health management

IMS Sysplex Manager provides a dashboard feature that allows you to manage the IMS sysplex through key system indicators.

Solutions:

- [“Managing an IMS sysplex through key system indicators” on page 21](#)

Managing an IMS sysplex through key system indicators

You can manage an IMS sysplex by viewing snapshots of key system indicators.

Possible problems and questions that need solutions:

- Determine overall sysplex health at a glance
- Show alerts when indicators exceed predefined thresholds

Product solutions:

Use the IMS Sysplex Manager dashboard to:

- Display critical data from key areas, all summarized on one or more screens
- Customize content, positioning, and threshold values
- Refresh the dashboard screen automatically for operational ease
- Drill down for additional detail

Part 2. Configuring IMS Sysplex Manager

The topics in this section provide you with information on configuring and starting the IMS Sysplex Manager product:

Topics:

- [Chapter 3, “Configuration checklists,” on page 25](#)
- [Chapter 4, “Configuring the IMS control region,” on page 29](#)
- [Chapter 5, “Configuring the data collector,” on page 43](#)
- [Chapter 6, “Configuring the IMS Sysplex Manager server,” on page 49](#)
- [Chapter 7, “Configuring user exits for the OM audit trail,” on page 57](#)
- [Chapter 8, “IMS Sysplex Manager ISPF subsystem interface,” on page 59](#)

Chapter 3. Configuration checklists

The configuration checklists are a summary of the configuration procedures that you must complete after installation to ensure a successful startup of IMS Sysplex Manager.

Key configuration tasks include customizing PROCLIB members, modifying JCL, and creating APF and RACF authorizations.

Use the PROCLIB sample members that are provided in the *smphlq.SGJESAMP* data set, which is included with the IMS Sysplex Manager package.

Configuration checklists are provided for the following five components:

- IMS control region
- Data collector
- IMS Sysplex Manager server
- Operations Manager user exits (optional)
- IMS Sysplex Manager ISPF user interface

IMS control region

The IMS control region provides a central point of control for IMS Sysplex Manager within an IMS system. The following checklist summarizes the steps for configuring the IMS control region:

Table 1. IMS control region configuration checklist

Step	Description
1.	APF authorize IMS Tools Generic exits and the IMS Sysplex Manager library.
2.	Add an entry in the z/OS program properties table (PPT) for IMS Sysplex Manager.
3.	<p>Option 1: Create the GLX PROCLIB member (GLXEXIT0 or GLXiiii0) to specify the IMS Sysplex Manager logger exit (GJEIINT0).</p> <p>Option 2: Configure IMS DFSDFxxx PROCLIB member (the SECTION=USER_EXITS section with TYPE=LOGWRT) to specify the IMS Sysplex Manager logger exit (GJEIINT0).</p> <p>Note: If an IMS environment has both IMS DFSDFxxx PROCLIB member and the IMS Tools Base GLXEXIT0 PROCLIB member, the user exits in the IMS Tools Base GLXEXIT0 PROCLIB member will not be processed.</p>
4.	<p>If the transaction affinity feature is used, create the GEX PROCLIB member (GEXEXIT0 or GEXiiii0) to point to the IMS Sysplex Manager MSC exit (GJEMSCE0).</p> <p>See the <i>IMS Tools Base for z/OS IMS Tools Common Services User's Guide and Reference</i> for instructions for configuring this exit.</p>
5.	Create the PROCLIB member (GJEIxxxx, where xxxx is IMSid) for IMS Sysplex Manager.
6.	If transaction affinity feature is used, create affinity PROCLIB member (GJEAYyyy, where yyy is the affinity PROCLIB member suffix).
7.	Make sure IMS Tools Generic exits is first in the IMS control region //STEPLIB.
8.	Start the IMS control region and check for successful initialization of IMS Sysplex Manager.

See [Chapter 4, “Configuring the IMS control region,” on page 29](#) for detailed instructions for configuring the control region.

Data collector

The data collector collects all the IMS Sysplex Manager data by communicating with IMS systems, IMS Sysplex Manager servers, common queue server address spaces, and common service layer address spaces. The following checklist summarizes the steps for configuring the data collector:

Table 2. Data collector configuration checklist

Step	Description
1.	Create the PROCLIB member for the data collector.
2.	Configure BPE options for the data collector.
3.	Modify the sample JCL procedure for the data collector.
4.	Start the data collector address space on the same MVS™ where IMS is running.
5.	Check for successful initialization of the data collector.

See Chapter 5, “Configuring the data collector,” on [page 43](#) for detailed instructions for configuring the data collector.

IMS Sysplex Manager server

The IMS Sysplex Manager server records and maintains IMS Sysplex Manager exception data, which is recorded and displayed to the TSO/ISPF user interface. The following checklist summarizes the steps for configuring the server:

Table 3. IMS Sysplex Manager server configuration checklist

Step	Description
1.	Create the PROCLIB member for the server.
2.	Configure BPE options for the server.
3.	Allocate the history database VSAM data sets.
4.	Allocate the threshold data set.
5.	Modify the sample JCL procedure for the server.
6.	Start the server address space on the same MVS where IMS is running.
7.	Check for successful initialization of the server.

See Chapter 6, “Configuring the IMS Sysplex Manager server,” on [page 49](#) for detailed instructions for configuring the IMS Sysplex Manager server.

Operations Manager user exits (optional)

You can configure the Operations Manager (OM) user exits to record an audit trail for OM command inputs and responses. Type-1 or type-2 commands that are processed by OM are also logged. The following checklist summarizes the steps for configuring the OM user exits:

Table 4. IMS Operations Manager user exits configuration checklist

Step	Description
1.	Create the IMS Sysplex Manager OM PROCLIB member GJxxxxxx.
2.	Update the OM started task BPE configuration member.
3.	Define the IMS Sysplex Manager OM user exits.

Table 4. IMS Operations Manager user exits configuration checklist (continued)

Step	Description
4.	Add the IMS Sysplex Manager load library to OM started task JCL //STEPLIB.
5.	Restart the OM started task.
6.	Check for successful initialization of the IMS Sysplex Manager OM exit.

See Chapter 7, “[Configuring user exits for the OM audit trail](#),” on page 57 for detailed instructions for configuring the exits.

IMS Sysplex Manager ISPF user interface

The IMS Sysplex Manager ISPF panels are structured to provide an easy-to-use interface to help you manage your IMS systems. The following checklist summarizes the steps for configuring the interface:

Table 5. IMS Sysplex Manager ISPF client configuration checklist

Step	Description
1.	Add the definition for the IMS Sysplex Manager subsystem interface definition to SYS1.PARMLIB subsystem definition member IEFSSNxx.
2.	Copy IMS Sysplex Manager subsystem module GJESS110 to LPA.
3.	Either IPL the z/OS system to activate update PPT entry and new subsystem, or use the z/OS SET SCH= command and SETSSI command.
4.	From ISPF option 6, run the IMS Sysplex Manager product CLIST to access the IMS Sysplex Manager panels.

See Chapter 8, “[IMS Sysplex Manager ISPF subsystem interface](#),” on page 59 for detailed instructions for configuring the ISPF interface.

Chapter 4. Configuring the IMS control region

The IMS control region establishes a presence within the IMS system during IMS system initialization. You must configure the IMS control region before you can start IMS Sysplex Manager.

Procedure

To configure the IMS control region, complete the following steps:

1. Configure the generic logger exit to point to the IMS Sysplex Manager logger exit. If you want to use the transaction affinity or the shared queue local buffer overflow protection, you must configure the generic MSC or QSN exits.

Logger exit

(Required) Option 1: Configure the GLX PROCLIB member (GLXEXIT0 or GLXiiii0) to specify the IMS Sysplex Manager logger exit (GJEIINT0).

Option 2: Configure IMS DFSDfxxx PROCLIB member (the SECTION=USER_EXITS section with TYPE=LOGWRT) to specify the IMS Sysplex Manager logger exit (GJEIINT0).

Note: If an IMS environment has both IMS DFSDfxxx PROCLIB member and the IMS Tools Base GLXEXIT0 PROCLIB member, the user exits in the IMS Tools Base GLXEXIT0 PROCLIB member will not be processed.

MSC exit

(Optional) Create the GEX PROCLIB member (GEXEXIT0 or GEXiiii0) to point to the IMS Sysplex Manager MSC exit (GJEMSCE0).

QSN exit

(Optional) Create the GEXQ PROCLIB member (GEXQEXIT or GEXQiiii) to point to the IMS Sysplex Manager QSN exit (GJEQSSP0)

See the *IMS Tools Base for z/OS IMS Tools Common Services User's Guide and Reference* for more information about configuring each exit.

2. Create a member of the PROCLIB data set to contain the IMS Sysplex Manager control region keyword parameters.

You can place this PROCLIB member either in the normal IMS PROCLIB data set that is already allocated to your IMS control region JCL or in the member that was created during the installation of IMS Sysplex Manager.

This PROCLIB data set must be included in the //PROCLIB data set concatenation in the IMS control region.

The member name must be GJEIxxxx, where xxxx is the IMS ID that is associated with the IMS control region.

Repeat this step for each IMS control region to be included in the IMS Sysplex Manager group.

3. Specify the IMS control region parameters in the PROCLIB member that you created.

To see parameter descriptions and their default values, see [“IMS control region parameters” on page 30](#).

4. Optional: If you want to use transaction affinity routing in a shared queue environment, you must define a series of control statements and define the GJEAYyyy PROCLIB member.

For more information about transaction affinity routing, see [“Activating affinity routing” on page 37](#).

5. Modify the JCL for the IMS control region.

- a) Add the IMS Sysplex Manager program library to your IMS control region //STEPLIB or //JOBLIB data set concatenation.

The IMS Sysplex Manager program library must always be concatenated ahead of the IMS RESLIB.

- b) Include the customized PROCLIB member in the //PROCLIB data set concatenation.
- c) Ensure that the Generic Logger exit is configured to point to IMS Sysplex Manager's logger exit (GJEIINTO).
- d) Ensure that the IMS Tools Generic exits copy of DFSFLGX0 precedes any other library.
6. APF-authorize program libraries by adding the IMS Sysplex Manager and IMS Tools Generic exits program libraries to the z/OS APF list for each z/OS system that IMS Sysplex Manager will run on.
7. Use the **SETPROG** command to activate the updated APF list.
8. Edit the SCHEDnn member of the SYS1.PARMLIB data set for each z/OS system that IMS Sysplex Manager will run on.
9. Add the following Program Properties Table (PPT) definition to the SCHEDxx member.

```

PPT PGMNAME(GJECI000)                /* PROGRAM NAME = GJECI000
      CANCEL                          /* PROGRAM CAN BE CANCELED
      KEY(7)                          /* PROTECT KEY ASSIGNED IS 7
      NOSWAP                          /* PROGRAM IS NON-SWAPPABLE
      NOPRIV                          /* PROGRAM IS NOT PRIVILEGED
      DSI                             /* REQUIRES DATA SET INTEGRITY
      PASS                            /* CANNOT BYPASS PASSWORD PROTECTION
      SYST                            /* PROGRAM IS A SYSTEM TASK
      AFF(NONE)                       /* NO CPU AFFINITY
      NOPREF                          /* NO PREFERRED STORAGE FRAMES

```

10. Issue the z/OS **SET SCH=** command to activate the updated PPT.
11. Start the IMS control region.

Results

If initialization is successful, messages such as the ones in the following example are generated in the IMS control region job log:

```

GJE2030I PROCESSING PROCLIB CONFIGURATION MEMBER GJEIIMS1 IMS1
DFS000I GJE2030I PROCESSING PROCLIB CONFIGURATION MEMBER GJEIIMS1  IMS1
GJE2002I IMS SYSPLEX MANAGER REQ ITASK INITIALIZATION COMPLETE IMS1
GJE2002I IMS SYSPLEX MANAGER EVT ITASK INITIALIZATION COMPLETE IMS1
DFS000I GJE2002I IMS SYSPLEX MANAGER REQ ITASK INITIALIZATION COMPLETE  IMS1
DFS000I GJE2002I IMS SYSPLEX MANAGER EVT ITASK INITIALIZATION COMPLETE  IMS1
GJE2750I PROCESSING PROCLIB CONFIGURATION MEMBER GJEARTG1 IMS1
DFS000I GJE2750I PROCESSING PROCLIB CONFIGURATION MEMBER GJEARTG1  IMS1
GJE2700I IMS SYSPLEX MANAGER AFFINITY ROUTER INITIALIZATION COMPLETE IMS1
DFS000I GJE2700I IMS SYSPLEX MANAGER AFFINITY ROUTER INITIALIZATION COMPLETE  IMS1
GJE2000I IMS SYSPLEX MANAGER INITIALIZATION COMPLETE IMS1
GJE2002I IMS SYSPLEX MANAGER CTL ITASK INITIALIZATION COMPLETE IMS1
DFS000I GJE2000I IMS SYSPLEX MANAGER INITIALIZATION COMPLETE  IMS1
DFS000I GJE2002I IMS SYSPLEX MANAGER CTL ITASK INITIALIZATION COMPLETE  IMS1

```

IMS control region parameters

As part of the control configuration, you must customize the control region PROCLIB member. You can view descriptions of the IMS control region parameters, which explain the function of each parameter and their default values.

AFFNSFX=yyyy

(Optional) Specifies the GJEyyyy PROCLIB member that contains the control statements to configure shared message queue transaction affinity.

yyyy is the suffix from the GJEyyyy PROCLIB member.

This parameter has no default value.

DCNAME

(Optional) Specify the name of the IMS Sysplex Manager data collector procedure. If you specify the data collector procedure name, a z/OS **START** command for the procedure is issued after IMS Sysplex Manager initialization has completed within the IMS control region. IMS Sysplex Manager checks for the presence of an existing data collector address space with the name that is specified for DCNAME=.

If an existing data collector is found, the z/OS **START** command is not issued. For this reason, the job name or started task name for the data collector must be the same name as the name that is specified for DCNAME.

If it is not specified, the IMS control region does not automatically start the data collector procedure during IMS Sysplex Manager initialization.

Before you specify the DCNAME parameter, consider that only a single data collector is required or supported for an IMS Sysplex Manager group on a given z/OS system.

This parameter has no default value.

LBUFACTN=(initial_value, buffer_percent_increase, buffer_number_increase, time_interval)

(Optional) When the QSN exit is running in ENFORCE mode, you can specify the conditions that cause the exit to enter the ACTION protection level and that cause messages to be generated. These conditions are detailed in the following list:

- *initial_value* is the percent of used local buffers that must be reached before the exit enters a protection level. The value of *initial_value* is defined as a percentage of the value that is specified for the QBUFMAX parameter.

Specify *initial_value* to define the buffer usage threshold for when the QSN exit enters a protection level. For example, if *initial_value* is set to 60, the QSN exit enters the ACTION level when buffer usage reaches 60% of the value of the QBUFMAX parameter.

The default value is 0.

- *buffer_percent_increase* is the percent increase in the number of used local buffers that must be reached to generate a buffer usage message. The value of *buffer_percent_increase* is a percentage of the value that is specified for the QBUFMAX parameter.

Specify *buffer_percent_increase* to immediately report only specific percent increases in local buffer usage. For example, if *buffer_percent_increase* is set to 3, a message is generated when buffer usage increases by 3% of the value of the QBUFMAX parameter. If you specify 0, no messages are generated from percent increases in buffer usage.

The default value is 0.

- *buffer_number_increase* is ignored for this parameter because, for ENFORCE mode, the QBUFMAX parameter must be set to a value greater than 0. The value of *buffer_number_increase* is an absolute number and is used only when the QBUFMAX parameter is set to 0.

The default value is 0.

- *time_interval* is the time interval, in seconds, between generated buffer usage messages.

Specify *time_interval* in seconds to report local buffer usage at a specific frequency. For example, if *time_interval* is set to 600, a message is generated every 600 seconds (10 minutes). If you specify 0, messages are not generated at any regular time interval.

The default value is 0.

LBUFLBUA=number_of_buffers

(Optional) Specify the number of buffers that a caller must hold to be considered a large user when the QSN exit is in the ACTION protection level. In the ACTION level, the QSN exit fails users who have buffers that are equal to or greater than the LBUFLBUA parameter value.

The default value is 10.

LBUFLBUC=number_of_buffers

(Optional) Specify the number of buffers that a caller must hold to be considered a large user when the QSN exit is in the CRITICAL protection level. In the CRITICAL level, the QSN exit fails users who have buffers that are equal to or greater than the LBUFLBUC parameter value.

The default value is 3.

LBUFCRIT=(initial_value, buffer_percent_increase, buffer_number_increase, time_interval)

(Optional) When the QSN exit is running in ENFORCE mode, you can specify the conditions that cause the exit to enter the CRITICAL protection level and that cause messages to be generated. These conditions are detailed in the following list:

- *initial_value* is the percent of used local buffers that must be reached before the exit enters a protection level. The value of *initial_value* is defined as a percentage of the value that is specified for the QBUFMAX parameter.

Specify *initial_value* to define the buffer usage threshold for when the QSN exit enters a protection level. For example, if *initial_value* is set to 80, the QSN exit enters the CRITICAL level when buffer usage reaches 80% of the value of the QBUFMAX parameter.

The default value is 0.

- *buffer_percent_increase* is the percent increase in the number of used local buffers that must be reached to generate a buffer usage message. The value of *buffer_percent_increase* is a percentage of the value that is specified for the QBUFMAX parameter.

Specify *buffer_percent_increase* to immediately report only specific percent increases in local buffer usage. For example, if *buffer_percent_increase* is set to 1, a message is generated when buffer usage increases by 1% of the value of the QBUFMAX parameter. If you specify 0, no messages are generated from percent increases in buffer usage.

The default value is 0.

- *buffer_number_increase* is ignored for this parameter because, for ENFORCE mode, the QBUFMAX parameter must be set to a value greater than 0. The value of *buffer_number_increase* is an absolute number and is used only when the QBUFMAX parameter is set to 0.

The default value is 0.

- *time_interval* is the time interval, in seconds, between generated buffer usage messages.

Specify *time_interval* in seconds to report local buffer usage at a specific frequency. For example, if *time_interval* is set to 300, a message is generated every 300 seconds (5 minutes). If you specify 0, messages are not generated at any regular time interval.

The default value is 0.

LBUFMODE=mode

(Optional) Specify the QSN exit run mode as INACTIVE, REPORT, or ENFORCE. The LBUFMODE parameter is read by IMS Sysplex Manager at IMS startup, and the run mode is used for the entire IMS run.

The default run mode is INACTIVE.

- In INACTIVE mode, the QSN exit returns with no action.
- In REPORT mode, the QSN exit collects usage information but does not enforce buffer protection. Instead, the QSN exit collects and outputs usage information to the MVS console and to the IMS master terminal.
- In ENFORCE mode, the QSN exit collects usage information and enforces local buffer limits by failing user transactions.

Requirement: To run in ENFORCE mode, you must set the QBUFMAX IMS parameter to a buffer number greater than 0. By setting the QBUFMAX parameter, an absolute maximum number of buffers is established for IMS.

If QBUFMAX is not set, the QSN exit cannot run in ENFORCE mode and reverts to INACTIVE mode. Before setting a value for QBUFMAX, you can run the exit in REPORT mode, which does not require QBUFMAX to be set, to understand the buffer usage of your environment.

LBUFREPT=(initial_value, buffer_percent_increase, buffer_number_increase, time_interval)

(Optional) When the QSN exit is running in REPORT mode, you can specify the conditions that cause the exit to generate buffer usage messages. By default, the parameters are set to 0.

- *initial_value* is the number of used local buffers that must be reached before reporting on local buffer usage starts. If the QBUFMAX parameter is set to 0, *initial_value* is the absolute number of buffers. If the QBUFMAX parameter is set to a value greater than 0, *initial_value* is a percentage of the value that is specified for the QBUFMAX parameter.

Specify *initial_value* to suppress report messages on local buffer usage until the usage equals or surpasses your specified initial value. For example, if the QBUFMAX parameter is set to 0 and if *initial_value* is set to 200, reporting starts when buffer usage reaches 200 used buffers.

If the QBUFMAX parameter is set to a value greater than 0 and if *initial_value* is set to 20, reporting starts when buffer usage reaches 20% of the value of the QBUFMAX parameter.

If you specify 0, local buffer reporting starts as soon as the exit is activated.

The default value is 0.

- *buffer_percent_increase* is the percent increase in the number of used local buffers that must be reached to generate a buffer usage message. The value of *buffer_percent_increase* is a percentage of the value that is specified for the QBUFMAX parameter. If the QBUFMAX parameter is set to 0, *buffer_percent_increase* is ignored.

Specify *buffer_percent_increase* to immediately report only specific percent increases in local buffer usage. For example, if *buffer_percent_increase* is set to 5, a message is generated when buffer usage increases by 5% of the value of the QBUFMAX parameter. If you specify 0, no messages are generated from percent increases in buffer usage.

The default value is 0.

- *buffer_number_increase* is the absolute increase in the number of used local buffers that must be reached to generate a buffer usage message. The value of *buffer_number_increase* is an absolute number and is used when the QBUFMAX parameter is set to 0. If the QBUFMAX parameter is set to a value greater than 0, *buffer_number_increase* is ignored.

Specify *buffer_number_increase* to immediately report only specific increases in local buffer usage. For example, if *buffer_number_increase* is set to 30, a message is generated when buffer usage increases by 30 used buffers. If you specify 0, no messages are generated from increases in buffer usage.

The default value is 0.

- *time_interval* is the time interval, in seconds, between generated buffer usage messages.

Specify *time_interval* in seconds to report local buffer usage at a specific frequency. For example, if *time_interval* is set to 600, a message is generated every 600 seconds (10 minutes). If you specify 0, messages are not generated at any regular time interval.

The default value is 0.

Important: If you specify 0 for both the time interval and the buffer number increase, no local buffer usage is reported. The QSN exit is still called by IMS but the exit will be inactive.

LBUFWARN=(initial_value, buffer_percent_increase, buffer_number_increase, time_interval)

(Optional) When the QSN exit is running in ENFORCE mode, you can specify the conditions that cause the exit to enter the WARNING protection level and that cause messages to be generated. These conditions are detailed in the following list:

- *initial_value* is the percent of used local buffers that must be reached before the exit enters a protection level. The value of *initial_value* is defined as a percentage of the value that is specified for the QBUFMAX parameter.

Specify *initial_value* to define the buffer usage threshold for when the QSN exit enters a protection level. For example, if *initial_value* is set to 10, the QSN exit enters the WARNING level when buffer usage reaches 10% of the value of the QBUFMAX parameter.

The default value is 0.

- *buffer_percent_increase* is the percent increase in the number of used local buffers that must be reached to generate a buffer usage message. The value of *buffer_percent_increase* is a percentage of the value that is specified for the QBUFMAX parameter.

Specify *buffer_percent_increase* to immediately report only specific percent increases in local buffer usage. For example, if *buffer_percent_increase* is set to 15, a message is generated when buffer usage increases by 15% of the value of the QBUFMAX parameter. If you specify 0, no messages are generated from percent increases in buffer usage.

The default value is 0.

- *buffer_number_increase* is ignored for this parameter because, for ENFORCE mode, the QBUFMAX parameter must be set to a value greater than 0. The value of *buffer_number_increase* is an absolute number and is used only when the QBUFMAX parameter is set to 0.
- *time_interval* is the time interval, in seconds, between generated buffer usage messages.

Specify *time_interval* in seconds to report local buffer usage at a specific frequency. For example, if *time_interval* is set to 900, a message is generated every 900 seconds (15 minutes). If you specify 0, messages are not generated at any regular time interval.

The default value is 0.

LDBMAX

(Optional) Specify the maximum number of log data buffers to be allocated by IMS Sysplex Manager when expansion is required. If you do not specify this parameter, the default value is double the LDBMIN value.

LDBMIN

(Optional) Specify the minimum number of log data buffers to be allocated during IMS Sysplex Manager initialization. These buffers are used to process the log records that are needed to capture various types of system exceptions. If you do not specify this parameter, the default value is 20.

LOGDC

(Optional) Specify Y to activate the log data capture feature or N to deactivate the log data capture feature. If the log data capture feature is inactive, log records that are associated with system exceptions such as transaction abends, database stopped, and others will not be processed. The log data capture feature setting default is Y.

SDBMAX

(Optional) Specify the maximum number of snapshot data buffers to be allocated by IMS Sysplex Manager when expansion is required. If you do not specify this parameter, the default value is double the SDBMIN value.

SDBMIN

(Optional) Specify the minimum number of snapshot data buffers to be allocated during IMS Sysplex Manager initialization. These buffers are used to return information that is related to requests that originate at the IMS Sysplex Manager server. The default value is 20.

SUPPRESS

(Optional) Specify IMS system messages that will not be recorded into audit log. This parameter has no default value.

XCFGROUP

(Required) Specify a 5-character suffix for the XCF group name that is used by IMS Sysplex Manager to communicate among the IMS Sysplex Manager user interface, the IMS Sysplex Manager server, the data collector, and the IMS control region. This name will be prefixed with GJE in order to make the XCF group name unique and to allow the client interface to locate all groups. This name must end with a numeric value from 00 to 99.

XCFMEMB

(Optional) Specify the 1- to 16-character XCF member name that is used to identify this IMS control region as a member of XCFGROUP. Valid characters are A-Z, 0-9, and the national characters \$, #, and @. This name must be unique within the XCFGROUP. The default value is IMSidMVSname.

If an error is detected for any of the parameters, default values are used for all parameters to avoid an abend of IMS during initialization. The default values might not be the best choices for your environment. You must correct the error and re-initialize IMS Sysplex Manager to update the parameters.

Example control region PROCLIB member

The following example of a PROCLIB member contains IMS Sysplex Manager control region keyword parameters and is based on the GJEIMGEN member.

```
SDBMIN=10,  
SDBMAX=20,  
XCFMEMB=ECIMS1@VM,  
XCFGROUP=ISM01  
LBUFMODE=ENFORCE,  
LBUFREPT=(20,5,0,600),  
LBUFWARN=(10,15,0,900)  
LBUFACTN=(60,3,0,600),  
LBUFCRIT=(80,1,0,300),  
LBUFLBUA=10,  
LBUFLBUC=2,
```

Transaction affinity routing overview

IMS Sysplex Manager provides the ability to define transactions (by name or class) that have affinity to one or more IMS systems in the shared queue group.

Affinity routing overview

Affinity routing gives you more control over where a transaction or group of transactions should be processed. The end result is that you have direct control over shared message queue workload balance and can better manage availability.

IMS currently provides affinity capability for local destinations (process message only on input system) and serial transactions. IMS recommends that customers use message region classing, or the stopping of transactions on IMS systems where they do not want a transaction to execute. These methods can be difficult to implement and cumbersome to modify when an IMS system is lost and workload must be reassign to other systems.

IMS Sysplex Manager uses the DFSMSCEO exit to allow shared queue transaction affinity routing. Routing options and definitions are stored and accessed via a common queue server (CQS) structure.

Transaction affinity routing supports:

- A single IMS system
- A set of IMS systems with equal priority in distribution
- A set of IMS systems with skewed priority in distribution
- A single IMS system with the provision for the use of one or more backup IMS systems, in the event that the primary IMS system is not available
- A set of IMS systems with the provision for the use of one or more backup IMS systems, in the event that the primary IMS system is not available

The IMS Sysplex Manager ISPF interface allows you to view affinity options, definitions, and statistics.

Affinity selection

Affinity selection follows a specific hierarchy. When a transaction message is received, the router attempts to match the inbound transaction code in the following order:

1. Specific name affinity
2. Best matching generic name affinity (least number of wildcard matches)
3. Class affinity

If duplicate affinity definitions are defined in the PROCLIB, only the first definition is used for routing.

The affinity's associated primary target system is checked for disabled status. When the primary target system is disabled, the secondary target system (when specified) is selected.

The IMS systems associated with the primary (or secondary) are examined for availability (IMS Sysplex Manager must be installed in the target IMS systems and be a part of the same IMS Sysplex Manager XCF group).

Affinity routing requirements

The following requirements must be met to use affinity routing:

IMS Sysplex Manager requirements:

- All participating systems that route messages or receive routed messages must be part of the same shared message queue group.
- All participating systems that route messages or receive routed messages must install and activate IMS Sysplex Manager and be in the same IMS Sysplex Manager XCF group.
- Transactions to be routed must be defined in all originating and destination systems.

Affinity routing general restrictions

Once a routing decision is made, the transaction is enqueued for a specific IMS system. This IMS system is the only one that can process the transaction. You will not be able to change the destination system once the message is enqueued.

The following types of transactions will not be considered for routing:

- Fast Path exclusive transactions
- MSC remote transactions
- IMS APPC CPIC transactions

Affinity routing restrictions for APPC and OTMA transactions

This restriction pertains to a transaction that is an APPC or OTMA synchronous mode.

There are two modes for APPC and OTMA messages, synchronous and asynchronous.

OTMA refers to synchronous mode as commit mode 1 (CM1) (or send then commit mode).

OTMA refers to asynchronous mode as commit mode 0 (CM0) (or commit then send mode).

For asynchronous (CM0) mode, there are no restrictions to what affinity can be assigned. The message can be routed to any IMSID within the IMSplex, including local affinity.

For synchronous (CM1) mode affinity to be honored, IMS must first meet the following environmental conditions within the IMSplex:

- RRS must be active (RRS=Y on the control region EXEC parm, or in the IMS DFSDCxxx PROCLIB member) on all IMS systems within the IMSplex.
- The APPC/OTMA synchronous support must be active by setting AOS=Y (yes) or AOS=F (force) in the IMS DFSDCxxx PROCLIB member on all IMS systems within the IMSplex.

If any of these above conditions are not met, IMS will ignore the affinity request.

Cold starting affinity routing

During IMS initialization, the content of the affinity router coupling facility structure is validated.

When the structure content is empty or otherwise invalid, the first IMS system to access the structure creates or re-creates the content from the options and definitions that are in the common affinity router

PROCLIB member (GJEAxxxx). When the structure is successfully built, the structure is persistent across IMS and CQS restart.

To completely remove the affinity structure and have IMS Sysplex Manager rebuild the structure from the PROCLIB member, you must cold start the affinity router coupling facility structure.

Cold starting this structure is similar to cold starting the IMS shared queue structures:

- Ensure that all common queue servers (CQS) are disconnected from the structure
- Delete the affinity structure from the coupling facility
- Delete and reallocate the CQS log
- Delete and reallocate both structure recovery data sets (SRDS 1 and 2) for the structure

Activating affinity routing

You must prepare the common queue server (CQS) and the Generic MSC exit to activate affinity routing.

Before you begin

IMS Sysplex Manager requires the installation and configuration of the Generic Logger exit (DFSFLGX0) and the Generic TM and MSC Message Routing and Control user exit routine (DFSMSCEO).

See *IMS Tools Base for z/OS IMS Tools Common Services User's Guide and Reference* for instructions for configuring these two exits.

Procedure

The following procedures describe in detail how to activate affinity routing in your systems:

1. Define the CQS affinity structure and logger structure, as shown in the following sample:

```
//POLICY EXEC PGM=IXCM2APU
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
DATA TYPE(CFRM)
  DEFINE POLICY NAME(CONFIG01) REPLACE(YES)
  STRUCTURE NAME(GJESMAFN)
    SIZE(8192)
    PREFLIST(LF01,LF03)
  STRUCTURE NAME(MVSLOGAFN001)
    SIZE(2048)
    PREFLIST(LF01,LF03)
/*
```

LF01 and LF03 are the coupling facility names that you must specify.

2. Define the affinity structure logstream, as shown in the following sample:

```
//POLICY EXEC PGM=IXCM2APU
//STEPLIB DD DSN=SYS1.MIGLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
DATA TYPE(LOGR)
  REPORT(YES)

  DEFINE STRUCTURE NAME(MVSLOGAFN001)
    LOGSNUM(1)
    AVGBUFSIZE(4096)
    MAXBUFSIZE(65272)

  DEFINE LOGSTREAM NAME(SYSLOG.AFN001.LOG)
    STRUCTNAME(MVSLOGAFN001)
    HLQ(IXGLOGR)
    LS_STORCLAS(LOGGER1)
    LS_DATACLAS(LOGGER1)
    LS_MGMTCLAS(LOGGER)
    LS_SIZE(200)
/*
```

3. Define the CQS structure recovery data sets, as shown in the following sample:

```
//STEP01 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=A

//SYSIN DD *
```

```
DEFINE CLUSTER -
(NAME (high_level_qualifier.CQS.AFN.SRDS1) -
TRK(45,5) VOL (DSHR03) NONINDEXED SHAREOPTIONS (2,3) -
RECSZ(32761,32761) REUSE CISZ (32768))

DEFINE CLUSTER -
(NAME (high_level_qualifier.CQS.AFN.SRDS2) -
TRK(45,5) VOL (DSHR03) NONINDEXED SHAREOPTIONS (2,3) -
RECSZ(32761,32761) REUSE CISZ (32768))
```

4. Define the CQS structure checkpoint data sets for each CQS in the shared queue group, as shown in the following sample:

```
//STEP01 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=A

//SYSIN DD *
```

```
DEFINE CLUSTER -
(NAME (high_level_qualifier.CQS.AFN01.CHKPT) -
TRK(2,2) VOL (USER02) NONINDEXED SHAREOPTIONS (2,3) -
RECSZ(505,505) REUSE CISZ (512))
```

5. Modify the existing CQS global structure definition PROCLIB member (CQSSGxxx) to include affinity structure definition, as shown in the following sample:

```
STRUCTURE (
STRNAME=GJESMAFN,
SRSDSDSN1=high_level_qualifier.CQS.AFN.SRDS1,
SRSDSDSN2=high_level_qualifier.CQS.AFN.SRDS2,
LOGNAME=SYSLOG.AFN001.LOG,
OBJAVGSZ=450)
```

6. Modify the existing CQS local structure definition PROCLIB member (CQSSLxxx) for each CQS in the shared queues group to include affinity structure definition, as shown in the following sample:

```
STRUCTURE (
STRNAME=GJESMAFN, CHKPTDSN=IMSTESTL.CQS.AFN01.CHKPT,
SYSCHKPT=500000)
```

7. Create and define the affinity routing PROCLIB member GJEAyyyy (where yyyy is the affinity PROCLIB member suffix), as shown in the following affinity routing member (GJEARTG1) sample:

```
OPTIONS(STRUCTURE(GJESMAFN),STATUS(ENABLED),
PGMREJECT(ABEND(U3303)),NETREJECT(2175))

SYSTEM(TARG(IMSGRP01),IMS(IMS1),STATUS(ENABLED))
SYSTEM(TARG(IMSGRP02),IMS(IMS2),STATUS(ENABLED))
SYSTEM(TARG(IMSGRP03),IMS(IMS3),STATUS(DISABLED))
SYSTEM(TARG(IMSGRP1A),IMS(IMS1,IMSA,IMS1),STATUS(ENABLED))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP1A,IMSGRP02),DISP(REJECT),
DEST(NAME(APOL12)),STATUS(ENABLED))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP02,IMSGRP01),DISP(REJECT),
DEST(NAME(JAVC%NV*)),STATUS(ENABLED))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP1A),DISP(QUEUE),
DEST(NAME(TRAN%*C,TRANAB*)),STATUS(DISABLED))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP01),
DEST(NAME(%F3,%F4)))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP1A),DEST(CLASS(1,2,3)))
```

For descriptions of each control statement in the affinity PROCLIB member, see [“Affinity routing PROCLIB member”](#) on page 39.

8. Add AFFNSFX=yyyy, where yyyy is the suffix from the GJEyyyy PROCLIB member, to the GJEIxxxx PROCLIB member for each IMS in the shared queues group, as shown in the following sample for GJEARTG1:

```
SDBMIN=10,  
SDBMAX=40,  
XCFMEMB=IMS1@ECDBT09,  
XCFGROUP=ISM01,  
AFFNSFX=RTG1
```

9. Specify the Generic MSC exit PROCLIB member (GEXOPT0) for each IMS in the shared queues group, as shown in the following sample:

```
GLOBAL (INITFAIL (WARNING) EXITINIT (TERMEXIT) EXITPROC (TERMEXIT))
```

10. Specify the Generic MSC exit definition PROCLIB member GEXEXIT0 for each IMS in the shared queues group, as shown in the following sample:

```
EXITDEF (TYPE (MSCE) EXITNAME (GJEMSCE0)  
LOADLIB (smqhlq.SGJELoad))
```

11. Restart each IMS and CQS in the shared queue group.

If you have successfully activated transaction affinity routing, message GJE2211I is generated.

Affinity routing PROCLIB member

A global PROCLIB member (GJEyyyy) must be used to specify all IMS Sysplex Manager affinity configuration information.

The GJEyyyy PROCLIB member is global because it is accessed by all IMS systems in the shared queue group. The variable yyyy is the affinity PROCLIB member suffix. IMS Sysplex Manager verifies the use of a single PROCLIB member by all IMS systems (VOLSER/DSN/member name).

Affinity routing uses the same IMS control region parser used by IMS Sysplex Manager.

You define one or more destination affinities through a series control statements. The PROCLIB member contain control parameters and option specifications.

The following sample shows the content and syntax of the affinity routing GJEyyyy PROCLIB member:

```
OPTIONS (STRUCTURE (gjesmafn), STATUS (ENABLED | DISABLED),  
PGMREJECT (CODE (A1) | ABEND (U3303)), NETREJECT (2175))  
  
SYSTEM (TARG (msggrp01), IMS (ims1, ims2, ims3, ...), STATUS (ENABLED | DISABLED))  
SYSTEM (TARG (msggrp02), IMS (ims1, ims2, ims5, ...), STATUS (ENABLED | DISABLED))  
SYSTEM (TARG (msggrp03), IMS (*), STATUS (ENABLED | DISABLED))  
  
AFFINITY (TYPE (TRANSACTION), TARG (msggrp01, msggrp02), DISP (QUEUE | REJECT),  
DEST (NAME (tran1, tran2), STATUS (ENABLED | DISABLED))  
AFFINITY (TYPE (TRANSACTION), TARG (msggrp02), DEST (NAME (tran%c, tr%ab*)),  
STATUS (ENABLED | DISABLED))  
AFFINITY (TYPE (TRANSACTION), TARG (msggrp03), DEST (CLASS (1, 2, 3)),  
STATUS (ENABLED | DISABLED))
```

OPTIONS statement

The OPTIONS statement is used to specify overall routing options.

Only one OPTIONS statement is allowed and it is required.

STRUCTURE(name)

The STRUCTURE keyword specifies the name of the Coupling Facility structure used to hold common affinity routing information used by all IMS systems in the shared queue group. The same structure must also be defined to CQS.

STATUS(ENABLED | DISABLED)

The STATUS keyword determines the overall status of IMS Sysplex Manager affinity routing.

A status of DISABLED means the routing function will not be active on any IMS system using this PROCLIB member.

PGMREJECT(CODE(status-code) | ABEND(abend-code))

PGMREJECT and NETREJECT parameters work together with the DISP(REJECT) parameter of the AFFINITY statement to establish the disposition of transaction input messages that cannot be routed to the target IMS systems because they are either unavailable or disabled.

PGMREJECT indicates the action taken when the source of the input message is an IMS application program.

The valid values for PGMREJECT are the mutually exclusive sub-parameters ABEND or CODE.

When specified, ABEND(U3303) indicates that the application program creating the message should be abnormally terminated with a user 3303 abend.

When the CODE sub-parameter is specified, the application program creating the message will receive the 2 byte DL/I status code specified.

Valid specifications for CODE are: A1, A4, E1, E2, E3.

CODE(A1) is the default for PGMREJECT.

NETREJECT(msg-number)

PGMREJECT and NETREJECT parameters work together with the DISP(REJECT) parameter of the AFFINITY statement to establish the disposition of transaction input messages that cannot be routed to the target IMS systems because they are either unavailable or disabled.

The NETREJECT parameter indicates the action taken when the source of the input message is a source other than an IMS application program such as LTERM, APPC, OTMA, and MSC.

The value for NETREJECT is the error message number to be returned to the input source.

The default for NETREJECT is 2175 and will cause the IMS message DFS2175 MESSAGE CANCELED BY ROUTING EXIT to be issued.

Alternatively, NETREJECT can be specified as a user message number that has been defined in the IMS User Message Table (DFSCMTU0). Refer to *IMS Exit Routines* for more information on DFSCMTU0.

SYSTEM statement

The SYSTEM statement identifies the set of IMS systems to be included as a target for one or more affinities.

Up to 256 SYSTEM statements are supported. At least one statement is required.

TARG(group-name)

The value for the TARG parameter is an 8 byte symbolic name that uniquely identifies the group entity and is also referenced by affinity definitions to assign the affinity to the target group.

IMS(imsid1, imsid2, imsid3,...)

The IMS parameter identifies a list of one or more IMS system IDs to associate with the group.

These IMS systems become target systems for messages with defined affinity. The defined IMS IDs and any combinations thereof can be included in any number of SYSTEM statements.

A special IMS system ID value of * is recognized as the local system. The local system is any IMS system observing this definition. The use of * is intended to provide a generic association for affinity entries to the origin of the input message. Internally, * is represented as the current IMS system ID.

STATUS(ENABLED | DISABLED)

The initial status of the SYSTEM can be specified.

A STATUS of DISABLED removes the possibility of affinity routing to that SYSTEM.

AFFINITY statement

The AFFINITY statement identifies one or more resources with affinity. Using a single affinity definition for each transaction code is recommended. If you use duplicate affinity definitions for a single transaction code, only the first affinity definition is used for routing.

TYPE(TRANSACTION)

The type of TRANSACTION indicates a transaction affinity. This is the only type of affinity supported with this release.

TARG(primary-system,secondary-system)

The TARG keyword has two positional values.

The first value identifies the primary target SYSTEM name. This name must be defined on a previous SYSTEM statement TARG parameter value.

The second value identifies a backup target SYSTEM name. The backup SYSTEM will be considered for routing only when all of the IMS systems in the primary SYSTEM are unavailable, or the primary SYSTEM is disabled.

DISP(QUEUE | REJECT)

The DISP parameter indicates the action to be taken if all IMS systems in the primary and backup SYSTEM are unavailable or disabled.

The default action is to QUEUE the transaction without any IMS affinity.

The alternative action is to REJECT the input message. When REJECT is specified, the values specified on the OPTIONS statement NETREJECT and PGMREJECT parameters are observed.

DEST(NAME(dest-name1,dest-name2,...) | CLASS(sched-class1,sched-class2,...))

The DEST parameter identifies one or more destinations to be assigned affinity.

There are two mutually exclusive keyword sub-parameters for DEST: NAME and CLASS. One of these values must be specified for each AFFINITY statement.

CLASS identifies one or more IMS scheduler classes that should be controlled by this affinity.

NAME specifies one or more specific or generic destination names. Specific names are fully qualified names that match a given destination name exactly. Generic names use wildcard symbols in the name to provide for a "fuzzy" match.

Use the % character to represent a single character wildcard. Multiple % characters can be used in a given destination name.

The * symbol can only be used only at the end of the destination name to indicate a variable length wildcard terminator.

The % and * characters can be combined in a destination name specification.

STATUS(ENABLED | DISABLED)

The initial status of the AFFINITY can be specified.

A STATUS of DISABLED removes the possibility of using the affinity definition for routing. Any number of affinity statements are allowed.

Sample affinity routing member GJEARTG1

```
OPTIONS(STRUCTURE(GJESMAFN),STATUS(ENABLED),
PGMREJECT(ABEND(U3303)),NETREJECT(2175))

SYSTEM(TARG(IMSGRP01),IMS(IMS1),STATUS(ENABLED))
SYSTEM(TARG(IMSGRP02),IMS(IMS2),STATUS(ENABLED))
SYSTEM(TARG(IMSGRP03),IMS(IMS3),STATUS(DISABLED))
```

```

SYSTEM(TARG(IMSGRP1A),IMS(IMS1,IMSA,IMS1),STATUS(ENABLED))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP1A,IMSGRP02),DISP(REJECT),
  DEST(NAME(APOL12)),STATUS(ENABLED))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP02,IMSGRP01),DISP(REJECT),
  DEST(NAME(JAVC%NV*)),STATUS(ENABLED))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP1A),DISP(QUEUE),
  DEST(NAME(TRAN%%C,TRANAB*)),STATUS(DISABLED))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP01),
  DEST(NAME(%%F3,%%F4)))

AFFINITY(TYPE(TRANSACTION),TARG(IMSGRP1A),DEST(CLASS(1,2,3)))

```

Chapter 5. Configuring the data collector

The data collector address space is responsible for collecting IMS Sysplex Manager data by communicating with IMS systems, IMS Sysplex Manager servers, Common Queue Server address spaces, and Common Service Layer address spaces.

About this task

You can start the data collector address space either before or after the IMS control region is started. You can configure the IMS control region to automatically start the data collector.

Procedure

To configure the data collector for IMS Sysplex Manager complete the following steps:

1. Create a PROCLIB data set or use an existing PROCLIB data set to contain the data collector PROCLIB members.

This data set must be FB and have an LRECL of 80.

You must include the PROCLIB data set in the //PROCLIB data set concatenation.

2. Copy the sample control file members from *smphlq.SGJESAMP* into the PROCLIB data set.
3. From the *smphlq.SGJESAMP* library, customize the data collector parameters in the GJEDCGEN member.

For parameter descriptions and their default values, see [“Data collector parameters”](#) on page 44.

4. Optional: To override the default settings for certain IMS Sysplex Manager BPE functions, you can set up one or more BPE PROCLIB members.
 - a) In the PROCLIB data set, create BPE PROCLIB members for each address space to specify different settings for BPE resources in each address space. Alternatively, to share BPE settings for all data collector address spaces, create a single BPE PROCLIB member.

The data set must consist of fixed-length records, with a minimum LRECL of 9.

The GJEDCBPE member in *smphlq.SGJESAMP* contains a sample BPE PROCLIB member.

- b) Customize the BPE PROCLIB member by specifying the BPE parameters.
- c) Specify the BPE PROCLIB member that you want to use by coding `BPECFG=member_name` on the EXEC PARM statement in the address space startup JCL, as shown in the following example:

```
EXEC PGM=GJECI000, PARM='TYPE=DC, ISMCFG=gjedcgen, BPECFG=gjedcbpe'
```

For more information about the BPE PROCLIB member and the BPE keyword parameters, see [“BPE PROCLIB member overview”](#) on page 46.

5. Customize the data collector start procedure JCL.

The following example shows the GJEDCJCL member that you must customize:

```
//DC      EXEC PGM=GJECI000, PARM='TYPE=DC, ISMCFG=gjedcgen'
//*
//STEPLIB DD DISP=SHR, DSN=imssmhlq.SGJELoad
//        DD DISP=SHR, DSN=imshlq.RESLIB
//*
//PROCLIB DD DISP=SHR, DSN=imssmhlq.PROCLIB
//*
//SYSUDUMP DD SYSOUT=*
//ISMSNAP DD SYSOUT=*
```

6. If your security administrator has defined profiles for your CQS structures, ensure that the data collector has access to the structures that are similar to the permissions that are granted to IMS.

When IMS systems that are managed by IMS Sysplex Manager use IMS shared message queues, the data collector uses the local Common Queue Server (CQS) client interface to obtain information from CQS. Therefore, data collector access to the CQS structures is required.

If you have RACF or an equivalent security product installed, the security administrator defines profiles that control the client access to CQS structures.

7. Start the data collector address space by using the data collector start procedure JCL.

If the data collector initializes successfully, messages such as the ones in the following example are generated in the data collector job log:

```
$HASP373 DCIMS19  STARTED
BPE0004I BPECFG= NOT SPECIFIED ON STARTUP PARMS - DEFAULTS BEING USED
GJE0992I GJEDSNP0 OPENing SNAP DS //ISMSNAP
GJE0002I - TDCM TCB INITIALIZATION COMPLETE
GJE0002I - TCSV TCB INITIALIZATION COMPLETE
GJE0002I - TTRA TCB INITIALIZATION COMPLETE
GJE0002I - TDH TCB INITIALIZATION COMPLETE
GJE0002I - TUI TCB INITIALIZATION COMPLETE
GJE0002I - TRSP TCB INITIALIZATION COMPLETE
GJE6002I - TSAF TCB INITIALIZATION COMPLETE
GJE6002I - TSAF TCB INITIALIZATION COMPLETE
GJE0502I - CONNECTION TO IMS IMS1 JOB/STC IMS1      ESTABLISHED
GJE0502I - CONNECTION TO IMS IMSA JOB/STC IMSA      ESTABLISHED
GJE0004I - DC SYSTEM INITIALIZATION COMPLETE
```

Data collector parameters

As part of the data collector configuration, you must customize the data collector PROCLIB member. You can view descriptions of the data collector parameters, which explain the function of each parameter and their default values.

AFNQ

(Optional) Specify this parameter for IMS Sysplex Manager standalone support for updating affinity definitions. This parameter is necessary for IMS Sysplex Manager to access the affinity structure when the local IMS system is not available.

Specify this parameter only for IMS systems that are using the affinity routing feature, and only when the CQSSSN= parameter is also specified for the data collector.

The affinity structure name must match the structure name that is defined in the OPTIONS statement in PROCLIB member GJEAxxxx.

This parameter has no default value.

APPCNAME

(Optional) Specify this parameter to define the job name or started job card (STC) name of the advanced-program-to-program communication (APPC) address space.

This parameter has a default value of 'APPC' if not specified.

CQSSSN

(Optional) Specify this optional parameter for IMS Sysplex Manager standalone support for shared message queues.

Specify this parameter only for IMS systems that are using shared message queues.

Specify the Common Queue Server subsystem name to which IMS Sysplex Manager should connect when accessing the shared message queue.

The CQS subsystem name can also be found in the IMS DFSSQxxx PROCLIB member.

This parameter is necessary only for IMS Sysplex Manager to access the shared message queue when the local IMS system is not available.

The MSGQ= parameter must also be specified when CQSSSN= is coded.

This parameter has no default value.

EMHQ

(Optional) Specify this parameter for IMS Sysplex Manager standalone support for shared message queues. This parameter is necessary for IMS Sysplex Manager to access the shared expedited message handler queue when the local IMS system is not available.

Specify this parameter only for IMS systems that are using shared message queues, and only when the CQSSSN= parameter is also specified for the data collector, and only when IMS is using the shared expedited message handler (EMH) support.

The EMHQ primary structure name can also be found in the IMS DFSSQxxx PROCLIB member.

This parameter has no default value.

FFLSN

(Optional) Specify this parameter to define the name of the full function log stream. The value of this parameter must be the same value that is defined by the LOGNAME parameter in the CQSSGxxx member for the full function message structure.

FPLSN

(Optional) Specify this parameter to define the name of the fast path log stream. The value of this parameter must be the same value that is defined by the LOGNAME parameter in the CQSSGxxx member for the fast path message structure.

IMSPLEX

(Optional) Specify this optional parameter for IMSplex environment support.

Specify this parameter only for IMS systems that are using IMSplex support.

The value must be the same 5-character value that is specified on your IMS system and SCI using its IMSPLEX= parameter.

This parameter has no default value.

MSGQ

(Optional) Specify this parameter for IMS Sysplex Manager standalone support for shared message queues. This parameter is only for IMS Sysplex Manager to access the shared message queue when the local IMS system is not available.

Specify this parameter only for IMS systems that are using shared message queues, and only when the CQSSSN= parameter is also specified for the data collector.

The MSGQ primary structure name can also be found in the IMS DFSSQxxx PROCLIB member.

This parameter has no default value.

RACFAGE=minutes

(Optional) Specify the aging interval for deletion of cached RACF Accessor Environment Element (ACEE) control blocks.

This value represents the number of elapsed minutes that an inactive ACEE remains in IMS Data Collector server virtual storage. The number must be between 1 and 1440.

A lower number reduces the IMS Data Collector private address space virtual storage utilization, but can also cause additional RACF I/O activity. A higher number has the opposite effect.

The default value is 10.

RRSNAME

(Optional) Specify this parameter to define the job name or started job card (STC) name of the resource recovery services (RRS) address space.

This parameter has a default value of 'RRS' if not specified.

SQGROUP

(Optional) Specify this parameter for IMS Sysplex Manager stand-alone support for updating affinity definitions. This parameter is necessary for IMS Sysplex Manager to serialize access to the affinity structure when the local IMS system is not available.

Specify this parameter only for IMS systems that are using affinity routing feature, and only when the CQSSSN= parameter is also specified for the data collector.

This XCF group name must start with DFS followed by the same value as SQGROUP= parameter in the DFSSQxxx PROCLIB.

This parameter has no default value.

WAITRBLD

(Optional) Specify this parameter for IMS Sysplex Manager standalone support for shared message queues. This parameter is necessary for IMS Sysplex Manager to access the shared expedited message handler queue when the local IMS system is not available.

Specify this parameter only for IMS systems that are using shared message queues, and only when the CQSSSN= parameter and EMHQ parameter have also been specified for the data collector.

The WAITRBLD value that is specified must match the value that is specified for IMS in the DFSSQxxx PROCLIB member.

Valid values are Y and N.

The default value is N

XCFGROUP

(Required) Specify a 5-character suffix for the XCF group name that is used by IMS Sysplex Manager to communicate among the IMS Sysplex Manager servers, the data collector, and the IMS control region.

To make the XCF group name unique and to allow the client interface to locate all groups, the XCFGROUP name is prefixed with GJE.

This name must end with a numeric value from 00 - 99.

This parameter has no default value.

XCFMEMB

(Required) Specify the XCF member name for the data collector.

The member name must be unique within the XCF group (among IMS servers, other data collectors, and IMS Sysplex Manager servers).

The name can be up to 16 characters long, and consist of the characters A through Z, 0 through 9, and the national characters @, #, and \$.

This parameter has no default value.

Example data collector PROCLIB member

The following example provides a sample data collector PROCLIB member that you can use to create your own. This sample is in GJEDCGEN, which is in the SGJESAMP sample library.

```
XCFMEMB=DATACOLLECTimid,  
XCFGROUP=ISM01,  
IMSPLEX=,  
CQSSSN=,  
MSGQ=,  
EMHQ=,  
WAITRBLD=
```

BPE PROCLIB member overview

As part of the configuration of the IMS Sysplex Manager data collector, you can optionally create the BPE PROCLIB member. IMS Sysplex Manager is managed through the services of Base Primitive Environment (BPE).

You can change the default settings for certain IMS Sysplex Manager BPE functions, such as the following settings:

- The language that is used for BPE and IMS Sysplex Manager component messages (currently, only U.S. English is supported)
- The trace level settings for BPE and IMS Sysplex Manager component internal trace tables

These settings are stored in the IMS Sysplex Manager BPE configuration parameter PROCLIB member. You can have a separate PROCLIB member for each address space that is started.

For each data collector that you run, you can create a member of the PROCLIB data set to contain the BPE keyword parameters. If you create a single BPE PROCLIB member, it is shared among all of your data collector address spaces. If you do this, all specifications that are related to BPE-owned resources, such as BPE trace tables, are the same for all of the address spaces. If you create multiple BPE PROCLIB members (one for each address space type), you can specify different settings for BPE resources in each address space.

BPE parameters

As part of the configuration of the IMS Sysplex Manager data collector, you can optionally customize the BPE PROCLIB member by specifying the BPE parameters.

When you customize your BPE PROCLIB member, you must adhere to the following rules:

- The rightmost eight columns of each line are ignored and can be used for sequence numbers or any other notation you need. For example, if your LRECL is 80, columns 73 to 80 are ignored.
- You can add blanks between words for readability (but you can not add them within words).
- You can code multiple statements on one line.
- Use commas or spaces to delimit keywords.
- Use an asterisk (*) or a pound sign (#) in column one of a line to identify the line as a comment.
- Comments can also be included between pairs of /* and */ characters.
- Code values in upper case. Comments can be in mixed case.

IMS Sysplex Manager supplies a sample configuration data set member for IMS Sysplex Manager BPE system service functions.

BPE parameter descriptions

LANG

Use this keyword to request the desired language. Currently, only ENU (U.S. English) is supported.

TRCLEV

Use this keyword to define trace table information. Valid parameters are:

component

Use this parameter to specify the IMS Sysplex Manager component name that owns the trace table. For BPE traces, the component must be BPE.

level

Specify the level of tracing. Valid entries are:

- NONE
- ERROR
- LOW
- MEDIUM
- HIGH

PAGES=*number-of-pages*

This optional parameter specifies the number of 4 KB pages to be allocated to this trace table.

tablename

Specify the name of the trace table. Enter an asterisk (*) to set the default for all. Valid trace table names are:

- AWE (for AWE server trace)
- CBS (for Control Block Services trace)
- CMD (for Command Services trace)
- DISP (for Dispatcher trace)
- LATC (for Latch trace)
- SSRV (for System Services trace)
- STGC (for Storage trace)

Example BPE PROCLIB member

The following example shows the GJEDCBPE sample member.

```
*****
* Sample Data Collector BPE Configuration PROCLIB Member *
*****
LANG=ENU                /*Language for messages */
                        /*(ENU =U.S.English) */
*-----*
* Trace table level definitions.Syntax is: *
* *
TRCLEV=(*,HIGH,BPE)     /*Set default for all BPE */
                        /*traces to HIGH.Uncomment */
                        /*lines below and fill in */
                        /*LEVEL to change particular */
                        /*table levels to other than */
                        /*HIGH. */
#TRCLEV=(AWE,NONE,BPE,PAGES=64) /*AWE server trace */
#TRCLEV=(CBS,ERROR,BPE) /*CONTROL BLK SRVCS trace */
#TRCLEV=(CMD,LOW,BPE) /*COMMAND SERVICES trace */
#TRCLEV=(DISP,MEDIUM,BPE) /*DISPATCHER trace */
#TRCLEV=(LATC,HIGH,BPE) /*LATCH trace */
#TRCLEV=(SSRV,MEDIUM,BPE) /*SYSTEM SERVICES trace */
#TRCLEV=(STG,ERROR,BPE) /*STORAGE trace */
***** Bottom of Data *****
```

Chapter 6. Configuring the IMS Sysplex Manager server

The IMS Sysplex Manager server address space interacts with one or more data collector address spaces to gather IMS sysplex-related data.

About this task

You can modify the startup configuration parameters at configuration time. You can also modify the parameters while IMS Sysplex Manager is running if you save the parameter values to a file. However, parameter values that are changed while IMS Sysplex Manager is running are not used until you restart the IMS Sysplex Manager server.

Procedure

To configure the IMS Sysplex Manager server, complete the following steps:

1. Create a PROCLIB data set or use an existing PROCLIB data set to contain the IMS Sysplex Manager server startup and configuration parameters.

This data set must be FB and have an LRECL of 80.

2. Copy the following sample startup parameter members from *smphlq.SGJESAMP* into the PROCLIB data set:
 - GJEUIGEN, which is the sample server PROCLIB member
 - GJEUJCL, which is the sample server startup procedure
 - Optional: GJEUIBPE, which is the sample server BPE PROCLIB member
 - Optional: GJEEXIT0, which is a sample PROCLIB member that defines user exits
3. Specify the startup parameters by using the ISMCFG and BPECFG keywords, as shown in the following table:

Table 6. PROCLIB members that contain startup parameters

Member name	Description
ISMCFG= <i>membername</i>	Contains server startup parameters
BPECFG= <i>membername</i>	Contains BPE startup parameters

4. Customize the server startup parameters in the PROCLIB member that is specified by the ISMCFG keyword.

For parameter descriptions and their default values, see [“IMS Sysplex Manager parameters” on page 51](#).

5. Optional: To record system exceptions that you can view by using the IMS Sysplex Manager client interface, allocate multiple VSAM linear data sets by configuring the GJEHYJCL member from the *smphlq.SGJESAMP* sample library.

You must have a minimum of two data sets, and a maximum of eight data sets with sizes ranging from 20 MB to 1 GB. Allocation of four 100 MB data sets is recommended.

You must use DD names HIST1-HIST8 to allocate the data sets to the IMS Sysplex Manager. When one data set fills up, the IMS Sysplex Manager server switches to the next data set that is allocated. When the last data set is filled, the server switches back to the first data set, clears it, and reuses it to continue recording. When this data set is full, the server switches to the next, clears it, and reuses it to continue recording.

When you stop and restart the IMS Sysplex Manager server, it locates the last-used data set and continues recording by using that data set.

The following example shows how to allocate and reallocate a system exceptions history data set:

```
//A EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
  DEL ('your_vsam_ds_name') PURGE
  SET MAXCC=0

  DEFINE CLUSTER (NAME('your_vsam_ds_name') -
    CYLINDERS(your_primary_megabytes,0) -
    VOLUMES(your_volume) -
    SHAREOPTIONS(4,4) -
    LINEAR REUSE )
```

6. Optional: To use the IMS Sysplex Manager dashboard and threshold capability, allocate the control partitioned data set by configuring the GJETHJCL member from the *smphlq*.SGJESAMP sample library.

You must use the THRPARMs DD name to allocate the control partitioned data set to IMS Sysplex Manager server.

7. Set IMS command authorizations for specific user IDs.

- a) Define the application resource name that is specified in the IMS Sysplex Manager server PROCLIB member RACFAPPL parameter to RACF under the APPL resource class:

```
RDEFINE APPL applname UACC(NONE) AUDIT(NONE)
```

- b) After you define the application resource name, set the IMS Sysplex Manager command authorization levels to either READ or UPDATE:

```
PERMIT applname CLASS(APPL) ID(userid) ACCESS(READ|UPDATE)
```

For more information about the security of IMS Sysplex Manager and about IMS command authorizations, see [“IMS Sysplex Manager server security” on page 52](#).

8. Optional: To override the default settings for certain IMS Sysplex Manager BPE functions, you can set up one or more BPE PROCLIB members.

- a) In the PROCLIB data set, create BPE PROCLIB members for each address space to specify different settings for BPE resources in each address space. Alternatively, to share BPE settings for all IMS Sysplex Manager server address spaces, create a single BPE PROCLIB member.

The data set must consist of fixed-length records, with a minimum LRECL of 9.

The GJEUIBPE member in *smphlq*.SGJESAMP contains a sample BPE PROCLIB member.

- b) Customize the BPE PROCLIB member by specifying the BPE parameters.
- c) Specify the BPE PROCLIB member that you want to use by coding BPECFG=*member_name* on the EXEC PARM statement in the address space startup JCL, as shown in the following example:

```
EXEC PGM=GJEI000, PARM=' TYPE=DC, ISMCFG=gjeuibpe, BPECFG=gjeuibpe '
```

- d) To use user exit routines, code an EXITDEF statement and modify your JCL so that it links to the member that contains the EXITDEF statement.

The sample PROCLIB member GJEEIXIT0 shows you how to define IMS Sysplex Manager user exits.

Remember: If you use the user exit routines, you must define exit routine names to the IMS Sysplex Manager server by using the EXITDEF statement.

For more information about the BPE PROCLIB member and the BPE keyword parameters, see [“BPE PROCLIB member overview” on page 54](#).

9. Modify the variables in the server startup procedure JCL, as shown in the following sample, which is located in *smphlq*.SGJESAMP member GJEUJCL.

```
//UI      EXEC PGM=GJECI000,
//          PARM='TYPE=UI,ISMCFG=gjeuigen,BPECFG=gjeuibpe'
//STEPLIB DD DISP=SHR,DSN=imssmhlq.SGJELoad
//          DD DISP=SHR,DSN=imshlq.RESLIB
//*
//PROCLIB DD DISP=SHR,DSN=imssmhlq.PROCLIB
//*
//ARSubmit DD SYSOUT=(A,INTRDR)
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//ISMSNAP DD SYSOUT=*
//THRPARMS DD DISP=SHR,DSN=threshold.data.set.name
//HIST1    DD DISP=SHR,DSN=history.data.set.name1
//HIST2    DD DISP=SHR,DSN=history.data.set.name2
//HIST3    DD DISP=SHR,DSN=history.data.set.name3
//HIST4    DD DISP=SHR,DSN=history.data.set.name4
//
```

10. Start the IMS Sysplex Manager server.

If the server initializes successfully, messages such as the ones in the following example are generated in the server job log:

```
$HASP373 UIS1      STARTED
BPE0004I BPECFG= NOT SPECIFIED ON STARTUP PARMS - DEFAULTS BEING USED
GJE0992I GJEUSNP0 OPENing SNAP DS //ISMSNAP
GJE6002I - TUIM TCB INITIALIZATION COMPLETE
GJE6002I - TCSV TCB INITIALIZATION COMPLETE
GJE6002I - TTRA TCB INITIALIZATION COMPLETE
GJE6002I - TCOL TCB INITIALIZATION COMPLETE
GJE6002I - THST TCB INITIALIZATION COMPLETE
IEC161I 056-084,UIS1,UIS1,HIST2,,,ADN.IMSSM.UIS1.HIST2, 601
IEC161I ADN.IMSSM.UIS1.HIST2.DATA,SYS1.ECTEST.MASTER.CATALOG
GJE6002I - TTHR TCB INITIALIZATION COMPLETE
GJE6002I - TSX TCB INITIALIZATION COMPLETE
GJE6002I - TURQ TCB INITIALIZATION COMPLETE
GJE6002I - TLLK TCB INITIALIZATION COMPLETE
GJE6005I - UI SYSTEM INITIALIZATION COMPLETE
```

IMS Sysplex Manager parameters

As part of the configuration of the IMS Sysplex Manager server, you must customize the server PROCLIB members. You can view descriptions of the IMS Sysplex Manager server parameters, which explain the function of each parameter and their default values.

The PROCLIB member that is specified by the ISMCFG keyword contains parameters for the IMS Sysplex Manager server.

ARCHIVEJCL

(Optional) Specify the PROCLIB member that contains the skeletal JCL for log archive function.

This parameter has no default value.

IMSCMDCK=YES|NO

(Optional) Specify whether or not the IMS Sysplex Manager server needs to perform a command security check. Specify YES if your IMS system has no security or if you are using SMU security. Specify NO if your IMS system is using RACF or equivalent product security to avoid duplication in security checking.

The default value is NO.

RACFAGE=minutes

(Optional) Specify the aging interval for deletion of cached RACF Accessor Environment Element (ACEE) control blocks. This value represents the number of elapsed minutes that an inactive ACEE remains in IMS Sysplex Manager server virtual storage.

The number must be between 1 and 1440. A lower number reduces the IMS Sysplex Manager server private address space virtual storage utilization, but can also cause additional RACF I/O activity. A higher number has the opposite effect.

The default value is 10.

RACFAPPL=applname

(Required) Specify the RACF application resource name that is used by the IMS Sysplex Manager server for request authorization checking. The resource name must conform to naming requirements for RACF application names and can be up to eight characters in length. To bypass authorization checking, specify RACFAPPL=NONE. If command security is bypassed, the RACFAGE parameter specification is ignored. For more information about the requests that are checked when this parameter is specified, see step 7.

This parameter has no default value.

UXITPARM

(Optional) Specify a 1- to 8-byte string that can be used by the exit to perform user-specific processing. If you do not specify a value, the default value of UXITPARM is a string of eight blanks (X'40's).

Remember: This parameter applies only to the IMS Sysplex Manager system exceptions user exit.

If you want to reduce the number of WTO messages written to z/OS console, specify UXITPARM=NOWTO. The IMS Sysplex Manager server stops writing WTOs to the z/OS console for IMS system exceptions.

XCFGROUP

(Required) Specify a 5-character suffix for the XCF group name that is used by IMS Sysplex Manager to communicate among the IMS Sysplex Manager user interface, the IMS Sysplex Manager server, the data collector, and the IMS control region. This name is prefixed with GJE to make the XCF group name unique and to allow the client interface to locate all groups. This name must end with a numeric value from 00 to 99.

This parameter has no default value.

XCFMEMB

(Required) Specify the 1- to 16-character XCF member name that is used to identify this IMS Sysplex Manager server as a member of XCFGROUP. Valid characters are A-Z, 0-9, and the national characters \$, #, and @. This name must be unique within the XCFGROUP.

This parameter has no default value.

Sample server startup parameters are shown in the following example. Refer to the GJEUIGEN in the *smphlq.SGJESAMP* sample library for this example.

```
XCFMEMB=SERVERSvid,  
XCFGROUP=ISM01,  
RACFAGE=1440,  
RACFAPPL=NONE,  
IMSCMDCK=NO,  
ARCHIVEJCL=GJEARJCL
```

IMS Sysplex Manager server security

As part of the configuration of the IMS Sysplex Manager server, you must set authorizations by using an SAF-compliant security system like RACF.

If you specified IMSCMDCK=NO, the data collector handles RACF authorization for IMS type-1 commands by using the same RACF profile that is being used by the IMS control region.

The following functions that are within IMS Sysplex Manager require RACF protection:

- Resource Manager (RM) Delete (delete RM resource entries)
- Shared queue (SQ) Browse, Delete, and Recover (browse, delete, and recover messages from shared queues)
- Affinity Update (update or add affinity definitions)

When you use these functions, a UIS server verifies that you have UPDATE authority to a UIS server RACF APPL class profile. UPDATE authority for these functions is always verified by the UIS server regardless of the IMSCMDCK keyword setting.

To use the IMS Sysplex Manager functions, set up a UIS server RACF APPL profile and authorize users with UPDATE authority.

Customize RACF (or the equivalent security product) for IMS Sysplex Manager IMS command authorization; these command authorizations are described in the following table:

Table 7. IMS commands you can use in IMS Sysplex Manager

IMS command	IMS Sysplex Manager authorization level
/ACT	UPDATE
/ALL	UPDATE
/ASS	UPDATE
/BRO	UPDATE
/CHA	UPDATE
/CHE	UPDATE
/CLS	UPDATE
/COM	UPDATE
/CQC	UPDATE
/CQQ	READ
/CQS	UPDATE
/DBD	UPDATE
/DBR	UPDATE
/DEL	UPDATE
/DEQ	UPDATE
/DIS	READ
/END	UPDATE
/EXC	READ
/EXI	UPDATE
/FOR	READ
/IDL	UPDATE
/LOC	UPDATE
/LOG	UPDATE
/LOO	UPDATE
/MON	UPDATE
/MSA	UPDATE
/OPN	UPDATE
/PST	UPDATE
/PUR	UPDATE

Table 7. IMS commands you can use in IMS Sysplex Manager (continued)

IMS command	IMS Sysplex Manager authorization level
/QUI	UPDATE
/RDI	READ
/REC	UPDATE
/RMC	UPDATE
/RMD	UPDATE
/RMG	UPDATE
/RMI	UPDATE
/RML	READ
/RMN	UPDATE
/RST	UPDATE
/SEC	UPDATE
/SMC	UPDATE
/SSR	UPDATE
/STA	UPDATE
/STO	UPDATE
/SWI	UPDATE
/TES	UPDATE
/TRA	UPDATE
/UNL	UPDATE
/VUN	UPDATE

IMS Sysplex Manager users that issue IMS commands to see IMS system information, require only read-level access to the IMS Sysplex Manager application resource name.

Users who need to use the IMS Sysplex Manager Resource Manager delete function and issue IMS commands that alter IMS system resources, must have update-level access.

BPE PROCLIB member overview

As part of the configuration of the IMS Sysplex Manager , you can optionally create the BPE PROCLIB member. IMS Sysplex Manager is managed through the services of Base Primitive Environment (BPE).

You can change the default settings for certain IMS Sysplex Manager BPE functions, such as the following settings:

- The language that is used for BPE and IMS Sysplex Manager component messages (currently, only U.S. English is supported)
- The trace level settings for BPE and IMS Sysplex Manager component internal trace tables

These settings are stored in the IMS Sysplex Manager BPE configuration parameter PROCLIB member. You can have a separate PROCLIB member for each address space that is started.

For each server that you run, you can create a member of the PROCLIB data set to contain the BPE keyword parameters. If you create a single BPE PROCLIB member, it is shared among all of your server address spaces. If you do this, all specifications that are related to BPE-owned resources, such as BPE

trace tables, are the same for all of the address spaces. If you create multiple BPE PROCLIB members (one for each address space type), you can specify different settings for BPE resources in each address space.

BPE parameters

As part of the configuration of the IMS Sysplex Manager server, you can optionally modify the BPE startup parameters (contained in BPECFG= member).

When you customize your BPE PROCLIB member, you must adhere to the following rules:

- The rightmost eight columns of each line are ignored and can be used for sequence numbers or any other notation you need. For example, if your LRECL is 80, columns 73 to 80 are ignored.
- You can add blanks between words for readability (but you can not add them within words).
- You can code multiple statements on one line.
- Use commas or spaces to delimit keywords.
- Use an asterisk (*) or a pound sign (#) in column one of a line to identify the line as a comment.
- Comments can also be included between pairs of /* and */ characters.
- Code values in upper case. Comments can be in mixed case.

IMS Sysplex Manager supplies a sample configuration data set member for IMS Sysplex Manager BPE system service functions.

BPE parameter descriptions

EXITMBR

The EXITMBR statement identifies the name of the PROCLIB member that defines the user exits. It consists of two parameters separated by commas and enclosed in a set of parentheses:

member name

The name of the PROCLIB member that defines the BPE-managed user exit routines for the address space. The following example shows such a member that defines user exit routines:

```
*****
* UIS USER EXIT LIST PROCLIB MEMBER                               *
*****
*
#-----#
# DEFINE 1 CLIENT EXCEPTIONS EXIT: GJEUEXT                         #
#-----#
EXITDEF (TYPE=EXCEPTNS, EXITS=(GJEUEXT))
```

SMUI

This term defines the user exit routine list member as being associated with the IMS Sysplex Manager server (referred to internally as SMUI). You must specify SMUI.

LANG

Use this keyword to request the desired language. Currently, only ENU (U.S. English) is supported.

TRCLEV

Use this keyword to define trace table information. Valid parameters are:

component

Use this parameter to specify the IMS Sysplex Manager component name that owns the trace table. For BPE traces, the component must be BPE.

level

Specify the level of tracing. Valid entries are:

- NONE
- ERROR
- LOW

- MEDIUM
- HIGH

PAGES=number-of-pages

This optional parameter specifies the number of 4 KB pages to be allocated to this trace table.

tablename

Specify the name of the trace table. Enter an asterisk (*) to set the default for all. Valid trace table names are:

- AWE (for AWE server trace)
- CBS (for Control Block Services trace)
- CMD (for Command Services trace)
- DISP (for Dispatcher trace)
- LATC (for Latch trace)
- SSRV (for System Services trace)
- STGC (for Storage trace)

Example BPE PROCLIB member

A sample BPE PROCLIB member for the IMS Sysplex Manager server is shown in the following example:

```
*-----
LANG=ENU                /*Language for messages */
                        /*(ENU =U.S.English) */
*-----
TRCLEV=(*,HIGH,BPE)    /*Sets default for all BPE */
                        /*traces to HIGH. */
*-----
*EXIT MEMBER definitions.
*-----
EXITMBR=(gjeuixt,SMUI) /* Specifies PROCLIB data set */
                        /* member 'gjeuixt' as the */
                        /* user exit list member */
```

Chapter 7. Configuring user exits for the OM audit trail

If you want IMS Sysplex Manager to maintain an audit trail for Operations Manager (OM) command input and response, you must configure the IMS OM user exits.

Procedure

To configure the OM user exits, complete the following steps:

1. Create an Operations Manager PROCLIB member.

XCF communications are used to transport OM input and output data from the OM address space to the IMS Sysplex Manager UIS server address space. You must create a PROCLIB member and place it in the //PROCLIB data set that is accessible to the OM address space.

The name of the PROCLIB member must be in the form of GJxxxxxx, where xxxxxx is the value of the OMNAME=parameter in the CSLOIxxx member. For example, if the OM name is MVSOM1, the name of the PROCLIB must be GJMVSOM1.

2. Customize the control parameters.

The following control parameters are required for the PROCLIB member GJxxxxxx:

XCFMEMB

Specify the XCF member name for the OM.

The member name must be unique within the XCF group, which includes the IMS servers, data collectors, OM exits, and IMS Sysplex Manager servers.

The name can be up to 16 characters long and can consist of the characters A through Z, 0 through 9, and the national characters (@, #, and \$).

XCFGROUP

Specify a five character suffix for the XCF group name that is used by IMS Sysplex Manager to communicate with IMS Sysplex Manager servers, data collectors, OM exits, and the IMS control region.

The suffix must end with a numeric value from 00 to 99.

GJE is automatically added to the beginning of the XCFGROUP parameter. This addition ensures that the XCF group name is unique and allows the client interface to locate all groups.

IMSPLEX

Specify the same five character value that is specified in your IMS system.

This parameter is for IMSPlex environment support and is used by OM for the parameter IMSPLEX.

The following example shows sample values for each parameter:

```
XCFMEMB=ADNOM1,  
XCFGROUP=ISM01,  
IMSPLEX=PLEX1
```

3. Update the OM BPE PROCLIB member.

For the IMS OM started task, you must update its BPE PROCLIB member. The member name is specified by the BPECFG parameter.

- a) Add the following line to the BPE PROCLIB member:

```
EXITMBR=(BPEOMXIT,OM)
```

- b) Add or update the BPEOMXIT member with the following statements:

```
EXITDEF (TYPE=INITTERM,EXITS=(GJE0MIT0),ABLIM=1,COMP=OM)  
EXITDEF (TYPE=INPUT,EXITS=(GJE0MIP0),ABLIM=1,COMP=OM)  
EXITDEF (TYPE=OUTPUT,EXITS=(GJE0MOP0),ABLIM=1,COMP=OM)
```

4. Update the OM started task JCL by adding the SGJELOAD library to the STEPLIB concatenation.
5. Restart the OM started task.

Restart the OM started task. If the implementation was successful, the message GJE95005I SM OM INIT/TERM EXIT INITIALIZED is displayed. If the implementation was unsuccessful, error messages are issued to the OM job log.

Chapter 8. IMS Sysplex Manager ISPF subsystem interface

The IMS Sysplex Manager ISPF subsystem interface facilitates XCF communications between the TSO user interface and the IMS Sysplex Manager server address space.

Before you can start the ISPF user interface, you must install the IMS Sysplex Manager subsystem interface module in z/OS LPA/MLPA, and you must define the subsystem.

The IMS Sysplex Manager subsystem interface must be installed on each z/OS system in the sysplex from which the IMS Sysplex Manager TSO user interface dialog is accessed.

You can install and update the IMS Sysplex Manager subsystem interface dynamically or manually. With a dynamic installation, you are not required to IPL the system to activate the subsystem interface. However, the subsystem interface persists for the current IPL only, so you must reinstall the subsystem interface after an IPL.

If you install the subsystem interface manually, you are required to immediately IPL the system to activate the subsystem interface. Then the subsystem interface persists across all IPLs.

Recommendation: Install the interface dynamically so that you can use IMS Sysplex Manager without an IPL. Then install the interface manually so that the subsystem interface is activated after each IPL.

The following topics contain information about how to install and update the IMS Sysplex Manager user interface:

- [“Installing the IMS Sysplex Manager subsystem interface dynamically” on page 59](#)
- [“Installing the IMS Sysplex Manager subsystem interface manually” on page 60](#)
- [“Updating the IMS Sysplex Manager subsystem interface dynamically” on page 60](#)
- [“Updating the IMS Sysplex Manager subsystem interface manually” on page 61](#)

Installing the IMS Sysplex Manager subsystem interface dynamically

This topic discusses installing the IMS Sysplex Manager subsystem interface dynamically.

Procedure

For dynamic installation, complete the following steps:

1. Issue the following commands from the z/OS console:

- `setprog lpa,add,modname=GJESS110,dsname=smqhlq.SGJELOAD`
where *smqhlq.SGJELOAD* is the name of your IMS Sysplex Manager load library.
- `setssi add,sub=subname,initrtn=GJESS110`

where *subname* is a valid and unique 4-character subsystem name that you choose. The subname does not need to be the same across z/OS systems in a sysplex.

2. After you issue the **SETSSI** command, the following message is displayed:

```
GJE7000I IMS SM VERSION 130 SSI INITIALIZATION COMPLETE
```

If the IMS Sysplex Manager subsystem interface is installed dynamically, you must issue these commands after each IPL.

For more information about the **SETPROG** and **SETSSI** commands, see *z/OS MVS System Commands*.

Installing the IMS Sysplex Manager subsystem interface manually

This topic discusses installing the IMS Sysplex Manager subsystem interface manually.

Procedure

For manual installation, complete the following steps:

1. Add module GJESS110 to the z/OS Link Pack Area (LPA). Either pageable (PLPA) or modifiable LPA can be used.
2. Add the definition for the IMS Sysplex Manager subsystem interface definition to SYS1.PARMLIB subsystem definition member IEFSSNxx.

The keyword parameter form of the IEFSSNxx PARMLIB member must be used for the IMS Sysplex Manager subsystem interface. The IMS Sysplex Manager subsystem interface makes use of dynamic SSI services that are not supported in the positional form of IEFSSNxx. The form of the definition control statement is:

```
SUBSYS SUBNAME(subname) INITRTN(GJESS110)
```

where *subname* is a valid and unique 4-character subsystem name that you choose. The subname does not need to be the same across z/OS systems in a sysplex.

For more information about the SUBSYS control statement, see *z/OS MVS Initialization and Tuning Reference*.

3. IPL the z/OS system.

While the IPL is processing, the following message is displayed:

```
GJE7000I IMS SM VERSION 130 SSI INITIALIZATION COMPLETE
```

Updating the IMS Sysplex Manager subsystem interface dynamically

This topic discusses updating the IMS Sysplex Manager ISPF subsystem interface dynamically.

Procedure

To dynamically update the subsystem interface, complete the following steps:

1. Use the same procedure, as described in [“Installing the IMS Sysplex Manager subsystem interface dynamically”](#) on page 59.

You must choose a different (or unique) subsystem name from the one that was used during the installation.

Issue the following commands:

- `setprog lpa,add,modname=GJESS110,dsname=smqhlq.SGJELOAD`
where *smqhlq.SGJELOAD* is the name of your IMS Sysplex Manager load library
- `setssi add,sub=subname,initrtn=GJESS110`

where *subname* is a valid and unique 4-character subsystem name that you choose. The subname does not need to be the same across MVS systems in a sysplex.

2. After you issue the **SETSSI** command, the following messages are displayed:

```
GJE7004I IMS SM SSI PREVIOUSLY ESTABLISHED IS DISABLED  
GJE7000I IMS SM VERSION 130 SSI INITIALIZATION COMPLETE
```

For more information about the **SETPROG** and **SETSSI** commands, see *z/OS MVS System Commands*.

Updating the IMS Sysplex Manager subsystem interface manually

This topic discusses updating the IMS Sysplex Manager ISPF subsystem interface manually.

Procedure

To manually update the subsystem interface, complete the following steps:

1. Replace the LPA resident GJESS110 copy with the updated module.
2. Restart (IPL) the operating system.

Part 3. Using IMS Sysplex Manager

The topics in this section provide you with information on using the IMS Sysplex Manager product:

Topics:

- [Chapter 9, “Starting IMS Sysplex Manager ,” on page 65](#)
- [Chapter 10, “IMS Sysplex Manager system settings,” on page 71](#)
- [Chapter 11, “Using the ISPF user interface,” on page 73](#)

Chapter 9. Starting IMS Sysplex Manager

After you have performed all required configuration procedures, you can start IMS Sysplex Manager and select an IMS Sysplex Manager server.

Topics:

- [“Starting the IMS Sysplex Manager client interface” on page 65](#)
- [“Selecting an IMS Sysplex Manager server” on page 67](#)
- [“Using the IMS Sysplex Manager main menu” on page 69](#)

Starting the IMS Sysplex Manager client interface

After you have performed all required configuration procedures, you can start IMS Sysplex Manager and select an IMS Sysplex Manager server.

Before you begin

Before starting IMS Sysplex Manager, be sure that you have completed the following steps:

1. IMS Sysplex Manager is installed by using the SMP/E RECEIVE, APPLY, and ACCEPT commands.

Complete information about installation requirements, prerequisites, and procedures for IMS Sysplex Manager is located in the *Program Directory for IBM IMS Sysplex Manager for z/OS*, GI10-8683.

2. Before starting IMS, you must complete the required configuration for IMS Sysplex Manager.

Failure to fully configure IMS Sysplex Manager might abnormally terminate IMS. Required configuration includes:

- [Chapter 5, “Configuring the data collector,” on page 43](#)
- [Chapter 4, “Configuring the IMS control region,” on page 29](#)
- [Chapter 6, “Configuring the IMS Sysplex Manager server,” on page 49](#)
- [Chapter 8, “IMS Sysplex Manager ISPF subsystem interface,” on page 59](#)

About this task

After the SMP/E installation completes successfully, the following execution libraries are cataloged on your machine:

- `smqhlq.SGJESAMP`
- `smqhlq.SGJEPLIB`
- `smqhlq.SGJEMLIB`
- `smqhlq.SGJELOAD`
- `smqhlq.SGJETLIB`
- `smqhlq.SGJECSEX`

After you installed the IMS Tools Generic Exits common code, the following execution libraries are cataloged on your machine:

- `smqhlq.SGLXLOAD`
- `smqhlq.SGLXMAC`
- `smqhlq.SGLXSAMP`
- `smqhlq.SFOILOAD`

Procedure

To start the IMS Sysplex Manager client interface, complete the following steps:

1. Log on to TSO and specify a minimum REGION (KB) value of 6144.
2. Select ISPF option 6 and enter the following command from the TSO command line:

```
EX 'smphlq.SGJECEXE(GJEC SM)' 'SMPHLQ(smphlq) XCFGRPID(xcfgrp id)  
MAXGRPS(maxgrps) TIMEOUT(mmss) TLIBHLQ(VNDR400.IMSSM.TEST)'
```

In this example:

smphlq

Indicates the high-level qualifier of your installation data set

XCFGRPID

Optional parameter. For proper syntax, the end quotation mark must follow the last specified parameters to the command.

The XCFGRPID value must be a 3-character string. The default is ISM.

In an IMS Sysplex Manager environment, the XCF group names must conform to a specific naming convention. The XCF group name is built by prefixing GJE to the 3-character XCF group ID and suffixing the ID with a two digit number. Each XCF group ID is numbered from 00 to one minus the value that is specified in MAXGRPS.

If you do not specify MAXGRPS, by default, IMS Sysplex Manager searches for the first 10 XCF groups. For example, if the XCFGRPID is ISM, IMS Sysplex Manager searches for GJEISM00 through GJEISM09. For any XCF group name that has a suffix with 10 or greater, MAXGRPS must be equal to or greater than the suffix number that is specified in the XCFGROUP parameter of the IMS Sysplex Manager server.

MAXGRPS

Optional parameter. For proper syntax, the end quotation mark must follow the last specified parameters to the command.

This value determines the range of XCFGROUP names. IMS Sysplex Manager searches for XCF group names with suffixes from 00 to one minus the value of MAXGRPS.

The MAXGRPS value is a number between 1 and 99. The default value is 10.

TIMEOUT

Optional parameter. For proper syntax, the end quotation mark must follow the last specified parameters to the command.

The TIMEOUT parameter defines how long you want to wait if you cannot immediately connect. For example, *smphlq* might be IMS SM.DRIVER2, *xcfgrp id* might be PLX, and *mmss* might be 10.

The TIMEOUT value can be in seconds from 0001 to 0059 or in minutes and seconds, between 0100 (one minute) and 5959 (59 minutes and 59 seconds). The default is 10 seconds.

TLIBHLQ

Optional parameter. For proper syntax, the end quotation mark must follow the last specified parameters to the command.

The TLIBHLQ parameter directs ISPF table input and output to a data set that is not qualified by *smphlq*.

The TLIBHLQ parameter follows the rules for defining a z/OS data set name. The qualifier acts as a prefix to the name SGJETLIB to build the data set name of *tlibhlq*.SGJETLIB. This data set must have been allocated prior to starting the client code. This data set is the ISPF table data set where user dashboard definitions are stored. If TLIBHLQ is not defined, *smphlq* will be used to define the table data set.

By separating the ISPF table data set from the product data sets (which in some cases are also the installation data sets), it is possible to have READ ONLY access to the product data sets and have WRITE access to the ISPF table data set *tlibhlq*.SGJETLIB.

THRHLQ

Optional parameter. For proper syntax, the end quotation mark must follow the last specified parameters to the command.

The THRHLQ parameter directs Dashboard Monitoring Period definition threshold values to a data set that is not qualified by *smphlq*.

The THRHLQ parameter follows the rules for defining a z/OS data set name. The qualifier acts as a prefix to the name THRPARMS to build the data set name of *thrhlq*.THRPARMS. This data set must replace the threshold data set in the JCL used to start the server. If THRHLQ is not defined, *smphlq* will be used to define the threshold data set.

By separating the threshold data set from the product data sets (which in some cases are also the installation data sets), it is possible to have READ ONLY access to the product data sets and have WRITE access to the threshold data set *thrhlq*.THRPARMS.

Selecting an IMS Sysplex Manager server

As part of starting up IMS Sysplex Manager, you must select an IMS Sysplex Manager server so that you can display the IMS Sysplex Manager panels,

Procedure

To select an IMS Sysplex Manager server, complete the following steps:

1. Start IMS Sysplex Manager.
2. Start threshold/dashboard data collection (optional):

```
F servername,THRESH START
```

3. Select option 2 on the IMS Sysplex Manager main menu.

The IMSplex/SMplex Member List panel (GJEPPLX) is displayed.

This panel displays a list of XCF groups, associated IMSplex names, and IMS members from which you can select an XCF group. The list can contain up to 100 entries.

If you select an XCF group that is associated with an IMSplex, then that IMSplex will be used and the working environment is an IMSplex.

If no IMSplex exists in the XCF group, the environment is an SMplex.

```
GJEPPLX                                IMSplex/SMplex Member List                Row 1 to 1 of 1
COMMAND ===>                                                                    SCROLL ==>

Enter 's' to complete the selection.

  Cmd  XCF group  Plexname  IMS-members
  GJEISM01  PLEX1    IMS1    IMSA
***** Bottom of data *****
```

Figure 2. IMSplex/SMplex Member List panel (GJEPPLX)

Fields on this panel are:

XCF group

The name of the XCF group. The XCF group is created by adding a prefix of GJE to the 3-character XCF group ID, and adding a suffix in the range of 00 to the value in MAXGRPS. You can specify both the prefix and suffix on the client start up command, or you can use the defaults.

Plexname

A 5-character name for the IMSplex in the XCF group. Only one IMSplex can exist in an XCF group. When a component, such as IMS, OM, or RM is started, one of its startup parameters is the IMSplex name. The component then operates in this IMSplex.

IMS-members

IMSid of the IMS system in the XCF group. An asterisk (*) appears next to each IMSid if no data collector is connected to that IMS system.

4. Type an s in the Cmd column of an XCF group row to select an XCFGROUP and press **Enter**.

The IMSplex/SMplex server list panel (GJEPSRV) is displayed.

```
GJEPSRV                      IMSplex/SMplex Server List                      Row 1 to 1 of 1
COMMAND ===>                SCROLL ==> PAGE

IMSpIex. . . PLEX1
SM server. : UIS

Enter 's' in the command line to complete selection

  Cmd   Release   Status   SM Server   History   z/OS system
   1.3.0   ACTIVE   UIS         Y          ECDBT17
***** Bottom of data *****
```

Figure 3. IMSplex/SMplex Server List panel (GJEPSRV)

Fields on this panel are:

CMD

An input field in which you specify the server

Release

Contains the release level of the server

Status

Shows the status of the server XCF

SM Server

The server name at startup time

History

Indicates whether the server records system exception events in the history file

z/OS System

The name of the z/OS system on which the server is running

5. Type an S in the Cmd column of a server row to select a server. Press **Enter**.

You must select a server that is designated as ACTIVE in the Status column.

What to do next

If you have successfully run IMS Sysplex Manager in a prior session and the XCF group name and the IMSplex name have been saved in your ISPF profile, these two panels are not displayed.

After you make a selection, the IMS Sysplex Manager main menu is displayed.

If you return to the main menu without making a selection, the server to which you were logged on prior to selecting option 2 remains connected.

Using the IMS Sysplex Manager main menu

Use the IMS Sysplex Manager main menu panel (GJEPRIM) to select the activity that you want to perform with IMS Sysplex Manager.

Procedure

The following figure shows the IMS Sysplex Manager main menu panel:

```
Menu View Options Help
----- Realtime snapshot
GJEPRIM                      IMS Sysplex Manager
Option ==>

IMSpdex. . . PLEX1
SM server. : UIS

Select one of the following options:

1. Settings
2. IMSSM Plex/Server selection
3. IMSSM component selection
4. IMSplex data
5. Coupling Facility Structure data
6. IMS data
7. Shared Message Queue data
8. Data sharing data
9. IMSplex operations(COMMANDS,SPOC)
10. Dashboard
11. Display systems exceptions/log data
12. Display z/OS information for IMS address spaces
13. Display history dataset information
```

Figure 4. The IMS Sysplex Manager main menu panel (GJEPRIM)

Enter a numeric menu option on the Option line and press **Enter** to display the panel for that function. The menu options include:

1. Settings

Displays settings for receiving system exception notifications, setting auto refresh intervals, setting the date format, and choosing other product settings.

2. IMSSM Plex/Server selection

Displays the IMS Sysplex Manager servers that are available.

3. IMSSM component selection

Displays the list of components (IMS systems, OM, RM, SCI, CQS) in the IMSplex or in the XCF group that you selected. You can view statistical data that is related to the component that you select.

4. IMSplex data

Displays plex-wide statistical data for the RM, OM, and SCI components.

5. Coupling Facility Structure data

Displays data that is related to the coupling facilities in the IMSplex.

6. IMS data

Displays statistical data that is related to one or more IMS systems in the IMSplex.

7. Shared Message Queue data

Displays shared message queue structure statistics and message queue depths.

8. Data sharing data

Displays IRLM statistics, IRLM lock statistics, and data sharing statistics.

9. IMSplex operations (COMMANDS,SPOC)

Allows you to submit IMS commands or enter IMSplex commands through the IMS Single Point of Control (SPOC).

10. Dashboard

Allows you to configure and display dashboards.

11. Display systems exceptions/log data

Allows you to view system exceptions, threshold exceptions, commands, and command output in the history database.

12. Display z/OS information for IMS address spaces

Allows you to view z/OS information about the various IMS and IMS related address spaces such as OM, RM, SCI, IRLM, DBRC, CQS, and IMS dependent region address spaces.

13. Display history dataset information

Allows you to view usage information and status of the IMS Sysplex Manager history database.

Enter a question mark (?) in the IMSplex field to display the list of XCF groups and their associated plex names. Type over the plex name to validate the new name. If it is valid, the list of servers in the plex is displayed. You cannot modify the server name.

If the environment is an IMSplex environment, the field name displays as **IMSplex**, followed by the IMSplex name. If the environment is not an IMSplex environment, the field name displays as **SMplex**, followed by the IMS Sysplex Manager XCF group name.

On many panels, you can use the IMSplex field as an input field to change to and from an IMSplex name to an XCF group name.

Chapter 10. IMS Sysplex Manager system settings

You can establish IMS Sysplex Manager settings before completing other tasks with the tool.

Procedure

Select option 1 on the IMS Sysplex Manager main menu to display the Settings panel.

Use this panel to set system exception notifications, automatic refresh intervals, date format, and other product settings.

GJEPSET

COMMAND ==>

Settings

Auto-refresh interval 101-59 seconds

Dashboard data collection intvl . 06015-999 seconds

Date format 31 = yyyy/ddd, 2 = dd/mm/yy
3 = mm/dd/yy, 4 = yy/mm/dd

IMS DS high level qualifier . . .

Options to receive notifications

System exceptions / = ON

Browse data set allocation parameters:

Data set name

Primary CYLS. 0101-999

Secondary CYLS. 0101-999

UNIT. SYSALLDAoptional (default SYSALLDA)

Volume serial number.optional (default by system)

Number of lines for request . . 01000optional (default 1000)

Figure 5. The Settings panel (GJEPSET)

If you are using SPOC, the **IMS DS high level qualifier** field is required. This high-level qualifier is used as a prefix for all of the IMS data sets that are required by SPOC.

The DFSSPSRT REXX procedure that invokes SPOC requires that the following IMS data set names have the following form:

ISPF command procs : hlq.SDFSEEXEC

ISPF message data set : hlq.SDFSMLIB

ISPF panel data set : hlq.SDFSPLIB

IMS reslib : hlq.SDFSRESL

where *hlq* is the IMS high-level qualifier.

Chapter 11. Using the ISPF user interface

The IMS Sysplex Manager ISPF user interface allows you to manage one or more IMS systems.

Topics:

- [“The ISPF panel structure” on page 73](#)
- [“Drop-down menus” on page 74](#)
- [“Setting up IMS groups” on page 75](#)
- [“Switching IMSplexes” on page 76](#)
- [“Automatically refreshing data” on page 77](#)
- [“Sorting panel data” on page 77](#)
- [“Finding column data on displayed ISPF tables” on page 78](#)
- [“Using wildcards” on page 79](#)
- [“Filtering search results” on page 79](#)

The ISPF panel structure

The IMS Sysplex Manager ISPF panels are structured to provide an easy-to-use interface to help you manage your IMS systems.

Some IMS Sysplex Manager panels contain similar types of fields.

In the example panels that are displayed in these topics, panel IDs are shown in the upper left corner. To display the panel IDs on your system, issue the **PANELID** command. The panel ID is displayed over the IMS SM label.

Important: All time statistics displayed on IMS Sysplex Manager panels are in milliseconds, unless otherwise noted.

The following input fields are common in IMS Sysplex Manager panels:

Table 8. Common input fields	
Field	Purpose
COMMAND	Enter the required character and press Enter to issue your command.
Cmd	Enter the required character and press Enter to issue your line command.
IMSplex	The name of the IMSplex or the XCF group to which you are currently connected. You can manage all of the components within the IMSplex. You can also switch from one IMSplex to another IMSplex or to an XCF group.
Option	Enter the menu option number that you want to use.

The following output fields are common in IMS Sysplex Manager panels:

Table 9. Common output fields	
Field	Description
IMSplex	Indicates the IMSplex that you are currently monitoring. On some panels, this is an input field and can be changed to switch to another IMSplex. When it is an output field, the switch cannot be made from that panel.

Table 9. Common output fields (continued)

Field	Description
SM server	Indicates the IMS Sysplex Manager server to which you are currently connected. This is an output field and cannot be changed directly from any panel. To connect to another active IMS Sysplex Manager server, use option 2 on the main menu.
Route	Indicates the target of your request. It is the name of the IMSplex component to which the request for data is sent. The target can be a single component (for example, the name of a Resource Manager) or a group of components (for example, IMS1 and IMS2). A group target is permitted only if the component type is IMS. If the component type is not IMS, the target can be a single component or all components of the same type (*).
Date	Indicates the date on which the monitoring function was run.
Time	Indicates the time at which the monitoring function was run.

Drop-down menus

Drop-down menus provide a quick, easy method of navigating from panel to panel without navigating vertically through menu panels. Most IMS Sysplex Manager panels contain drop-down menus.

To use a drop-down menu, place your cursor on the menu title that you want to access and press **Enter**. Most panels provide the following drop-down menus: **Menu**, **View**, **Options**, and **Help**.

Menu

The **Menu** drop-down menu displays the same options that are available on the IMS Sysplex Manager main menu (GJEPRIM).

```

E#####N
e  1. Settings                               e
e  2. IMSSM Plex/Server selection             e
e  3. IMSSM component selection               e
e  4. IMSplex data                           e
e  5. Coupling Facility Structure Data         e
e  6. IMS Data                               e
e  7. Shared Message Queue Data               e
e  8. Data Sharing Data                       e
e  9. IMSplex Operations(COMMANDS,SPOC)       e
e 10. Dashboard                             e
e 11. Display Systems Exceptions/Log Data     e
e 12. Display z/OS information for IMS address spaces e
e 13. Display history dataset information      e
D#####M

```

Figure 6. The Menu drop-down menu

View

The **View** drop-down menu provides the following list of options:

```

E#####N
e  1. Sort                                   e
e  2. Reset sort sequencing                 e
e  3. Find                                  e
D#####M

```

Figure 7. The View drop-down menu

Select any option on the **View** drop-down menu that is highlighted. If the panel data that is displayed is not a table, all options of the **View** drop-down menu are disabled.

The **Sort** option brings up the Column Names panel (GJEPSRT) that allows you to configure the order of columns that display on the current panel.

The **Reset sort sequencing** option returns the display of columns on the current panel to the default order.

The **Find** option brings up another version of the Column Names panel (GJEPFND) that allows you to enter a string (in the FIND field). The results of the Find command cause the appropriate information row to appear at the top of the table listing in the current panel.

Options

The **Options** drop-down menu provides the following list of options:

```
EsaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaN
e  1. Autorefresh                      e
e  2. Preferences...                  e
e  3. Enter IMS commands              e
e  4. Delete resources by owner       e
e  5. Delete all displayed resources e
DsaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaM
```

Figure 8. The Options drop-down menu

The **Autorefresh** option places the current panel into automatic refresh mode.

The **Preferences** option displays the IMSSM IMS group Definitions panel (GJEPUPEA). You can set the default IMS routing groups and define new groups or redefine existing groups.

The **Enter IMS commands** option displays the IMSplex Operations panel (GJEPOPS), where you can enter IMS commands.

Other options might be available that allow you manipulate data on specific panels.

Help

The **Help** drop-down menu provides the following list of options:

```
EsaaaaaaaaaaaaaaaaaaaaaaaaaaaaaN
e  1. Extended help e
e  2. About         e
DsaaaaaaaaaaaaaaaaaaaaaaaaaaaaM
```

Figure 9. The Help drop-down menu

The **Extended help** option displays a help panel providing information about the current panel.

The **About** option displays the About IMS Sysplex Manager panel (GJEPHLP).

Setting up IMS groups

You can set up IMS groups to customize the way you interact with your IMS systems.

About this task

You can select or define groups for IMS from any panel that has the modifiable **Route** field or from the **Options** drop-down menu.

IMS groups are used on the **Route** field to let IMS Sysplex Manager know which IMS components data should be obtained from, or commands should be sent to.

Procedure

There are 2 ways to set up IMS Groups.

- From the **Options** drop-down menu on any panel, select **Preference**.
- Type a question mark (?) in the **Route** field on a panel.

Follow the instructions on panel GJEPUPPEA to add, delete, and select default routing groups.

The following example shows a sample GJEPUPPEA panel:

```
GJEPUPPEA                      IMSSM IMS Group Definitions          Row 1 to 4 of 4
COMMAND ==> _____ SCROLL ==> PAGE

Enter a group name and member names to add a new group. Enter 's' to select a
default, or 'd' to delete a group.

Default routing . . . : GROUP1,G3

Act   Group      IMSplex members
--   -
--   GROUP1      IMS1 IMS2
--   G2           IMS2
--   G3           IMS3
***** Bottom of data *****
```

Figure 10. The IMSSM IMS Group Definitions panel (GJEPUPPEA)

Switching IMSplexes

To switch from the current IMSplex to another IMSplex, enter the name of the new IMSplex in the **IMSplex** field of the IMS Sysplex Manager main menu panel.

About this task

To be a valid name, the name must match an IMSplex name that is known to IMS Sysplex Manager and must be used to connect to an IMS Sysplex Manager server in the new IMSplex.

If no server is found, the switch is not made and an error message is displayed.

If you do not know the names of the available IMSplexes, complete the following steps to switch IMSplexes:

Procedure

1. Enter a question mark (?) in the **IMSplex** field on the panel and press **Enter**.
A list of valid IMSplex names is displayed from which you can choose.
2. Select an IMSplex name to display the list of servers available for the selected IMSplex.
3. Select an active server to complete the selection of the new IMSplex.

What to do next

It is possible that no IMSplex name is associated with an XCF group. In this case, you can monitor all of the components of the XCF group. You are then operating in IMS Sysplex Manager plex mode (SMplex).

Automatically refreshing data

To refresh panel data automatically, you can use the auto-refresh option.

About this task

Normally, to refresh data on a panel, you must press **Enter**. You can use the auto-refresh option to eliminate the need to press **Enter**.

Procedure

To enable the auto-refresh option for the current panel, complete the following steps:

1. Select **Auto-refresh** from the **Options** drop-down menu of the IMS Sysplex Manager main menu panel.
2. To control how often the data is refreshed, select the **Settings** option on the IMS Sysplex Manager main menu and enter a value of 1 to 59 seconds.

Note: The minimum auto-refresh value is 1.

What to do next

While the auto-refresh option is enabled, the keyboard is locked. To exit auto-refresh mode, use the **Attention** key (usually **Esc** key).

Restriction: The auto-refresh feature is not selectable from the drill-down menu on panels that do not support auto-refresh.

Sorting panel data

On most panels, IMS Sysplex Manager allows you to sort data by column names.

Procedure

To sort panel data, complete the following steps:

1. When you access a table, the **View** drop-down menu in the upper navigation bar indicates whether a table can be sorted.
Select Option 1 (Sort) to display the columns on the table.
2. In the **Sort order** column, enter a number that indicates the order of the field for sort.
Enter 1 to display the corresponding column name as the major sort field.
If you identify fields with numbers higher than 1, the associated fields are defined as minor sort fields, 2 being the first minor field, 3 the next minor field, and so on.
3. In the **Asc Desc** column, enter either A (Ascending) or D (Descending) to set the sort order for the selected field (Column name). A is the default.
4. After you enter the sort control data, press PF3 (END) to display the table in the sorted order.

Results

If you select the Sort option from the **View** drop-down menu on the System Configuration Options and Parameters panel (GJEP200), the following panel is displayed:

```

GJEPSRT                      Column names                      Row 1 to 4 of 4
COMMAND ===> _____ SCROLL ===> CSR

Sort  Asc(A)
order Desc(D) Column name
-----
---   A      IMSid
---   A      Keyword Parameter
---   A      Description
---   A      Value
***** Bottom of data*****

```

Figure 11. Sort example panel

The sort sequencing that is established for the table remains in effect until it is changed, or until it is reset to its original sequencing.

Resetting the sort sequence

To reset the sort sequence for panel data, select option 2 (Reset sort sequencing) to display the table as it was created. This re-sequenced setting remains in effect until you change the sequence of the columns.

Finding column data on displayed ISPF tables

The Find option, located on the View drop-down menu, helps the user look for character strings in any ISPF table displayed.

Upon selection of the Find option, a list of table columns is displayed. An input line allows you to enter the data for the **FIND** command as shown in the following example:

```

GJEFPND                      Column names                      Row 1 to 4 of 4
COMMAND ===> _____ SCROLL ===> PAGE

FIND
Col nr.      Column name
-----
01   IMSid
02   Keyword Parameter
03   Description
04   Value
***** Bottom of data *****

```

Figure 12. Example FIND command

The user may enter the data for the **FIND** command as:

1. FIND abc
2. FIND abc 1,2
3. FIND abc*
4. FIND abc* 1,2
5. All of the above with the additional keyword of PREV

The abc argument to the **FIND** command represents the character string to be searched for.

If the search string has embedded blanks, then the string must be enclosed in single quotes (for example, 'a b c').

The wildcard character * is allowed (for example, abc*). This entry causes the search for the character string abc in any part of the cell data.

The column numbers argument to the **FIND** command limits the search to the specified columns of the table.

If the string is found, the column in which the string occurs is displayed as the first column on the screen.

Search continuation

The **RFIND** (PF5) command continues the search for the next occurrence of the search string. If the bottom of the table is reached, the search continues from the top of the table.

If the **FIND** command was initiated with the PREV keyword, the **RFIND** command continues the search towards the top of the table. If the top of the table is reached, the search continues from the bottom of the table.

Using wildcards

Several IMS Sysplex Manager panels allow you to select data by using a wildcard.

About this task

You can use wildcards in the following situations:

- You can use a character wildcard.

For example, when working with transaction codes, you can enter A20 to generate information for all transaction codes that are four characters in length, with an A in the first position and a C in the third position.

- You can use an * (asterisk) as a multiple-character wildcard.

For example, you can enter A* to generate information for all transaction codes that begin with an A in the first position.

Restriction: You can only use an asterisk in the last position of the selection request.

- IMS Sysplex Manager does not support non-trailing wildcards.

For example, a search argument of *XYZ would yield the same result as *

Filtering search results

Prior to displaying data for a component, you can limit your search for relevant data by selecting an attribute related to the data to be viewed. This filtering feature is available for displaying IMS resources, dependent regions, and destination queue depths.

The filtering feature has the following restrictions:

- You can only specify a single filter criterion at a time.
- Results are not cumulative; every filter request returns a new set of results.

Upon entering a panel where filtering is allowed, a filtering specification panel is displayed that allows you to enter a filtering criterion. The criteria data is either evident from the name of the field, or there is a choice displayed along side the field, or you can request help for the field data.

Fields for which help is available are marked with an appropriate text. If the cursor is placed on such a field, a help panel is displayed on which you can enter the filtering criteria.

Once the relevant data is returned, you can specify another filtering criterion or exit from the function.

The panel that displays the returned data also shows the short name of the filter field in addition to the filter data.

The following choices of action are available:

- You can type over the filter data and reselect the data with the same filter field but different filter data.
- You can re-display the filter panel to change the filtering criteria altogether by selecting the **Enter selection values for filtering** from the **Filter** drop-down menu.

Part 4. Viewing data

The topics in this section provide you with information on viewing the data produced by the z/OS, IMS, and IMS sysplex environment:

Topics:

- [Chapter 12, “Selecting IMSplex components,” on page 83](#)
- [Chapter 13, “Viewing IMSplex data,” on page 87](#)
- [Chapter 14, “Viewing coupling facility structure statistics,” on page 97](#)
- [Chapter 15, “Viewing IMS data,” on page 99](#)
- [Chapter 16, “Viewing shared message queues activity,” on page 131](#)
- [Chapter 17, “Viewing data sharing statistics,” on page 135](#)
- [Chapter 18, “Viewing history data set information,” on page 143](#)
- [Chapter 19, “Viewing z/OS information for IMS address spaces,” on page 151](#)

Chapter 12. Selecting IMSplex components

You can select the IMSpIex and SMpIex components with which you want to work.

Procedure

To select IMSplex and SMplex components, complete the following steps:

1. Select option 3 on the IMS Sysplex Manager main menu to display the IMSplex/SMplex Component Selection Criteria panel (GJEPSEL):

[illegible]

Figure 13. The IMSpIex/SMpIex Component Selection Criteria panel (GJEPSEL)

The IMSplex/SMplex Component Selection Criteria panel enables you to obtain a list of members in the IMSplex and SMplex. You can enter one or more selection criteria to filter the component list. If you leave a field blank, no criteria is applied.

Example: If you leave the **z/OS-id** field blank and specify CQS in the **Component Types** field, all CQS members in the IMSplex or SMplex are returned.

The **IMS Systems** field can be used to further filter data only when the **Component Types** field is set to IMS. You can enter a list of IMSid values, each four characters in length. IMSid group names are not permitted.

2. Press **Enter** to display the IMSplex/SMplex Component List panel (GJEP600).

On this panel, select components that you want to use.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP600 IMSplex/SMplex Component List Row 1 to 6 of 6
COMMAND ==> SCROLL ==> PAGE

IMSplex. . . PLEX1 Date: 02/11/21 More: >
SM server. : UIS Time: 14:37:57

Enter 's' to display statistics for the selected component
      'i' to display z/OS information for the selected component
      'd' to produce an SVC dump for the selected component
      'dt' to produce SVC dumps for the selected component type across the plex

Cmd ID          Type Version z/OSname Jobname DBRCname DLIname IRLMname Status
   IMS1         IMS  15.1.0  IMSNWAYS  IMS1     DBRECSAJ DLIECSAJ    READY
             DBRC  15.1.0  IMSNWAYS  DBRECSAJ                READY
             DSAS  15.1.0  IMSNWAYS  DLIECSAJ                READY
   OM1OM        OM   1.8.00  IMSNWAYS  OM1                      READY
   RM1RM        RM   1.8.00  IMSNWAYS  RM1                      READY
   SCI1SC       SCI  1.8.00  IMSNWAYS  SCI1                     READY
***** Bottom of data *****
```

Figure 14. The IMSplex/SMplex Component List panel (GJEP600)

3. Type any of the following line commands in the Cmd column of the row for an appropriate component (and press **Enter**):

- s to obtain statistics for the selected component
- i to display z/OS information for the selected component

A supervisor call (SVC) dump is a dump that is generated when z/OS detects a system exception or when the DUMP command is entered by an operator from the console. From this panel, you can request dumps for one or more address spaces.

- Type the d line command in the Cmd column of one or more rows, and press **Enter**, to produce SVC dumps for the selected component.
- Type the dt line command in the Cmd column of an appropriate row, and press **Enter**, to dump a single component type across the IMSplex.
- From the Options menu, you can use the **Dump all displayed components** menu item. Use this option with caution because requesting too many dumps at one time can significantly impact your system performance.
- If coupling facility (CF) structures are allocated to your IMS environment, a pop-up panel is displayed. You can select one or more CF structures to be included in the dump

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssss
GJEP90D          Coupling Facility Structure Row 1 to 6 of 6
COMMAND ==>          SCROLL ==> PAGE

Enter Y to include the Structure in the SDUMPX command

Cmd Structure name      Type Status
----
---- IMMSGQ01           MSGQ ALLOCATED
---- IMSEMHQ01          EMHQ  ALLOCATED
---- IMSRRC01           RSRG  ALLOCATED
---- MVSLOGMSGQ01       FFLG  ALLOCATED
---- MVSLOGEMHQ01       FPLG  ALLOCATED
---- OSAMESXI           OSAM  ALLOCATED
*****
***** Bottom of data *****

```

Figure 15. Pop-up panel that lists CF structures (GJEP90D)

- If you are requesting a dump for an IMS control region, a pop-up panel is displayed only if a dependent region is attached to that control region. You can select one or more dependent regions to be included in the dump.


```

GJEP622          IMS Dependent Regions          Row 1 to 4 of 4
COMMAND ==>          SCROLL ==> CSR

Enter Y to include the dependent region in the SDUMPX command

Cmd Jobname  Type/imsid z/OSname ASID
--- BMP3     BMP /IMS1  EC01757 0034
--- BMP1     BMP /IMS1  EC01757 0033
--- MPP02    TP  /IMS1  EC01757 0032
--- MPP01    TP  /IMS1  EC01757 0031
***** Bottom of data *****

```

Figure 16. Pop-up panel that lists the associated dependent regions (GJEP622)

Up to fifteen address spaces can be selected to be dumped with a single request to the server.

Chapter 13. Viewing IMSplex data

You can use IMS Sysplex Manager to view IMSplex data.

Topics

- [“Viewing Resource Manager structure entries” on page 87](#)
- [“Deleting Resource Manager structure entries” on page 88](#)
- [“Viewing aggregated local RM statistics” on page 90](#)
- [“Viewing aggregated local OM statistics” on page 91](#)
- [“Viewing aggregated local SCI statistics” on page 93](#)
- [“Viewing aggregated local ODBM statistics” on page 94](#)

Viewing Resource Manager structure entries

The Resource Manager (RM) is a common service layer (CSL) component that manages resources and coordinates online change for IMS systems in an IMSplex. You can use IMS Sysplex Manager to view Resource Manager structure entries information.

About this task

Note: IMS maintains global status only by resource type. If the resource entry is deleted from the resource structure, IMS assumes there is no global status for the resource.

IMS Sysplex Manager shows detailed status data to assist you in determining when it is safe to delete specific entries off the structure.

Procedure

To display Resource Manager structure entries, complete the following steps:

1. Select option 4 on the IMS Sysplex Manager main menu to display the View IMSplex Data panel.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPVPL                                View IMSplex Data
Option ==>

IMSpdex. . . PLEX1
SM server. : UIS1
Route. . . : *

Select one of the following options:

1. RM resource management
2. RM aggregate of locals
3. OM aggregate of locals
4. SCI aggregate of locals
5. ODBM aggregate of locals
```

Figure 17. The View IMSplex Data panel (GJEPVPL)

2. Select option 1 on the View IMSplex Data panel to display the IMS RM Management panel (GJEPRML).
The list of resources is displayed.

```

Menu View Options Help
----- Realtime snapshot
GJEPRML                      IMS RM Management
Option ==>

IMSpdex. . . PLEX1
SM server. : UIS
Route. . . : *
Filter . . . *

Select one of the following resource types:

1. Transactions          9. Userids
2. Lterms                10. Static node users
3. Remote MSNames        11. Databases
4. Dynamic users          12. Scheduled Serial Programs
5. Remote Nodes           13. Areas
6. IMSplex                14. All of the above
7. CPIC transactions
8. APPC descriptors

```

Figure 18. The IMS RM Management panel (GJEPRML)

3. Type the number for the appropriate resource type and press **Enter**.

You can optionally use the **Filter** field to specify a resource name, or a group of resource names. Wildcard characters are allowed.

For example, type 1 (Transactions) and press **Enter** to display the RM Resource Information panel.

```

Menu View Options Help
----- Realtime snapshot
GJEP7611                      RM Resource Information          Row 1 to 7 of 392
COMMAND ==>                      SCROLL ==> PAGE

IMSpdex. . : PLEX1              Date. . : 02/11/21
SM server. : UIS                Time. . : 13:35:31
Route. . . : *
Filter . . . *

Resource type. . : TRANSACT
Enter 'd' to delete the resource
'dxx' to delete multiple resources (xx = 1-99)

Cmd Resource      Prompt Version      Owner      Gbl-stat  Cmd-timestamp
APOL21            0000000000000001  NONE      NONE
BHA2              0000000000000001  NONE      NONE
BHF1              0000000000000001  NONE      NONE
BHG3              0000000000000001  NONE      NONE
CONV12M0          0000000000000001  NONE      NONE
CONV21C0          0000000000000001  NONE      NONE
CONV21M1          0000000000000001  NONE      NONE

```

Figure 19. The RM Resource Information panel (GJEP7611)

Deleting Resource Manager structure entries

The Resource Manager (RM) is a common service layer (CSL) component that manages resources and coordinates online change for IMS systems in an IMSplex. You can use IMS Sysplex Manager to delete Resource Manager structure entries.

About this task

IMS Sysplex Manager shows detailed status data to assist you in determining when it is safe to delete specific entries off the structure.

Procedure

To delete Resource Manager structure entries, complete the following steps (several methods are described):

1. From the IMS Resource Management panel (GJEP761), type the number of the appropriate resource type and press **Enter**.

For example, select option 1 (Transactions) to display the RM Resource Information panel.

```
Menu View Options Help
-----
GJEP7611 RM Resource Information Realtime snapshot
COMMAND ==> Row 1 to 7 of 392
SCROLL ==> PAGE

IMSpIex. . : PLEX1 Date. . : 02/11/21
SM server. : UIS Time. . : 13:35:31
Route. . . : *
Filter . . . : *

Resource type. . : TRANSACT
Enter 'd' to delete the resource
'dxx' to delete multiple resources (xx = 1-99)

Cmd Resource Prompt Version Owner Gbl-stat Cmd-timestamp
APOL21 0000000000000001 NONE NONE
BHA2 0000000000000001 NONE NONE
BHF1 0000000000000001 NONE NONE
BHG3 0000000000000001 NONE NONE
CONV12M0 0000000000000001 NONE NONE
CONV21C0 0000000000000001 NONE NONE
CONV21M1 0000000000000001 NONE NONE
```

Figure 20. The RM Resource Information panel (GJEP7611)

2. Type d as a line command in the Cmd column of the row for a specific transaction, and press **Enter**, to delete that transaction from the structure.

Prior to deleting a resource, the Confirm RM Resource Delete panel (GJEP76V) is displayed. For example:

```
GJEP76V Confirm RM Resource Delete
COMMAND ==> -----

Resource name . . : BHA2
Resource type . . : TRANSACT
Resource version. : 0000000000000001

-- Abort delete ALL request
-- Set resource delete confirmation off

Press ENTER to confirm delete.
Press PF3 (END) to cancel delete.
```

Figure 21. The Confirm RM Resource Delete panel (GJEP76V)

Other resources on the list can be handled in a similar way.

If this is a mass delete and you change your mind, select **Abort delete ALL request** and press **PF3**.

The Confirm RM Resource Delete panel can be set to OFF to avoid displaying this panel for each resource that is deleted.

3. To delete multiple resources, type dxx as a line command.

xx is the number of rows (resources) to be deleted, starting with the resource on which the line command is entered. An error message is displayed if xx is not a numeric entry between 1 and 99.

Multiple dxx line commands can be entered along with the single delete line command (d).

An error message is also displayed if there is an overlap of one or more rows when using multiple d and dxx line commands.


```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP72A                                     RM Statistics                      Row 1 to 23 of 23
COMMAND ==>                               SCROLL ==> PAGE

IMSplex. . : PLEX1                        Date. . : 02/11/21
SM server. : UIS                          Time. . : 18:03:31
Route. . . : *

RM-id      Description                      Value
RM1RM      LOCAL STATISTICS:
RM1RM      Update . . . . .                18
RM1RM      Query. . . . .                  28
RM1RM      Delete . . . . .                 0
RM1RM      Register . . . . .               3
RM1RM      De-register. . . . .             0
RM1RM      Internal De-register (normal):.  0
RM1RM      Internal De-register(abnormal):  0
RM1RM      Initiate . . . . .               0
RM1RM      Terminate: . . . . .             0
RM1RM      Process: . . . . .               0
RM1RM      Response . . . . .               0
RM1RM      Query structure commands . . . . 0

RM1RM      Resource Structure Name . . . :  IMRSRRC01
RM1RM      Structure Version (Date). . . :   02/11/21
RM1RM      Structure Version (Time). . . :  03:10:15.5
RM1RM      CQS id. . . . .                  CQS1CQS
RM1RM      Registered Client Count . . . :    3
RM1RM      Resource Create Count . . . . :  682
RM1RM      Resource Update Count . . . . :   10
RM1RM      Resource Delete Count . . . . :    0

***** Bottom of data *****

```

Figure 23. The RM Statistics panel (GJEP72A)

Viewing aggregated local OM statistics

The Operations Manager (OM) is a common service layer (CSL) component that receives commands from automated operator programs (AOP), routes the commands to IMSplex members, consolidates commands responses, and sends the responses to the AOP. You can use IMS Sysplex Manager to view aggregated local OM statistics.

Procedure

To view aggregated local OM statistics, complete the following steps:

1. Select option 4 from the IMS Sysplex Manager main menu.

The View IMSplex Data panel is displayed.

2. Select option 3 from the View IMSplex Data menu to display the Aggregated Local OM Statistics panel.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP700                                     Aggregated Local OM Statistics Row 1 to 21 of 21
COMMAND ==>                                     SCROLL ==> PAGE

IMSpIex. . . PLEX1                               Date. . : 02/11/21
SM server. : UIS                                Time. . : 18:07:04
Route. . . : *

Enter 's' to view detailed OM statistics.

Description                                     Value
LOCAL STATISTICS:
CSLQREG requests. . . . . 13
CSLQRDY requests. . . . . 5
CSLQDRG requests. . . . . 0
Internal Dereg (normal). . . 0
Internal Dereg (abnormal). . 0
CSLQMI Command requests. . . 0
CSLQMI Query requests. . . . 0
CSLQCMD requests. . . . . 0
CSLQMQRY Clients requests. . 0
CSLQMQRY Syntax requests . . 0
CSLQMRSP requests. . . . . 0
CSLQMOUT requests. . . . . 4
CSLQZRY requests. . . . . 3,174
CSLZSHUT requests. . . . . 0
QRY IMSPLEX commands . . . . 0

Registered clients. . . . . 3
Command Timeout . . . . . 0
Undeliverable Output. . . . 0

***** Bottom of data *****

```

Figure 24. The Aggregated Local OM Statistics panel (GJEP700)

3. To view the local statistics of the OM components from which the aggregation was performed, type an s in the input field and press Enter.

The OM Statistics panel is displayed. For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP70A                                     OM Statistics Row 1 to 21 of 21
COMMAND ==>                                     SCROLL ==> PAGE

IMSpIex. . : PLEX1                               Date. . : 02/11/21
SM server. : UIS                                Time. . : 18:07:04
Route. . . : *

OM-id      Description                                     Value
OM10M     LOCAL STATISTICS:
OM10M     CSLQREG requests. . . . . 13
OM10M     CSLQRDY requests. . . . . 5
OM10M     CSLQDRG requests. . . . . 0
OM10M     Internal Dereg (normal). . . 0
OM10M     Internal Dereg (abnormal). . 0
OM10M     CSLQMI Command requests. . . 0
OM10M     CSLQMI Query requests. . . . 0
OM10M     CSLQCMD requests. . . . . 0
OM10M     CSLQMQRY Clients requests. . 0
OM10M     CSLQMQRY Syntax requests . . 0
OM10M     CSLQMRSP requests. . . . . 0
OM10M     CSLQMOUT requests. . . . . 4
OM10M     CSLQZRY requests. . . . . 3,174
OM10M     CSLZSHUT requests. . . . . 0
OM10M     QRY IMSPLEX commands . . . . 0

OM10M     Registered clients. . . . . 3
OM10M     Command Timeout . . . . . 0
OM10M     Undeliverable Output. . . . 0

***** Bottom of data *****

```

Figure 25. The OM Statistics panel (GJEP70A)

Viewing aggregated local SCI statistics

The Structured Call Interface (SCI) is a common service layer (CSL) component that manages communications between the IMSplex members. You can use IMS Sysplex Manager to view aggregated local SCI statistics.

Procedure

To view aggregated local SCI statistics, complete the following steps:

1. Select option 4 from the IMS Sysplex Manager main menu.

The View IMSplex Data panel is displayed.

2. Select option 4 from the View IMSplex Data menu to display the Aggregated local SCI Statistics panel.

For example:

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP74A                                     Aggregated Local SCI Statistics Row 1 to 23 of 23
COMMAND ==>                                SCROLL ==> PAGE

IMSpIex. . : PLEX1                         Date. . : 02/11/21
SM server. : UIS                           Time. . : 18:08:31
Route. . . : *

Enter 's' to view detailed SCI statistics

Description                                           Value
IXCMMSGO STATISTICS:
Successful. . . . .                               0
Buffer shortage encountered . . . . .             0
Other resource shortage encountered . . . . .     0
CLIENT REGISTRATION REQUESTS . . . . .
On local z/OS image . . . . .                     6
On remote z/OS image. . . . .                     0
Remote client notifications . . . . .             0
READY REQUESTS . . . . .
From clients on same z/OS image . . . . .         6
From clients on remote z/OS image . . . . .       0
Remote client notifications . . . . .             0
QUIESCE REQUESTS . . . . .
From clients on same z/OS image . . . . .         0
From clients on remote z/OS image . . . . .       0
DE-REGISTRATION REQUESTS . . . . .
Normal from local clients . . . . .               0
Abnormal from local clients . . . . .              0
Normal from remote clients. . . . .               0
Abnormal from remote clients. . . . .              0
Members ended without de-registering . . . . .    0
Member initializations . . . . .                  0
-----
***** Bottom of data *****
```

Figure 26. The SCI Statistics panel (GJEP74A)

3. To view the local statistics of the SCI components from which the aggregation was performed, type an s in the input field and press Enter.

The SCI statistics panel is displayed. For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP750                               SCI Statistics                               Row 1 to 31 of 80
COMMAND ==>                           SCROLL ==> PAGE

IMSpIex. . : PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 18:08:31
Route. . . : *

SCI-id  Mbr-id  Description                               Value
SCI1SC  DCIMS119 Requests sent:
SCI1SC  DCIMS119 By this mbr. to mbrs. on local MVS . . : 12,763
SCI1SC  DCIMS119 By this mbr. to mbrs. on remote MVSS. . : 0
SCI1SC  DCIMS119 To this mbr. by mbrs. on local MVS. . . : 0
SCI1SC  DCIMS119 To this mbr. that timed out . . . . . : 0
SCI1SC  DCIMS119 To this mbr. lost due to abend/MVS fail: 0
SCI1SC  DCIMS119 Requests received:
SCI1SC  DCIMS119 By this mbr. from all sources . . . . . : 0
SCI1SC  DCIMS119 Messages sent:
SCI1SC  DCIMS119 By this mbr. to mbrs. on local MVS. . . : 1
SCI1SC  DCIMS119 By this mbr. to mbrs. on remote MVSS. . : 0
SCI1SC  DCIMS119 By this mbr. by multiple members. . . . : 0
SCI1SC  DCIMS119 To this mbr. by mbrs. on local MVS. . . : 0
SCI1SC  DCIMS119 Messages received:
SCI1SC  DCIMS119 By this mbr. from all sources . . . . . : 0
-----
SCI1SC  IMSA    Requests sent:
SCI1SC  IMSA    By this mbr. to mbrs. on local MVS . . : 26

```

Figure 27. The SCI Statistics panel (GJEP750)

Viewing aggregated local ODBM statistics

Open Database Manager (ODBM) is a Common Service Layer (CSL) address space that provides distributed and local access to databases managed by IMS database systems that are configured for the DBCTL or the IMS DB/TM environments in an IMSplex. You can use IMS Sysplex Manager to view aggregated local ODBM statistics.

Procedure

To view aggregated local ODBM statistics, complete the following steps:

1. Select option 4 from the IMS Sysplex Manager main menu.

The View IMSplex Data panel is displayed.

2. Select option 5 from the View IMSplex Data menu to display the Aggregated local ODBM Statistics panel.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP770                                     Aggregated Local ODBM Statistics Row 1 to 15 of 15
COMMAND ==>                               SCROLL ==> CSR

IMSpIex. . . PLEX1                        Date. . : 02/11/21
SM server. : UIS1                        Time. . : 11:17:43
Route. . . : *

Enter 's' to view detailed ODBM statistic

Description                                Value
LOCAL STATISTICS:
CSLDMREG requests. . . . .:             2
CSLDMDRG requests. . . . .:             0
Internal Dereg (normal). . .:             0
Internal Dereg (abnormal). .:             0
CSLDMI Command requests. . .:             0
CSLDMI ODBMCLIENT requests .:             0
CSLDMI READYSYNCPPT requests.:             0
CSLDMI COMMIT requests . . .:             0
CSLDMI BACKOUT requests. . .:             0
CSLZQRY requests. . . . .:             17
CSLZSHUT requests. . . . .:             0

Registered clients. . . . .:             1

***** Bottom of data *****

```

Figure 28. The ODBM Statistics panel (GJEP770)

- To view the local statistics of the ODBM components from which the aggregation was performed, type an s in the input field and press Enter.

The ODBM statistics panel is displayed, as shown in the following example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP77A                                     ODBM Statistics Row 7 to 30 of 30
COMMAND ==>                               SCROLL ==> CSR

IMSpIex. . : PLEX1                        Date. . : 02/11/21
SM server. : UIS1                        Time. . : 11:17:43
Route. . . : *

ODBM-id  Description                                Value
ODBM10D  CSLDMI ODBMCLIENT requests .:             0
ODBM10D  CSLDMI READYSYNCPPT requests.:             0
ODBM10D  CSLDMI COMMIT requests . . .:             0
ODBM10D  CSLDMI BACKOUT requests. . .:             0
ODBM10D  CSLZQRY requests. . . . .:             8
ODBM10D  CSLZSHUT requests. . . . .:             0

ODBM10D  Registered clients. . . . .:             1

ODBM20D  LOCAL STATISTICS:
ODBM20D  CSLDMREG requests. . . . .:             1
ODBM20D  CSLDMDRG requests. . . . .:             0
ODBM20D  Internal Dereg (normal). . .:             0
ODBM20D  Internal Dereg (abnormal). .:             0
ODBM20D  CSLDMI Command requests. . .:             0
ODBM20D  CSLDMI ODBMCLIENT requests .:             0
ODBM20D  CSLDMI READYSYNCPPT requests.:             0

```

Figure 29. The ODBM Statistics panel (GJEP77A)

Chapter 14. Viewing coupling facility structure statistics

A coupling facility (CF) is a special logical partition that provides high-speed caching, list processing, and locking functions in an IMSplex. You can use IMS Sysplex Manager to view coupling facility structure statistics.

Procedure

To view coupling facility structure statistics, complete the following steps:

1. Select option 5 on the IMS Sysplex Manager main menu to display the Coupling Facility Structures panel.

The panel shows a list of all IMS structures in one or more coupling facilities. For example:

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP900                                Coupling Facility Structures          Row 1 to 8 of 8
COMMAND ==>                           SCROLL ==> PAGE

IMSpIex. . . PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 18:12:24
Route. . . : *

Enter 's' to select a structure for statistics

  Cmd Structure name      Type Status      -Connections-  ---Utilization---
                                Conns/Maxconns  Entries    Elements
  IMMSGQ01                MSGQ ALLOCATED    1 / 32      0 %      0 %
  IMMSGQ010FLW            OVFL UNALLOCATED 0 / 0       0 %      0 %
  IMSEMHQ01                EMHQ ALLOCATED    1 / 32      0 %      0 %
  IMSEMHQ010FLW           OVFL UNALLOCATED 0 / 0       0 %      0 %
  IMSRRC01                RSRC ALLOCATED    1 / 32     31 %      0 %
  GJESMAFN                AFFN ALLOCATED    1 / 32      0 %      0 %
  LT01                    IRLM ALLOCATED    1 / 32      0 %      0 %
  OSAMESXI                OSAM ALLOCATED    2 / 32      0 %      0 %
***** Bottom of data *****
```

Figure 30. The Coupling Facility Structures panel (GJEP900)

2. To view the details of a specific structure, select the structure by typing the s line command in the Cmd column of the appropriate row. Press **Enter**.

The IMSSM Coupling Facility Structure Data panel is displayed. For example:

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPCFM                                IMSSM Coupling Facility Structure Data
Option ==>

IMSpIex. . . PLEX1
SM server. : UIS
Route. . . : *

Structure name. : IMMSGQ01              Type. : MSGQ

Select one of the following options:

  1. Structure statistics
  2. Connections
  3. CF Structure data
```

Figure 31. The IMSSM Coupling Facility Structure Data panel (GJEPCFM)

3. Select option 1 on the IMSSM Coupling Facility Structure Data panel to display the structure statistics for the selected structure.

4. Select option 2 on the IMSSM Coupling Facility Structure Data panel to display the applications that are connected to the selected structure.
5. Select option 3 on the IMSSM Coupling Facility Structure Data panel to display information about the coupling facility in which the selected structure is defined.

Chapter 15. Viewing IMS data

You can use IMS Sysplex Manager to view data from one or more IMS systems.

Procedure

To view data from one or more IMS systems, select option 6 on the IMS Sysplex Manager main menu to display the View IMS Data panel.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss
GJEPVIM                      View IMS Data
Option ==>

IMSpdex. . . PLEX1
SM server. : UIS
Route. . . . *
```

Select one of the following options:

1. System configuration options and parameters
2. Destination queue depths
3. IMS resource definitions
4. IMS operations
5. Latch statistics
6. IRLM statistics
7. PI locks
8. IMS dependent region activity
9. DBRC and VSAM information for RECON data sets
10. View z/OS information for IMS address spaces
11. View shared queue local buffer utilization
12. Shared queue affinities

Figure 32. The View IMS Data panel (GJEPVIM)

You can select from these following data views:

- [“Viewing IMS system configuration options and parameters” on page 99](#)
- [“Viewing and managing destination queue depths” on page 101](#)
- [“Viewing and managing IMS resource definitions” on page 105](#)
- [“Submitting IMS type-1 and type-2 commands” on page 110](#)
- [“Viewing IMS latch statistics” on page 113](#)
- [“Viewing aggregated IRLM statistics” on page 114](#)
- [“Viewing program isolation \(PI\) locks” on page 116](#)
- [“Viewing and managing IMS dependent region activity” on page 117](#)
- [“Viewing DBRC and VSAM information for RECON data sets” on page 119](#)
- [“Viewing z/OS information for IMS address spaces” on page 120](#)
- [“Viewing shared queue local buffer usage” on page 122](#)
- [“Viewing and updating shared message queue transaction affinities” on page 122](#)

Viewing IMS system configuration options and parameters

You can view configuration options and parameters for one or more IMS systems.

Procedure

To view IMS system configuration options and parameters, complete the following steps:

1. Select option 1 on the View IMS Data panel to display the System Configuration Options and Parameters panel.

For example:

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP200 System Configuration Options and Parameters Row 1 to 30 of 262
COMMAND ==> SCROLL ==> PAGE

IMSpdex. . . PLEX1 Date. . : 02/11/21
SM server. : UIS Time. . : 18:23:34
Route. . . *

Keyword
IMSId Parameter Description Value
IMSA ALOT User auto logoff time, minutes. . . . . 1440
IMSA AOIP AOI pool upper limit, bytes . . . . . 2147483647
IMSA AOIS Cmd auth exit security option, A/C/N/R/S. N
IMSA AOI1 Type 1 AOI cmd auth option, A/C/N/R/S . .
IMSA APPC Activate APPC/IMS LU 6.2 support, Y/N . . N
IMSA APPCSE APPC RACF security option, Check/Full/None F
IMSA APPLID1 VTAM Applid for IMS subsys. . . . .
```

Figure 33. The System Configuration Options and Parameters panel (GJEP200)

2. The **Route** field contains the group of IMS IDs for which the statistics are displayed.

The route group in this example is *, so all configuration options and parameters are displayed for all systems.

If instead, the **Route** field contained IMSA and IMS1, then ID values for both IMS systems would be displayed.

3. To view only options and parameters that are different among the IMS systems, select option 4 from the Options menu (**Display unequal values**).

Startup parameter help

The System Configuration Options and Parameters panel provides access to tutorial help panels that contain information about each of the keyword parameters.

To view the tutorial help panel for a specific parameter, perform the following steps:

1. On the System Configuration Options and Parameters panel, position the cursor on the parameter.
2. Press PF1.

The IMS Startup Parameter Tutor panel for that parameter is displayed. For example:

```
GJEPFLDH          IMS Startup Parameter Tutor      Row 1 to 13 of 37
COMMAND ==> _____

Keyword. : CMDMCS

N: Commands cannot be entered from an MCS console.
N is the default.
Y: Commands can be entered from an MCS or E-MSC
  console by entering the command recognition
  character (CRC) followed by the command text.
R: Commands can be entered from an MCS console in
  the form CRC followed by the command text. The
  calls RACF (or equivalent) to verify that the
  user ID of the console is authorized to issue
  the command.
C: Commands can be entered from an MCS console in
  the form CRC followed by the command text.
  DFSCCMDO is called to verify that the user ID of
  F1=Help          F2=Split          F3=Exit          F7=Backward
  F8=Forward       F9=Swap          F10=Actions     F12=Cancel
```

Figure 34. IMS Startup Parameter Tutor (GJEPFLDH)

Viewing and managing destination queue depths

You can view and manage destination queue depths for the various destination types within your IMS system.

Procedure

To view and manage destination queue depths for the destination types within your IMS system, complete the following steps:

1. Select option 2 on the View IMS Data panel (GJEPVIM) to access destination queue depths.

```
GJEP21S                      Destination Queue Depth Selection Specification
COMMAND ===>

Enter a value for one of the selection criteria below. The default
is ALL (no filtering).

Destinations:
LTERM. . . . . -----
LTRAN. . . . . -----
LUNAME . . . . . -----
LUTPNAME . . . . . -----
LUSIDENAME . . . . . -----
TMEMBER. . . . . -----
TPIPE. . . . . -----

Destination type. . -----      1=TRANS, 2=LTERM, 3=APPC, 4=OTMA, 5=COLDQ
Status. . . . . -----          Place cursor and press enter for help.

Counts (value 0-999999 preceded by operator >, =, or <):
ONQ. . -----      ENQ. . -----      DEQ. . -----
```

Figure 35. The Destination Queue Depth Selection Specification panel (GJEP21S)

You can enter a filter value on this panel for Destination Queue Depths. For example, you can enter A* as an LTERM filter.

This means that data for LTERM destinations with names beginning with A will be displayed only.

You can also ignore any filtering by not entering any filtering criteria.

For example:

```

Menu View Filter Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP210                                     Destination Queue Depths Row 1 to 12 of 12
COMMAND ==>>                               SCROLL ==> PAGE

IMSplex. . . PLEX1                        Date. . : 02/11/21
SM server. : UIS                          Time. . : 18:35:38
Route. . . : *                               More: >

Enter 's' to list messages on the destination queue
      'd' to delete all messages on the destination queue
      'r' to recover all messages on the cold queue

-----Counts----- Affinity
Cmd ID Destination Type On-Q Enq Deq SDR IMSI
  IMSA CTRLC0A LTERM 10 10 0
  IMS1 CTRLC01 LTERM 11 11 0
  CQS1 SEGUNDO LTRMRDYQ 21 N/A N/A
  CQS1 APOL11 TRANRDYQ 1 N/A N/A IMS2
  CQS1 APOL12 TRANRDYQ 1 N/A N/A IMS2
  CQS1 APOL13 TRANRDYQ 1 N/A N/A
  CQS1 APOL14 TRANRDYQ 1 N/A N/A
  CQS1 APOL15 TRANRDYQ 1 N/A N/A
  CQS1 APOL16 TRANRDYQ 1 N/A N/A
  CQS1 APOL17 TRANRDYQ 1 N/A N/A
  CQS1 NQF1 TRANRDYQ 1 N/A N/A
  CQS1 NQF3 TRANRDYQ 1 N/A N/A
***** Bottom of data *****

```

Figure 36. The Destination Queue Depths panel (GJEP210)

2. View the destination queue depths for the various destination types within your IMS system.

Use the ISPF scroll keys to scroll forward or backward through the output. You can scroll left or right if there is an indication with More: > (scroll right) or More: < (scroll left) on the panel.

The valid destination types for non-common queue server destinations are:

Table 10. Valid destination types for non-common queue server destinations

Field	Description
TRANSACT	Transaction
LTERM	Logical Terminal
MSNAME	MSC Logical Link Name
LU6.2	APPC LUNAME
OTMA	OTMA Tmember Name

The valid destination types for common queue server destinations are:

Table 11. Valid destination types for common queue server destinations

Field	Description
TRANRDYQ	Transaction Ready Queue
PRGMRDYQ	Program Ready Queue
TRANSPDQ	Transaction Suspend Queue
TRANSEQ	Transaction Serial Queue
LTRMRDYQ	LTERM Ready Queue
APPCRDYQ	APPC Ready Queue
RMTERDYQ	Remote Ready Queue
OTMARDYQ	OTMA Ready Queue

The **Most severe status** field (not shown on panel GJEP210 but which can be seen if you scroll to the right from panel GJEP210) is for non-shared queues/CQS destinations. This field displays the most severe status that is associated with the destination. If no status exists, this field is blank.

The valid status settings are:

Table 12. Valid destination types for non-shared queues/CQS destinations

Field	Description
STOPPED	The destination or T-pipe is stopped, depending on the destination type.
PSTOPPED	The destination is pstopped.
PURGING	The destination is purging all of its output.
LOCKED	The destination is locked.
QLOCK	The destination is locked from sending any additional output or receiving any additional input.
QERROR	An I/O error occurred on the queue for this destination.
USTOPPED	Transaction scheduling has been stopped due to an unavailable resource.
RSTF	Reset request failed for OTMA represynch command.
REQR	IMS is waiting for OTMA represynch command from client.
TBR	IMS is waiting for OTMA tbresynch command from client.
DEQF	The dequeue request for OTMA represynch command failed.
SYNCD	The T-pipe is being synchronized.
TEMP	Temporary T-pipe.

- On the Destination Queue Depths panel (GJEP210), you can use the line commands **s**, **d**, and **x** to drill down further (these commands are valid only for CQS destinations).

Line command **s** returns a list of messages and information on each message for the selected queue.

Note: IMS Sysplex Manager supports only up to 12K shared queue block size to be able to view messages.

Only the primary messages can be viewed.

In view mode, the message prefixes are shown. If the message data is larger than 4K, only the first 4K of message data is displayed, stating at the end that the "message continues...."

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP620                                     Destination Queue Depths      Row 1 to 13 of 13
COMMAND ==>                               SCROLL ==> PAGE

IMSpIex. . . PLEX1                        Date. . : 02/22/21
SM server. : UIS                          Time. . : 12:04:54
Route. . . : *

SysID. : CQS1   Destination. : SEGUNDO           Type. : LTRMRDYQ

Enter 's' to view message on the destination queue
'd' to delete message on the destination queue
'r' to recover message on the cold queue

Cmd MSG Len  Msg source      -Msg queue time-- RACF      -----Prompt-----
Date      Time      UserID      Msg-count Action
513      UNSOLICITED MSG  02/21/21  10:42:44  DFSMTCNT
551      UNSOLICITED MSG  02/22/21  10:03:16  DFSMTCNT
547      UNSOLICITED MSG  02/21/21  10:42:44  DFSMTCNT
539      UNSOLICITED MSG  02/21/21  10:42:44  DFSMTCNT
535      UNSOLICITED MSG  02/22/21  10:03:16  DFSMTCNT
527      UNSOLICITED MSG  02/22/21  10:03:16  DFSMTCNT
551      UNSOLICITED MSG  02/22/21  10:26:47  DFSMTCNT
***** Bottom of data *****

```

Figure 37. Destination Queue Depths panel (GJEP620)

On the Destination Queue Depths panel (GJEP620), you can use the line commands s, d, and r to drill down further (these commands are valid only for CQS destinations).

If s is entered for a message, you will see the following detailed message:

```

Menu View Options Help
----- Realtime snapshot
GJEP630                                     Detailed Message View      Row 1 to 7 of 53
COMMAND ==>                               SCROLL ==> PAGE

IMSpIex. . : PLEX1                        Date:      02/22/21
SM server. : UIS                          Time:      21:04:35
Route. . . : IMS1

Destination.....: SMQ6                  Most severe status....:
Message source...: SMQLTM01              Message id.....: 10

--      Enter 'd' to delete this message
        Enter 'r' to recover this message

Message
  INPUT MESSAGE QUEUED                    MSGS LENGTH:00530
  NODE NAME:  SMQLU101                    SOURCE LTERM:  SMQLTM01
  DEST LTERM/TRAN: SMQ6
  ORIGIN IMS:IMS1                        PROCESSING IMS: IMS1
  MSG TIMESTAMP: 2021062 10:45.5491
  1ST/CURRENT DRRN:08000007/08000007
  UOW: C9D4E2F140404040BF49518E9FACC3C2C9D4E2F140404040BF49518E9FACC3C2

```

Figure 38. Detailed Message View panel (GJEP630)

You can delete the message by entering d in the input field.

Prior to deleting a message (whether from panel GJEP210, panel GJEP620, or panel GJEP630). a pop-up panel will be displayed to confirm the delete request. For example:

```

GJEPDMQ Confirm message delete

QType: 00000004
QName: 04E2D4D8F6404040C9D4E2F1404040

_ Set message delete confirmation off

Press ENTER to confirm delete.
Press PF3 (END) to cancel delete.


F1=HELP  F2=SPLIT  F3=END  F4=RETURN
F5=RFIND  F6=RCHANGE F7=UP   F8=DOWN

```

Figure 39. Delete request confirmation

After the delete operation is completed successfully, you are returned to panel GJEP620. Under the prompt, you will see the number of messages deleted.

You can also delete all the messages on a destination queue by entering the line command `d` on a row on panel GJEP210. If the delete is successful, you will see the message indicating the number of messages deleted.

You can recover all messages on the COLDQ queue by entering the line command `r` on panel GJEP210. If the recovery is successful, you will see the message indicating the number of messages recovered.

Line command `r` is valid only if the queue is COLDQ.

Viewing and managing IMS resource definitions

You can view and manage IMS resource definitions within your IMS system.

Procedure

To view and manage IMS resource definitions, complete the following steps:

1. Select option 3 on the View IMS Data panel (GJEPVIM) to access IMS resource definitions by displaying the IMS Resource Definitions panel:

```

Menu View Filter Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPVIM                                     IMS Resource Definitions
Option ==>

IMSplex. . . PLEX1
SM server. : UIS
Route. . . *

Select one of the following resources:

1. Transactions
2. Programs
3. Databases
4. Route codes
5. Lterms
6. Nodes

```

Figure 40. The IMS Resource Definitions panel (GJEPVIM)

2. Select a resource type by entering the resource type number on the command line.

For example, if you select option 1 (Transactions), the panel to enter the filtering criteria for transactions is displayed.

```

GJEP50S                                Transaction Selection Specification
COMMAND ==>> -----

Enter a value for one of the selection criteria below. The default
is ALL (no filtering).

Transaction name. .      PSB name. .      Route code. .
Execution class . . . . . value (1-999)
Local system id . . . . . value (0-9999)
Remote system id. . . . . value (0-9999)

Status. . .              Place cursor and press enter for help.
Settings. .              Place cursor and press enter for help.

Priority (value 0-9999999 preceded by operator >, =, or <)
Current priority.        Normal priority.        Limit priority.

Counts (value 0-9999999 preceded by operator >, =, or <)
ENQ . . .                DEQ . . . . .        ONQ. .
Limit . .                Max region. .        WFI. .
Plimit. .                PROCLIM . . .

```

Figure 41. Transactions Selection Specification panel (GJEP50S)

- To get a list of Status and Settings values, place the cursor on the Status or Settings field and press the **Enter**.

The Transaction Selection Specification panel is displayed.

Multiple selections will cause an error message and the panel will be redisplayed.

```

GJEP50H                                Transaction Selection Specification
COMMAND ==>> -----

Enter the number associated with your selection. Then press Enter.

Status. . . --- 1. STOPPED          2. NOTSTOPPED
                 3. PSTOPPED         4. NOTPSTOPPED
                 5. PURGE            6. NOPURGE
                 7. LOCK              8. NOLOCK
                 9. QERR              10. NOQERR
                 11. USTOP            12. NOUSTOP

Settings. . . --- 1. WFI              2. NOWFI
                  3. FASTPATH         4. NOFASTPATH      5. EXFASTPATH
                  6. INQUIRYMODE      7. NOINQUIRYMODE
                  8. RECOVERABLE      9. NORECOVERABLE
                  10. SINGLEMODE      11. MULTMODE
                  12. SINGLEMSGTYPE   13. MULTMSGTYPE
                  14. RESPONSE        15. NORESPONSE
                  16. DIRECTROUTING   17. NODIRECTROUTING

```

Figure 42. Transaction Selection Specification (GJEP50H)

- You can continue to use the default setting * for all transactions or use the wild card character for a subset of transactions.

The results of the selection are displayed.

For example:

```

Menu View Filter Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP500      IMS Resource Information - Transactions      Row 1 to 25 of 1,294
COMMAND ==>      SCROLL ==> PAGE

IMSpIex. . . PLEX1      Date. . : 02/11/21
SM server. : UIS      Time. . : 18:45:47
Route. . . *
Transact . . *

Enter 's' to view transaction detail data
      'p' to view PSB detail data
      'c' to exec IMS commands
      'a' to view transaction affinity

Cmd IMSid TranName PSB      Route      Exec ---Priority---
      Code      Class Curr  Norm  Lim      Segsz      Segno
IMSA  ADDINV  DFSSAM04      4          7    7   10      0          0
IMSA  ADDBPART DFSSAM04      4          7    7   10      0          0
IMSA  AOBMP    TS2IAOB0      23         0    0    0      0          0
IMSA  AOP      TS1IAOP0      4         10   10   12      0          500
IMSA  APOL11   APOL1      1          1    1    1      0          0
IMSA  APOL12   APOL1      1          9    9    9      0          0
IMSA  APOL13   APOL1      1          1    1    1      5          3
IMSA  APOL14   APOL1      1          1    1    1     65,535     65,535
IMSA  APOL15   APOL1      1          1    1    1      80          1

```

Figure 43. IMS Resource Information - Transactions (GJEP500)

The Filter menu has a single select option, which displays the panel GJEP50S.

The line commands s, p, c, and a are permitted on each row of the displayed table.

5. Type the line command s and press **Enter** to display details about a particular transaction.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP501      IMS Resource Information - Transaction Detail Row 1 to 30 of 42
COMMAND ==>      SCROLL ==> PAGE

IMSpIex. . . PLEX1      Date. . : 02/11/21
SM server. : UIS      Time. . : 18:48:23
Route. . . *

Transaction. : ADDINV      IMSid. : IMSA

Transaction name . . . . . :      ADDINV
PSB / Program name . . . . . :      DFSSAM04
Route Code name . . . . . :
Execution class . . . . . :      4
Total ENQ counts . . . . . :      0
Total DEQUEUE counts . . . . . :      0

```

Figure 44. IMS Resource Information - Transaction Detail (GJEP501)

Type p as a line command and press **Enter** to display the PSB details of the row selected.

For example:

```

Menu View Filter Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP510      IMS Resource Information - Programs      Row 1 to 2 of 2
COMMAND ==>      SCROLL ==> PAGE

IMSpIex. . . PLEX1      Date. . : 02/11/21
SM server. : UIS      Time. . : 18:49:22
Route. . . . *      More: >
Program. . . DFSSAM04

Enter 'c' to exec IMS commands
      's' to view program detail data
      'p' to view PCB (databases) detail data

Cmd IMSId Name      Type Lang PSBSize PSBSize Size of
      IMSA DFSSAM04 TP      384 3,328 3,392 2,112 N S
      IMS1 DFSSAM04 TP      384 3,328 3,392 2,112 N S
***** Bottom of data *****

```

Figure 45. IMS Resource Information - Programs (GJEP510)

From panel GJEP510, you can type the line command p to view database detail data for the databases in the selected PSB under the Name column.

The following sample display shows the database definitions for the PSB DFSSAM04:

```

Menu View Filter Options Help
----- Realtime snapshot
GJEP520      IMS Resource Information - Databases      Row 1 to 8 of 8
COMMAND ==>      SCROLL ==> PAGE

IMSpIex. . : PLEX1      Date:      02/11/21
SM server. : UIS      Time:      04:05:01
Route. . . : *      more: >
Program. . : AUTOGSAM

Enter 's' to view database detail data
      'c' under Cmd to exec IMS commands
      'v' to view structure(s) details
      'r' to view regions with intent

Cmd IMSId Name      Area/ Partition Type      DMB      Gl DMB      DMBSize      DMBBuffs      DBAcc
      IMS1 AUTODB      DL/I      Number      Number      Size      Size      UP
---  IMS1 EMPDB2      DL/I      270      0      14      14      UP
---  IMS1 SINDEXT11    DL/I      398      0      8      8      UP
---  IMS1 SINDEXT22    DL/I      401      0      8      8      UP
---  IMS2 AUTODB      DL/I      1      0      28      28      UP
---  IMS2 EMPDB2      DL/I      270      0      14      14      UP
---  IMS2 SINDEXT11    DL/I      398      0      8      8      UP
---  IMS2 SINDEXT22    DL/I      401      0      8      8      UP

```

Figure 46. IMS Resource Information - Databases (GJEP520)

Note that logical database PCBs will not be displayed.

Filtering capabilities are provided for other resources such as Programs, Databases, Rote codes, LTERMS, and Nodes.

6. Type the r line command to view batch message processing program (BMP) regions that have an intention to access the database.
7. Type the v line command to view statistics about the VSO structures.

For shared level 3 DEDB Areas, you can see the VSO structures that the areas are using. You can view the cache hit ratio for shared level 2 (data space-based) and shared level 3 (CF-based) areas.

8. You can issue IMS commands for a selected transaction by typing c on the line command for that transaction.

The c line command displays a list of valid commands that you can issue. For example:


```

Menu View Filter Options Actions Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP500      IMS Resource Information - Transactions      Row 1 to 21 of 1,308
COMMAND ==>      SCROLL ==> PAGE

EsssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssN
IMSpIex. . . e GJEPTRCM Select an IMS command e
SM server. . e COMMAND ==> ----- e
Route. . . e e More: >
Transact . . e Resource name. : ADDPART e
e Resource type. : TRANSACTION e
Enter 's' t e
'p' t e -- 1. /START e
'c' t e 2. /STOP e
'a' t e 3. /PSTOP e
e 4. /LOCK e
e 5. /UNLOCK e
Cmd IMSId T e 6. /PURGE e Segsz Segno
c IMSA A e 7. QUEUE e 0 0
IMSA A e 8. UPDATE e 0 0
IMSA A e 9. DELETE e 0 0
IMSA A e 0 500
IMSA A DssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssM 0 0
IMSA APOL12 APOL1 1 9 9 9 0 0
IMSA APOL13 APOL1 1 1 1 1 5 3
IMSA APOL14 APOL1 1 1 1 1 65,535 65,535

```

Figure 47. The Select an IMS Command pop-up panel (GJEPTRCM)

Select a command by typing the command option number and press **Enter**.

9. Type the a line command in the Cmd column next to a specific transaction to display the affinity definitions for that transaction.

For example, entering the a line command for transaction APOL11 on panel GJEP500 displays the following information:

```

Menu View Filter Options Actions Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP94A      Destination Affinities      Row 1 to 1 of 1
COMMAND ==>      SCROLL ==> PAGE

IMSpIex. . . PLEX1      Date. . : 02/11/21
SM server. : UIS      Time. . : 10:35:44
Route. . . *

Structure name: GJESMAFN
Updated on. :Date: 02/10/21 Time: 16:03:14
Status.: ENABLED      PGMREJECT.: CODE-A1      NETREJECT.: 2175

Transact . . APOL11

Enter 's' to view transaction detail data
'r' to view affinity router statistics
'c' to exec IMS commands
'e' to edit destination affinity
'd' to delete destination affinity

-Destination- -----Target-----
Cmd      Name/Class Primary Secondary      Match-count Disposition      Status
APOL11   IMSGRP01      12 QUEUE      ENABLED
***** Bottom of data *****

```

Figure 48. The Destination Affinities panel (GJEP94A)

10. You can save resource display output to a flat file for reporting or for reference by selecting **Save displayed resource** from the **Actions** menu, as shown in the following example:

```

Menu View Filter Options Actions Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssN ltime snapshot
GJEP500          IMS Resource e 2 *. Add Destination Affinity e 1 to 23 of 23
COMMAND ==>      e 2. Save displayed resource e ROLL ==> PAGE
DssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssM

IMSpIex. . . PLEX1          Date. . : 02/11/21
SM server. : UIS1          Time. . : 10:39:28
Route. . . . *
Transact . . A*
More: >

Enter 's' to view transaction detail data
'p' to view PSB detail data
'c' to exec IMS commands
'a' to view transaction affinity

  Cmd  IMSId  TranName  PSB      Route  Exec  ---Priority---
      Code  Class  Curr  Norm  Lim  Segsz  Segno
IMS1  ADDINV  DFSSAM04    4    7    7   10    0    0
IMS1  ADDBPART DFSSAM04    4    7    7   10    0    0
IMS1  AOBMP    TS2IAOB0   23    0    0    0    0    0
IMS1  AOP      TS1IAOP0    4   10   10   12    0   500
IMS1  APOL11   APOL1      1    1    1    1    0    0
IMS1  APOL12   APOL1      1    9    9    9    0    0
IMS1  APOL13   APOL1      1    1    1    1    5    3
IMS1  APOL14   APOL1      1    1    1    1   65,535 65,535

```

Figure 49. Actions menu

The displayed data is saved to a sequential file with the name *rschlq.dsname suffix*.

The variable *rschlq* is an optional startup parameter on the following command:

```
EX 'smphlq.SGJCEXE(GJEC SM)' 'SMPHLQ(smphlq) RSCHLQ(rschlq)'
```

If you do not specify *rschlq*, the *smphlq* is used to generate the dsname of the flat file.

The variable *dsname suffix* is TRANS, PROGRAMS, DBASES, RTCODES, LTERMS, or NODES, and the value is determined by the resource list that is being saved. The record length of the files are shown in the following list:

- TRANS is 320 bytes
- PROGRAMS is 160 bytes
- DBASES is 160 bytes
- RTCODES is 80 bytes
- LTERMS is 80 bytes
- NODES is 240 bytes

The block size of all files is 9600 bytes. You can browse the data set by using the ISPF BROWSE facility.

What to do next

You can view other resource definitions that are listed in the IMS Resource Definitions panel in the same manner.

Submitting IMS type-1 and type-2 commands

You can use IMS Sysplex Manager to issue IMS type-1 and type-2 commands.

Procedure

To submit IMS type-1 and type-2 commands, complete the following steps:

1. Select option 4 on the View IMS Data panel (GJEPVIM) to submit IMS type-1 and type-2 commands, or use IMS SPOC.

The IMSplex Operations panel is displayed.

Tip: You can also access the IMSplex Operations panel by selecting option 9 of the IMS Sysplex Manager main menu.

```

Menu View Options Actions Help
=====
GJEPOPS                               IMSplex Operations
Option ===>

IMSpdex. . . PLEX1
SM server. : UIS1
Route. . . . IMS1

Select one of the following options:

1.  IMS Type-1 and Type-2 commands
2.  Single point of control (SPOC)

```

Figure 50. The IMSplex Operations panel (GJEPOPS)

2. Select option 1 on the IMSplex Operations panel to display the Execute IMS Type-1 and Type-2 commands (GJEPCMD) panel, as shown in the following example:

```

Menu View Options Help
=====
GJEPCMD                               Execute IMS Type-1 and Type-2 Commands   Row 1 to 23 of 25

COMMAND ===>                                SCROLL ===> PAGE

IMSpdex. . . PLEX1
SM server. : UIS1
Route. . . . IMS1

Enter IMS command below or specify a member name of command input DS:

===> _____
_____
_____

Place cursor on choice and press Enter to retrieve command

=> QRY IMSPLEX
=> /DIS OLDS
=> /DIS ACT
=>
=>
=>

```

Figure 51. The Execute IMS Type-1 Commands panel (GJEPCMD)

The **Route** field displays the name of the default routing group, if one is available.

You can route type-1 IMS command to one or more IMS systems simultaneously by setting the Route field to a particular IMS ID, a group name, or *.

The Execute IMS Type-1 commands panel can list up to 25 of your previously issued IMS commands. You can either issue a new command on the IMS command line (not the ISPF primary command line), or select one of the commands in the list.

To select a command from the list, place your cursor on the row that contains the command and press Enter.

The command is displayed on the command line.

Press Enter again to run the command.

The output of the command is displayed by using the ISPF BROWSE facility, as shown in the following example. You can enter any command that is supported by this facility.

Figure 52. Sample output from running an IMS command (/DIS A)

- Tip:** In the Execute IMS Type-1 Commands panel, you can also submit type-1 and type-2 commands by using a batch file. Enter the name of the PDS member that contains the commands that you want to run.

```

EDIT          USER.PRIVATE.PROCLIB(SMCMD) - 01.06                      Columns 00001 00080
Command ==>                                         Scroll ==> PAGE
***** ***** Top of Data *****
=COLS> -----1-----2-----3-----4-----5-----6-----7-----8
000001 UPD TRAN NAME(ADDINV) START(Q,SCHD,SUSPEND,TRACE) STOP(Q,SCHD,TRACE) X
000002 OPTION(AFFIN,ALLRSP) SCOPE(ACTIVE) SET(AOCMD(TRAN),CMTMODE(SNGL), X
000003 WFI(Y),RECOVER(Y),RESP(Y),SIDL(2036),SIDR(2036),CONV(Y),SPASZ(32767) X
000004 ,SPATRUNC(R),EMHBSZ(30720))
000005
000006 QUE TRAN NAME(ADDINV) OPTION(ENQ) DATA(1111111111111111111111111111X
000007 1111111111111111111111111111111111111111111111111111111111111111X
000008 1111111111111111111111111111111111111111111111111111111111111111)
000009
000010 /DIS OLDS
000011
***** ***** Bottom of Data *****

```

4. Select option 2 on the IMSplex Operations panel to start the IMS SPOC application.

If SPOC is available and the high-level qualifier is set, the Settings panel (GJEPSET) is not displayed.

```

GJPESET                                Settings
COMMAND ===>

Auto-refresh interval . . . . . 10      1-59 seconds
Dashboard data collection intvl . 060    15-999 seconds (default 60)
Date format . . . . . 3                1 = yyyy/ddd, 2 = dd/mm/yy
                                       3 = mm/dd/yy, 4 = yy/mm/dd

IMS DS high level qualifier . . .
IMS command input PDS dsname. . . 'USER.PRIVATE.PROCLIB'
Archive directory dsname. . . . 'ADN.IMSSM.DIRECTRY'

Options to receive notifications
  System exceptions . . . . . / = ON

Browse data set allocation parameters:
  Data set name . . . . . 'USRT001.IMSTOOL.IMSSM.TRANS'
  Primary CYLS. . . . . 010            1-999
  Secondary CYLS. . . . . 010            1-999
  UNIT. . . . . SYSALLDA optional (default SYSALLDA)
  Volume serial number. . . . . optional (default by system)
  Number of lines for request . . 05000 optional (default 1000)

```

Figure 54. The Settings panel (GJEPSET)

The IMS Sysplex Manager Settings panel is displayed only if the IMS DS high-level qualifier is not assigned.

After you specify an IMS high-level qualifier, the IMS Single Point of Control panel (CSLUPAA) is displayed.

[illegible]

Figure 55. The IMS Single Point of Control panel (CSLUPAA)

The plex name and its associated routing values that are displayed on this panel are the same as those values that are used in IMS Sysplex Manager.

During the SPOC session, if the plex name or the routing value is changed, the plex name and routing values that are currently set for the IMS Sysplex Manager session are changed to these values.

The routing values are saved in the group name SPOCDFLT5 and this group name is then displayed as the routing name.

On return from SPOC, the plex name and the routing values as used by SPOC become the default values for IMS Sysplex Manager. The routing values are saved in a group named SPOCDFLT5, and this group becomes the default routing group.

Processing on this panel is the same as if you had directly entered SPOC.

Viewing IMS latch statistics

A latch is a programming device that provides short-term serialization for IMS tasks that are running in the online IMS system and is similar in function to a z/OS lock. You can use IMS Sysplex Manager to view IMS latch statistics.

Procedure

To view IMS latch statistics, complete the following steps:

1. Select option 5 on the View IMS Data panel (GJEPVIM) to display the Latch Statistics panel.

Figure 56. The Latch Statistics panel (GJEP080)

2. In the IMSid column, the latch statistics are displayed for all IMS IDs that are in a group that is defined in the Route field.

In this example, the Route field is set to *, so latch statistics are returned for all IMS members in the sysplex.

Use the ISPF scroll keys to scroll forward or backward through the output.

3. To view the statistics for a specific latch, type **s** in the **Cmd** field and press **Enter**.

For example, if you select latch DISP, the statistics in the Latch Statistics panel are displayed.

Figure 57. The Latch Statistics panel (GJEP081)

Viewing aggregated IRLM statistics

An internal resource lock manager (IRLM) is a subsystem in a z/OS environment that provides lock management, and is used by multiple IMS systems to share data. You can use IMS Sysplex Manager to view aggregated IRLM statistics information.

Procedure

To view aggregated IRLM statistics, complete the following steps:

1. Select option 6 on the View IMS Data panel (GJEPVIM) to display the Aggregated IRLM Statistics panel.

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP140                                     Aggregated IRLM Statistics      Row 1 to 30 of 51
COMMAND ==>                                SCROLL ==> PAGE

IMSpIex. . . PLEX1                        Date. . : 02/11/21
SM server. : UIS                          Time. . : 17:38:26
Route. . . *

Enter 's' to view detailed IRLM statistics. __

GLOBAL ACTIVITY COUNTERS:
Total global LOCK request. . . . .: 521
Child locks propagated . . . . .: 0
IRLM to IRLM notify request. . . . .: 0

REQUESTS
Lock . . . . .: 4,818
Unlock . . . . .: 4,556
Change . . . . .: 0
Synchronous notify . . . . .: 0
Asynchronous notify. . . . .: 0
Verify . . . . .: 2
Purge. . . . .: 3
Query. . . . .: 0
Takeover . . . . .: 0

EXIT COUNTERS
Suspend. . . . .: 42
Resume . . . . .: 42
Status . . . . .: 0
Notify . . . . .: 0
Deadlock . . . . .: 0
Timeout. . . . .: 0

EXIT EXTENSION REQUESTS:
Synchronously propagated locks . . . . .: 509
Synchronously propagated change. . . . .: 0
Synchronously propagated unlocks . . . . .: 504
Asynchronously propagated locks . . . . .: 7
Visits to contention exits . . . . .: 0

```

Figure 58. The Aggregated IRLM Statistics panel (GJEP140)

2. To view the detailed statistics grouped by individual IMS IDs, type s in the input field and press **Enter**.

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP141 IRLM Statistics Row 1 to 28 of 146
COMMAND ==> SCROLL ==> PAGE

IMSpIex. . . PLEX1 Date. . : 02/11/21
SM server. : UIS Time. . : 17:41:37
Route. . . . *

IMSAId Description Value
IMSA IRLM name . . . . . IRLME2N
IMSA IRLM ID . . . . . 241
IMSA GLOBAL ACTIVITY COUNTERS:
IMSA Total global LOCK request. . . . . 276
IMSA Child locks propagated . . . . . 0
IMSA IRLM to IRLM notify request. . . . . 0
IMSA
IMSA REQUESTS
IMSA Lock . . . . . 3,585
IMSA Unlock . . . . . 3,446
IMSA Change . . . . . 0
IMSA Synchronous notify . . . . . 0
IMSA Asynchronous notify. . . . . 0
IMSA Verify . . . . . 0
IMSA Purge. . . . . 2
IMSA Query. . . . . 0
IMSA Takeover . . . . . 0
IMSA
IMSA EXIT COUNTERS
IMSA Suspend. . . . . 9
IMSA Resume . . . . . 9
IMSA Status . . . . . 0
IMSA Notify . . . . . 0
IMSA Deadlock . . . . . 0
IMSA Timeout. . . . . 0
IMSA
IMSA EXIT EXTENSION REQUESTS:

```

Figure 59. The IRLM Statistics panel (GJEP141)

Viewing program isolation (PI) locks

Program isolation (PI) is an IMS facility that separates all the activity of an application program from any other active application program until that application program indicates, using a synchronization point, that the data it has modified or created is consistent and complete. You can use IMS Sysplex Manager to view program isolation (PI) locks information.

About this task

The PI lock manager is used for local locking in systems for which no IRLM has been defined.

Procedure

To view program isolation (PI) locks, complete the following steps:

1. Select option 7 on the View IMS Data panel (GJEPVIM) to display the Program Isolation Locks panel.


```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPPIF                                     Program Isolation Locks
Option ==>

IMSpIex. . . PLEX1
SM server. : UIS
Route. . . *
```

Select one of the following options:

1. View dependent regions holding locks
2. View locks with contention
3. View dependent regions waiting for locks

Figure 60. The Program Isolation Locks panel (GJEPPIF)

- . Type the appropriate option number on the Option line and press **Enter** to obtain detailed information on the following information:
- Dependent regions holding locks
 - Locks with contention
 - Dependent regions waiting for locks

Viewing and managing IMS dependent region activity

A dependent region is an address space, managed by the IMS control region, where IMS application programs run. Dependent region types are MPP, BMP, IFP, JMP, and JBP. You can use IMS Sysplex Manager to view and manage IMS dependent region activity.

Procedure

To view or manage IMS dependent region activity, complete the following steps:

1. Select option 8 on the View IMS Data panel (GJEPVIM) to display the Region Selection Specification panel.

```
GJEP22S                               Region Selection Specification
COMMAND ==>

Enter a value for one of the selection criteria below. The default
is ALL (no filtering).

Jobname. . . . . :
Region type. . . . . :           Place cursor and press enter for help.
Transaction name . . . :
Program name . . . . :
Database name. . . . :
Area name. . . . . :
Stepname . . . . . :
Status . . . . . :           Place cursor and press enter for help.

Class1 . . . . . :           1-999
Class2 . . . . . :           1-999
Class3 . . . . . :           1-999
Class4 . . . . . :           1-999

Counts (value 0-9999999) preceded by operator >, =, or <)
TMCalls. . . . . :
DBCalls. . . . . :
```

Figure 61. The Region Selection Specification panel (GJEP22S)

2. Specify any appropriate filtering values in the criteria fields and press **Enter**.

In the case that a **/DBR** command failed, it can be helpful to filter by database name or area name. Then, you can determine whether one or more batch message programs (BMP) are preventing the **/DBR** command from completing because the BMPs have intent on the database or area.

To produce the default of ALL, do not enter any filtering values and press **Enter**, as shown in the following example:

Figure 62. The IMS Dependent Region Activity panel (GJEP220)

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d) Up to 15 dumps can be requested with a single operation.

Viewing DBRC and VSAM information for RECON data sets

You can use IMS Sysplex Manager to view DBRC and VSAM information for RECON data sets.

About this task

The good condition of the RECON data sets is essential to IMS Database Recovery (DBRC) functions. It is important to check the status of the RECONS, how often they are being backed up, and their VSAM statistics.

Procedure

To view DBRC and VSAM information for RECON data sets, complete the following steps:

1. Select option 9 on the View IMS Data panel (GJEPVIM) to display the RECON / VSAM Statistics panel.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP880                                RECON / VSAM Statistics                Row 1 to 9 of 9
COMMAND ==>                           SCROLL ==> PAGE

IMSpIex. . . PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 18:12:46
Route. . . : *                          More: >

Enter 's' to select a VSAM cluster for statistics

Cmd IMSId Cluster name                  Version Status      DDname
--- ---
--- IMS1  IMSTESTS.DSHR.RECON1          V15R1  COPY1      RECON1
--- IMS1  IMSTESTS.DSHR.RECON2          V15R1  COPY2      RECON2
--- IMS1  IMSTESTS.DSHR.RECON3          V15R1  SPARE      RECON3
--- IMSA  IMSTESTS.DSHR.RECON1          V15R1  COPY1      RECON1
--- IMSA  IMSTESTS.DSHR.RECON2          V15R1  COPY2      RECON2
--- IMSA  IMSTESTS.DSHR.RECON3          V15R1  SPARE      RECON3
--- IMS2  IMSTESTS.DSHR.RECON1          V15R1  COPY1      RECON1
--- IMS2  IMSTESTS.DSHR.RECON2          V15R1  COPY2      RECON2
--- IMS2  IMSTESTS.DSHR.RECON3          V15R1  SPARE      RECON3
***** Bottom of data *****
```

Figure 63. The RECON / VSAM Statistics panel (GJEP880)

2. Type s in the Cmd column of the row for the appropriate VSAM cluster and press **Enter**.

The RECON / VSAM Statistics panel (GJEP881) is displayed.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP881 RECON / VSAM Statistics Row 1 to 23 of 84
COMMAND ==> SCROLL ==> PAGE

IMSPlex. . . PLEX1 Date. . : 02/11/21
SM server. : UIS Time. . : 18:12:46
Route. . . : IMS1

IMSid. . . . . : IMS1
Cluster name . . . : IMSTESTS.DSHR.RECON1
Catalog name . . . : VCATSHR
Version. . . . . : V15R1
Status . . . . . : COPY1
DDname . . . . . : RECON1
Last backup Date/Time. : NONE / NONE

Description Value
Entry data section 1
Component name . . . . . : IMSTESTS.DSHR.RECON1.DATA
Comp. Type I=Index,D=Data. . : D
Creation date (yyyymmdd). . : 2021041
Key position . . . . . : 0
Key length. . . . . : 32
Volume serial number . . . : DSHR00
Device type. . . . . : 3010200F
Number of extents. . . . . : 01

```

Figure 64. The RECON / VSAM Statistics panel (GJEP881)

Viewing z/OS information for IMS address spaces

You can use IMS Sysplex Manager to view z/OS information for IMS address spaces.

Select option 10 from the View IMS Data panel (GJEPVIM) to display a list of IMS address spaces in the IMSPlex, as shown in the following example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPIAS z/OS Information For IMS Address Spaces Row 13 to 31 of 31
COMMAND ==> SCROLL ==> CSR

IMSPlex. . . PLEX1 Date. . : 02/11/21
SM server. : UIS1 Time. . : 16:10:44 More: >

'd' to produce an SVC dump for the selected address space
'dt' to produce SVC dumps for the selected address space type plex-wide
's ' to display the attributes of the selected address space

Cmd Jobname Type/imsid z/OSname ASID TCB time SRB time CPU time EXCPs
IMS2 IMS EC01610 002B 3.43 1.27 4.70 14,768
DBR9CSBM DBRC EC01610 00A4 .08 .01 .09 490
DLI9CSBM DSAS EC01610 003E .14 .11 .25 1,552
IRLME2N IRLM EC01610 0040 .07 2.52 2.59 329
CQS9M2 CQS EC01610 002C .55 1.55 2.10 2,835
OM2 OM EC01610 0029 .26 .07 .33 1,294
RM2 RM EC01610 002A .25 .08 .33 1,333
SCI2 SCI EC01610 0028 .48 .09 .57 1,544
ODBM2 OD EC01610 0033 .29 .08 .37 1,805
FDR2 FDBR EC01757 0030 4.07 .96 5.03 28,340
FDR1 FDBR EC01610 0031 4.32 1.07 5.39 29,343
BMP3 BMP /IMS1 EC01757 0034 .03 .00 .03 191
BMP1 BMP /IMS1 EC01757 0033 .01 .00 .01 192
MPP02 TP /IMS1 EC01757 0032 1.49 .07 1.56 3,435
MPP01 TP /IMS1 EC01757 0031 .57 .03 .60 1,566
MPP21 TP /IMS2 EC01610 0022 .02 .00 .02 194
MPP22 TP /IMS2 EC01610 0030 .02 .00 .02 194
BMP2 BMP /IMS2 EC01610 002E .01 .00 .01 192
BMP21 BMP /IMS2 EC01610 002F .04 .01 .05 565
***** Bottom of data *****

```

Figure 65. z/OS Information for IMS Address Spaces panel (GJEPIAS)

Each row of this table represents an IMS address space and shows the activity in that address space.

A supervisor call (SVC) dump is a dump that is generated when z/OS detects a system exception or when the DUMP command is entered by an operator from the console. From this panel, you can request dumps for one or more address spaces.

- Type the d line command in the Cmd column of one or more rows, and press **Enter**, to produce SVC dumps for the selected region.
- Type the dt line command in the Cmd column of an appropriate row, and press Enter, to dump a single region type across the IMSplex.
- From the Options menu, you can use the **Dump all displayed regions** menu item. Use this option with caution because requesting too many dumps at one time can significantly impact your system performance.
- Type the s line command in the Cmd column to drill down into the selected job name.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPIBS          z/OS Information for IMS Address Spaces           Row 1 to 11 of 11
COMMAND ===>                                           SCROLL ==> PAGE

IMSpIex. . . PLEX1                               Date. . : 02/11/21
SM server. : UIS                                Time. . : 19:15:01                More: <>

'd' to produce an SVC dump for the selected address space
'td' to produce SVC dumps for the selected address space plex-wide
-----Frames-----
Cmd Jobname Type CS count ES count Total fixed Target WSS High UIC
IMSA IMS 2,655 0 147 0 2,540
DBRECSBJ DBRC 491 0 52 0 2,540
DLIECSBJ DSAS 726 0 72 0 2,540
IRLME2N IRLM 4,825 0 183 0 2,540
IMS1 IMS 2,676 0 148 0 2,540
DBRECSAJ DBRC 491 0 52 0 2,540
DLIECSAJ DSAS 726 0 72 0 2,540
CQSEJ1 CQS 854 0 178 0 2,540
OM1 OM 580 0 72 0 2,540
RM1 RM 609 0 74 0 2,540
SCI1 SCI 288 0 66 0 2,540
***** Bottom of data *****
```

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPICS          z/OS Information for IMS Address Spaces           Row 1 to 11 of 11
COMMAND ==>                                           SCROLL ==> PAGE

IMSpIex. . . PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 19:15:01                More: <

    d' to produce an SVC dump for the selected address space
    dt' to produce SVC dumps for the selected address space type plex-wide
-----Accumulated I/O times-----
Cmd Jobname Type Wait Total conn Connect Disconnect
IMS A IMS      0      0      0      0
DBRECSBJ DBRC   0      0      0      0
DLIECSBJ DSAS   0      0      0      0
IRLME2N  IRLM   0      0      0      0
IMS1     IMS     0      0      0      0
DBRECSAJ DBRC   0      0      0      0
DLIECSAJ DSAS   0      0      0      0
CQSEJ1   CQS    0      0      0      0
OM1      OM      0      0      0      0
RM1      RM      0      0      0      0
SCI1     SCI     0      0      0      0
***** Bottom of data *****
```

Chapter 15. Viewing IMS data **121**

Procedure

To view and update shared message queue transaction affinities, select option 12 on the View IMS Data panel (GJEPVIM).

The SMQ Affinities panel is displayed, as shown in the following figure:

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPAFM                                     SMQ Affinities
Option ==>

IMSpdex. . . PLEX1
SM server. : UIS
Route. . . . *

Select one of the following

1. Options/System affinities
2. Destination affinities
```

Figure 69. The SMQ Affinities panel (GJEPAFM)

What to do next

From the SMQ Affinities panel, you can select to view and update Options/System affinities or Destination affinities.

Viewing and updating options and system affinities

You can use IMS Sysplex Manager to view and update options and system affinities that you defined and to view routing statistics.

Procedure

To view and update options and system affinities, complete the following steps:

1. Select option 1 from the SMQ Affinities panel to view structure and system definitions and options, and overall routing statistics.

The data must match the definitions that you specified in the PROCLIB member GJEAXxxx, where xxxx is the value that is specified on the AFFNSFX= keyword.

Routing statistics such as overall routing calls and the number of messages that were routed to each of the defined systems are also displayed.

Figure 70. The Affinity Options/Systems panel (GJEP93A)

2. To change the status and the IMSids that belong to a specified group, enter the e line command in the Cmd column.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP93A Affinity Options/Systems Row 1 to 1 of 1
COMMAND ==> SCROLL ==> PAGE
ssssssssssssssssssssssssssssssEssssssssssssssssssssssN
IMSpdex. . e GJEPA0S Update Affinity Systems e
SM server. e COMMAND ==> e
Route. . . e e
e Structure name: GJESMAFN e
Structure n e e
Updated on. e Group name. . . IMSGRP01 e
Status . EN e Status. . . . ENABLED Enabled or Disabled e
e Enter upto 32 IMSids. e e: >
Target . . e Target IMSids . IMS1 IMS2 IMS3 e
e e
Total numbe e e 13
Total numbe e e 7
e e
Enter 'e' t e e
'd' t e e
Cmd Target DssssssssssssssssssssssssssssssssssssssssssssM -----
E IMSGRP01 ENABLED 7 IMS1 IMSA
***** Bottom of data *****
```

Figure 71. Update Affinity Systems pop-up panel

3. To delete an entry, enter the d line command in the Cmd column. Only entries with a 'Disabled' status can be deleted. The last entry cannot be deleted, regardless of its status.
4. To add a System Affinity definition, select **Add Affinity Systems** from the **Actions** menu in the Affinity Options/Systems panel (GJEP93A), as shown in the following figure.


```

Menu View Options Actions Help
ssssssssssssssssssssss E sssssssssssssssssssssssssssssssssN ssssssss Realtime snapshot
GJEP93A e 1. Add Affinity Systems e stems Row 1 to 2 of 2
COMMAND ==> D sssssssssssssssssssssssssssssssssM SCROLL ==> PAGE

IMSpIex. . . PLEX1 Date. . . : 02/11/21
SM server. : UIS Time. . . : 10:05:38
Route. . . . *

Structure name: GJESMAFN
Updated on. :Date: 02/10/21 Time: 17:31:15
Status . ENABLED PGMREJECT . CODE-A1 NETREJECT . 2175
More: >

Target . . . *

Total number of calls for routing. . . . . : 48
Total number of messages routed. . . . . : 48

Enter 'e' to edit an affinity system
'd' to delete an affinity system

Cmd Target Status Msgs-Routed to Target-IMS -----
IMSGRP02 ENABLED 24 IMSA
IMSGRP01 ENABLED 24 IMS1 IMS2 IMS3
***** Bottom of data *****

```

The following figure shows the Add Affinity Systems pop-up panel that is displayed after you select **Add Affinity Systems**.

Figure 73. Add Affinity Systems pop-up panel

5. In the Add Affinity Systems panel, enter the new group name, the status, and a list of IMSids that belong to the group.

The status must either be ENABLED or DISABLED.

Viewing and updating destination affinities

Procedure

1. Select option 2 from the SMQ Affinities panel to view a list of transaction destinations that have affinity.

The Destination Selection Specification (GJEP94S) panel is displayed, as shown in the following figure:

```
GJEP94S                                Destination Selection Specification
COMMAND ==> -----

Enter a value for one of the selection criteria below. The default
is ALL (no filtering).

Destination type. : TRAN

Destination name. .

Execution classes .                      *, values 1-999 separated by commas
```

Figure 74. The Destination Selection Specification panel (GJEP94S)

A link to the transaction display panel is also provided so that you can easily view details about a transaction, such as the transaction names or classes, the affinity system that they belong to, and routing statistics.

You can issue appropriate IMS commands against the transactions that are displayed.

Transaction affinities are defined by name or class. Use the Transaction Selection Specification panel to select the display by name or class. The default is all destinations by name. You can change the filter by selecting option 1 from the Filter menu. However, execution classes have no default. If you want to see all destination affinities by execution class, enter an asterisk (*).

2. Press Enter to display results with no filtering.

The Destination Affinities panel (GJEP94A) is displayed, as shown in the following figure:

```
Menu View Filter Options Actions Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP94A                                Destination Affinities                      Row 1 to 12 of 12
COMMAND ==>                               SCROLL ==> PAGE

IMSPlex. . . PLEX1                        Date. . : 02/11/21
SM server. : UIS                          Time. . : 10:08:59
Route. . . . *

Structure name: GJESMAFN
Updated on. :Date: 02/10/21 Time: 16:03:14
Status.: ENABLED      PGMREJECT.: CODE-A1      NETREJECT.: 2175

Transact . . *

Enter 's' to view transaction detail data
      'r' to view affinity router statistics
      'c' to exec IMS commands
      'e' to edit destination affinity
      'd' to delete destination affinity

Cmd      -Destination- -----Target-----
Name/Class Primary Secondary Match-count Disposition Status
APOL11    IMSGRP01                12 QUEUE      ENABLED
APOL15    IMSGRP01                0 QUEUE      DISABLED
APOL15    IMSGRP02                0 QUEUE      ENABLED
APOL22    IMSGRP01                0 QUEUE      DISABLED
APOL22    IMSGRP02                12 QUEUE      ENABLED
APOL12    IMSGRP01                12 QUEUE      ENABLED
APOL16    IMSGRP01                0 QUEUE      DISABLED
APOL16    IMSGRP02                0 QUEUE      ENABLED
APOL13    IMSGRP02                0 QUEUE      ENABLED
APOL14    IMSGRP02                0 QUEUE      ENABLED
APOL21    IMSGRP01                0 QUEUE      DISABLED
APOL21    IMSGRP02                12 QUEUE      ENABLED
```

Figure 75. The Destination Affinities panel (GJEP94A)

You can input line commands s, r, c, and e on each row of the Cmd column.

3. To view detailed router statistics for a destination, enter the `x` line command.

The Destination Affinities - Router Statistics panel (GJEP94R) is displayed, as shown in the following figure:

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP94R Destination Affinities - Router Statistics Row 1 to 3 of 3
COMMAND ==> SCROLL ==> PAGE

IMSpIex. . : PLEX1 Date. . : 02/11/21
SM server. : UIS Time. . : 17:30:34

Structure name: GJESMAFN
Updated on. :Date: 02/10/21 Time: 11:40:16
Status.: ENABLED PGMREJECT.: CODE-A1 NETREJECT.: 2175

Transact . . *

Primary target . : IMSGRP01 Secondary target :
Status . . . . . : ENABLED Disposition. . . : QUEUE

Destination. . . : APOL11
From Match-count Other destination router statistics
IMSA 6
IMS1 6
IMS2 6
***** Bottom of data *****
```

Figure 76. The Destination Affinities - Router Statistics panel (GJEP94R)

4. To change the disposition, the status attributes, the primary target, the secondary targets or all of these fields, enter the e line command in the Destination Affinities panel.

Important: To ensure accurate routing, you must quiesce activities to the destination by issuing the STOP command against the destination before you make changes to the primary or secondary system targets.

A pop-up panel displays the affinity definitions of the selected destination, as shown in the following figure.

```

Menu View Filter Options Actions Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP94A                                     Destination Affinities                      Row 1 to 7 of 7
COMMAND ==>                                SCROLL ==> PAGE

IMSpIex. . e GJEPADT                      Update Destination Affinity                      e
SM server. e COMMAND ==>                      e
Route. . . e                      e
          e Structure name: GJESMAFN                      e
Structure n e                      e
Updated on. e Destination name . APOL11                      e
Status.: EN e Tran. class list .          xxx,xxx,..          e
          e Primary target . . IMSGRP01                      e
Transact . e Secondary target .          e
          e Disposition. . . . QUEUE      Queue or Reject    e
Enter 's' t e Status . . . . . ENABLED   Enabled or Disabled e
      'r' t e                      e
      'c' t e                      e
      'e' t e                      e
      'd' t e                      e
      - e                      e
Cmd      N DssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssM atus
e        APOL11      IMSGRP01      1 QUEUE      ENABLED
        APOL15      IMSGRP01      0 QUEUE      DISABLED
        APOL12      IMSGRP01      1 QUEUE      ENABLED
        APOL16      IMSGRP01      0 QUEUE      DISABLED
        APOL13      IMSGRP01      1 QUEUE      ENABLED
        APOL14      IMSGRP01      1 QUEUE      ENABLED
        NQF*        IMSGRP01      2 QUEUE      ENABLED
***** Bottom of data *****

```

Figure 77. Update Destination Affinities pop-up panel

5. To delete an entry, enter the d line command in the Cmd column. Only entries with a 'Disabled' status can be deleted. The last entry cannot be deleted, regardless of its status.
6. To add a destination Affinity definition, select **Add Destination Affinity** from the Actions menu in the Destination Affinities panel (GJEP94A), as shown in the following figure:

```

Menu View Filter Options Actions Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP94A                                     e 1. Add Destination Affinity e          Row 1 to 7 of 7
COMMAND ==>                                DssssssssssssssssssssssssssssssssssM          SCROLL ==> PAGE

IMSpIex. . : PLEX1                          Date. . : 02/11/21
SM server. : UIS                            Time. . : 17:30:34
Route. . . : *

Structure name: GJESMAFN
Updated on. :Date: 02/10/21 Time: 09:59:31
Status.: ENABLED      PGMREJECT.: CODE-A1      NETREJECT.: 2175

Transact . . *

Enter 's' to view transaction detail data
      'r' to view affinity router statistics
      'c' to exec IMS commands
      'e' to edit destination affinity
      'd' to delete destination affinity

Cmd      -Destination- -Target-----
        Name/Class Primary Secondary Match-count Disposition Status
        APOL11      IMSGRP01                      1 QUEUE      ENABLED
        APOL15      IMSGRP01                      0 QUEUE      DISABLED
        APOL12      IMSGRP01                      1 QUEUE      ENABLED
        APOL16      IMSGRP01                      0 QUEUE      DISABLED
        APOL13      IMSGRP01                      1 QUEUE      ENABLED
        APOL14      IMSGRP01                      1 QUEUE      ENABLED
        NQF*        IMSGRP01                      2 QUEUE      ENABLED
***** Bottom of data *****

```

Figure 78. Options menu

The following figure shows the Add Destination Affinity pop-up panel that is displayed after you select **Add Destination Affinity**.

```

Menu View Filter Options Actions Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP94A                                     Destination Affinities                               Row 1 to 7 of 7
COMMAND ==>                                SCROLL ==> PAGE
      E sssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssN
IMSpIex. . e GJEPADT                      Add Destination Affinity                      e
SM server. e COMMAND ==>                                                            e
Route. . . e                                                                    e
      e Structure name: GJESMAFN                                                    e
Structure n e                                                                    e
Updated on. e Destination name . ----- e
Status.: EN e Tran. class list . ----- xxx,xxx,.. e
      e Primary target . . ----- e
Transact . e Secondary target . ----- e
      e Disposition. . . . ----- Queue or Reject e
Enter 's' t e Status . . . . . ----- Enabled or Disabled e
      'r' t e                                                                    e
      'c' t e                                                                    e
      'e' t e                                                                    e
      'd' t e                                                                    e
      - e                                                                    e
Cmd      N D sssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssM atus
e        APOL11      IMSGRP01                      1 QUEUE      ENABLED
        APOL15      IMSGRP01                      0 QUEUE      DISABLED
        APOL12      IMSGRP01                      1 QUEUE      ENABLED
        APOL16      IMSGRP01                      0 QUEUE      DISABLED
        APOL13      IMSGRP01                      1 QUEUE      ENABLED
        APOL14      IMSGRP01                      1 QUEUE      ENABLED
        NQF*        IMSGRP01                      2 QUEUE      ENABLED
***** Bottom of data *****

```

Figure 79. Add Destination Affinity pop-up panel

7. In the Add Destination Affinity pop-up panel, enter the primary target and the destination name or a list of classes as the destination.

You can optionally enter the secondary target, the disposition, and the status.

Chapter 16. Viewing shared message queues activity

Shared message queues are data structures in the coupling facility (CF) in which messages are queued before being processed. A Common Queue Server (CQS) receives, maintains, and distributes data objects from a shared queue that resides in a coupling facility list structure for its client. You can use IMS Sysplex Manager to view shared message queues activity.

Procedure

To view shared message queues activity, complete the following steps:

1. Select option 7 on the IMS Sysplex Manager main menu to display the Shared Message Queue data panel.

You can also select a Common Queue Server (CQS) component from the IMSplex/SMplex Component List panel (GJEP600) to display the Shared Message Queue Data panel

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPsmQ Shared Message Queue Data
Option ==>

IMSpIex. . . PLEX1
SM server. : UIS
Route. . . : *


Select one of the following options:

1. Destination queue depths
2. Common queue server
```

Figure 80. The Shared Message Queue Data panel (GJEPSMQ)

2. Select option 1 to display the Destination Queue Depth Selection Specification panel (GJEP21S).

You can also display the Destination Queue Depth Selection Specification panel (GJEP21S) by selecting option 2 from the View IMS Data panel (GJEPVIM).

```

GJEP21S                               Destination Queue Depth Selection Specification
COMMAND ==>

Enter a value for one of the selection criteria below. The default
is ALL (no filtering).

Destinations:
LTERM. . . . . ._____
LTRAN. . . . . ._____
LUNAME . . . . . ._____
LUTPNAME . . . . . ._____
LUSIDENAME . . . . . ._____
TMEMBER. . . . . ._____
TPIPE. . . . . ._____

Destination type. _____ 1=TRANS, 2=LTERM, 3=APPC, 4=OTMA, 5=COLDQ, 6=UOWE

Status. . . . . ._____ Place cursor and press enter for help.

Counts (value 0-999999 preceded by operator >, =, or <)
ONQ. _____ ENQ. _____ DEQ. _____

```

Figure 81. The Destination Queue Depth Selection Specification panel (GJEP21S)

Enter a value for one of the selection criteria provided on the panel and press **Enter**. You can also press **Enter** without specifying any filtering.

The Destination Queue Depths panel is displayed.

For example:

```

Menu View Filter Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP210          Destination Queue Depths          Row 1 to 7 of 7
COMMAND ==>          SCROLL ==> PAGE

IMSpIex. . . PLEX1          Date. . : 02/11/21
SM server. : UIS1          Time. . : 21:43:51
Route. . . : *          More: >

Enter 's' to list messages on the destination queue
'd' to delete all messages on the destination queue
'r' to recover all messages on the cold queue

-----Counts----- Affinity
Cmd ID Destination Type On-Q Enq Deq SDR IMSI
IMSA CTRLA0A LTERM 3 3 0
IMS1 CTRLA01 LTERM 12 12 0
IMS2 CTRLA02 LTERM 5 5 0
CQS1 APOL11 TRANRDYQ 4 N/A N/A IMS2
CQS1 APOL12 TRANRDYQ 2 N/A N/A IMS1
CQS1 APOL12 TRANRDYQ 2 N/A N/A IMSA
CQS1 APOL21 TRANRDYQ 3 N/A N/A IMS1
***** Bottom of data *****

```

Figure 82. The Destination Queue Depths panel (GJEP210)

Type s in the Cmd column of a destination to list messages on the destination queue.

Type d in the Cmd column of a destination to delete all messages on the destination queue .

Type r in the Cmd column of a destination to recover all messages on the cold queue.

3. Select option 2 to display the Aggregated IMS Common Queue Server structures.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP190          Aggregated IMS Common Queue Server Structures          Row 1 to 2 of 2
COMMAND ==>          SCROLL ==> PAGE

IMSpIex. . . PLEX1          Date. . : 02/11/21
SM server. : UIS          Time. . : 17:43:31
Route. . . : *

Enter 's' to select a structure for statistics

----Utilization---
CMD Structure Name Entries Elements
EMHQ IMSEMHQ01 1 % 1 %
OVFL NOT-CONNECTED 0 % 0 %

PRIM IMSMSGQ01 <1 % <1 %
OVFL NOT-CONNECTED 0 % 0 %

***** Bottom of data *****

```

Figure 83. The Aggregated IMS Common Queue Server Structures panel (GJEP190)

4. To view the statistics of a specific structure, type s in the Cmd column of the row for the structure and press Enter.

The Common Queue Server Structure statistics panel (GJEPSQM) is displayed with an options menu for the various statistics for the selected structure.


```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPSQM          Common Queue Server Structure Statistics
Option ==>

IMSpIex. . : PLEX1
SM server. : UIS
Route. . . : *

Structure name. : IMSMSGQ01      Type. : PRIM

Select one of the following options:

1. Structure statistics
2. Processing counters
3. Structure rebuild statistics
4. Structure checkpoint statistics
```

Figure 84. The IMS Common Queue Server Structure Statistics panel (GJEPSQM)

The following statistics are available:

- Structure statistics

Common Queue Server Structure Statistics panel (GJEP191)

Note: CQS clears the system checkpoint counter and the rebuild counter after each successful structure checkpoint.

- Processing counters

Common Queue Server Processing Counters panel (GJEP192)

- Structure rebuild statistics

Common Queue Server Structure Rebuild Statistics panel (GJEP193)

- Structure checkpoint statistics

Common Queue Server Structure Checkpoint Stats panel (GJEP194)

Chapter 17. Viewing data sharing statistics

Data sharing is the concurrent access of databases by two or more IMS systems. The IMS systems can be in one operating system image or in separate operating system images. The IMS systems can share data at two levels: the database level and the block level. You can use IMS Sysplex Manager to view data sharing statistics.

Procedure

To view data sharing statistics, select option 8 on the IMS Sysplex Manager main menu to display the Data Sharing Data panel.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPVDS                                     Data Sharing Data
Option ==>

IMSpIex. . . PLEX1
SM server. : UIS
Route. . . . *

Select one of the following options:

1. IRLM Statistics
2. IRLM Locks
3. Data Sharing Statistics
```

Figure 85. The Data Sharing Data panel (GJEPVDS)

You can select from three types of data sharing statistics:

- [“Viewing IRLM statistics” on page 135](#)
- [“Viewing IRLM lock statistics” on page 136](#)
- [“Viewing data sharing statistics for each IMS system” on page 140](#)

Viewing IRLM statistics

An internal resource lock manager (IRLM) is a subsystem in a z/OS environment that provides lock management, and is used by multiple IMS systems to share data. You can use IMS Sysplex Manager to view IRLM statistics.

Procedure

To view IRLM statistics, complete the following steps:

1. Select option 1 on the Data Sharing Data panel to display the Aggregated IRLM Statistics panel.

The values shown are aggregates of all IMS IDs in the group.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP140                                     Aggregated IRLM Statistics      Row 1 to 30 of 51
COMMAND ==>                                SCROLL ==> PAGE

IMSpIex. . . PLEX1                        Date. . : 02/11/21
SM server. : UIS                          Time. . : 14:14:32
Route. . . *

Enter 's' to view detailed IRLM statistics.  --

GLOBAL ACTIVITY COUNTERS:
Total global LOCK request. . . . . : 521
Child locks propagated . . . . . : 0
IRLM to IRLM notify request. . . . . : 0

REQUESTS
Lock . . . . . : 4,818
Unlock . . . . . : 4,556
Change . . . . . : 0

```

Figure 86. The Aggregated IRLM Statistics panel (GJEP140)

2. Type **s** in the input field and press **Enter** to display the detailed statistics for all IMS systems in the IMS group.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP141                                     IRLM Statistics      Row 1 to 28 of 146
COMMAND ==>                                SCROLL ==> PAGE

IMSpIex. . . PLEX1                        Date. . : 02/11/21
SM server. : UIS                          Time. . : 14:14:32
Route. . . *

IMSA  Description                                     Value
IMSA  IRLM name . . . . . : IRLME2N
IMSA  IRLM ID . . . . . : 241
IMSA  GLOBAL ACTIVITY COUNTERS:
IMSA  Total global LOCK request. . . . . : 284
IMSA  Child locks propagated . . . . . : 0
IMSA  IRLM to IRLM notify request. . . . . : 0
IMSA  REQUESTS
IMSA  Lock . . . . . : 3,697
IMSA  Unlock . . . . . : 3,554
IMSA  Change . . . . . : 0

```

Figure 87. The IRLM Statistics panel (GJEP141)

3. Use the SORT capability to view and compare counters between IMS IDs.

You can compare the counters visually, since after the sort, the counters are placed one below the other instead of pages apart.

Viewing IRLM lock statistics

An internal resource lock manager (IRLM) is a subsystem in a z/OS environment that provides lock management, and is used by multiple IMS systems to share data. You can use IMS Sysplex Manager to view IRLM lock statistics.

Procedure

To view IRLM lock statistics, complete the following steps:

1. Select option 2 on the Data Sharing Data panel to display the IRLM Locks panel.

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPIRLK                                IRLM Locks
Option ==>

IMSpIex. . . PLEX1
SM server. : UIS
Route. . . . *

Select one of the following options:

1. View dependent regions holding locks
2. View locks being held
3. View dependent regions waiting for locks
4. View locks being waited on

```

Figure 88. The IRLM Locks panel (GJEPIRLK)

2. Select option 1 on the IRLM Locks panel to view dependent regions holding locks.

For example:

```

Menu View Options Help
----- Realtime snapshot
GJEP300                                Dependent Regions Holding Locks      Row 1 to 3 of 3
COMMAND ==>                                SCROLL ==> PAGE

IMSpIex. . . PLEX1                        Date. . : 02/11/21
SM server. : UIS                          Time. . : 10:55:20
Route. . . . *

Enter 's' to select a region for LOCK information
'r' to display region activity

Cmd IMSid RegionID  JobName  StepName  Type      CurExecStatus
  IMS1      4      BMP3      BMP        BMP      ACTIVE
  IMS1      3      BMP1      BMP        BMP      ACTIVE
  IMS2      1      BMP21     BMP        BMP      ACTIVE
***** Bottom of data *****

```

Figure 89. The Dependent Regions Holding Locks panel (GJEP300)

Type s in the Cmd column to select a region (for example, RegionID 4) to display detailed information about locks that are held by the selected region by database. Press **Enter**.

```

Menu View Options Help
----- Realtime snapshot
GJEP301                                Dependent Regions Holding Locks      Row 1 to 1 of 1
COMMAND ==>                                SCROLL ==> PAGE

IMSpIex. . : PLEX1                        Date. . : 02/11/21
SM server. : UIS                          Time. . : 10:51:12
Route. . . : *

IMSid. : IMS1      RegionID. : 4      JobName. : BMP3

Enter 's' to see holder/waiter information

Cmd LockID  DBName      RBA          DCB      Lock  Global/  Waiter
  LOCK      DIVNTZ02    address      number   type   Local   count
***** Bottom of data *****

```

Figure 90. The Dependent Regions Holding Locks panel (GJEP301)

Select a database name (for example, a DBName of DIVNTZ02) to display detailed information about the IRLM locks on the database.

```

Menu View Options Help
-----
GJEP302                      Dependent Regions Holding Locks      Realtime snapshot
COMMAND ==>                                     Row 1 to 3 of 3
                                                SCROLL ==> PAGE

IMSpIex. . : PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 10:51:12
Route. . . : *

IMSIId. : IMS1      RegionID . : 4      JobName. : BMP3      StepName. : BMP
Lock . : DIVNTZ02 000000001071C500

Enter 'c' to process IMS commands
'r' to display region activity

Holder/
Cmd Waiter  IMSId RegionID JobName  StepName Job  Lock  CurExecStatus
        type  state
HOLDER  IMS1    4    BMP3      BMP      BMP      UPD      ACTIVE
WAITER  IMS2    2    BMP2      BMP      BMP      TP      ACTIVE
WAITER  IMS2    4    MPP21      TP      TP      TP      ACTIVE
***** Bottom of data *****

```

Figure 91. The Dependent Regions Holding Locks panel (GJEP302)

3. Select option 2 on the IRLM Locks panel to display the IRLM locks that are being held by a resource.

```

Menu View Options Help
-----
GJEP310                      Locks Being Held      Realtime snapshot
COMMAND ==>                                     Row 1 to 3 of 3
                                                SCROLL ==> PAGE

IMSpIex. . . PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 11:11:38
Route. . . : *

Enter 's' to see holder/waiter information

Cmd IMSID LockID  DBName      RBA      DCB      Lock  Global/  Waiter
        address  number  type  Local  Count
IMS1  LOCK  DIVNTZ02 000000001071C500  1  P  G  2
IMS1  LOCK  DHVNTZ02 000000000006C800  1  P  G  1
IMS2  LOCK  DBHDOK01 0000000000040C00  1  L  L  0
***** Bottom of data *****

```

Figure 92. The Locks Being Held panel (GJEP310)

Type s in the Cmd column to select a database name (for example, a DBName of DIVNTZ02) to display information about the holder and waiters of the locks. Press **Enter**.

```

Menu View Options Help
-----
GJEP311                      Locks Being Held      Realtime snapshot
COMMAND ==>                                     Row 1 to 3 of 3
                                                SCROLL ==> PAGE

IMSpIex. . : PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 11:11:38
Route. . . : *

IMSIId. : IMS1      Lock. : DIVNTZ02 000000001071C500

Enter 'c' to process IMS commands
'r' to display region activity

Holder/
Cmd Waiter  IMSId RegionID JobName  StepName Job  Lock  CurExecStatus
        type  state
HOLDER  IMS1    4    BMP3      BMP      BMP      UPD      ACTIVE
WAITER  IMS2    2    BMP2      BMP      BMP      TP      ACTIVE
WAITER  IMS2    4    MPP21      TP      TP      TP      ACTIVE
***** Bottom of data *****

```

Figure 93. The Locks Being Held panel (GJEP311)

4. Select option 3 on the IRLM Locks panel to display dependent regions waiting for locks.

```

Menu View Options Help
-----
GJEP320      Dependent Regions Waiting For Locks      Realtime snapshot
COMMAND ==>                                     Row 1 to 3 of 3
                                                SCROLL ==> PAGE

IMSpIex. . . PLEX1                                Date. . : 02/11/21
SM server. : UIS                                Time. . : 11:15:42
Route. . . . *

Enter 's' to select a region for LOCK information
'r' to display region activity

Cmd IMSid RegionID JobName StepName Type CurExecStatus
  IMS2      4    MPP21    MPP      TP    ACTIVE
  IMS2      3    MPP22    MPP      TP    ACTIVE
  IMS2      2    BMP2     BMP      BMP    ACTIVE
***** Bottom of data *****

```

Figure 94. The Dependent Regions Waiting For Locks panel (GJEP320)

Type s in the Cmd column to select a region (for example, a RGNID of 4) to display information about the databases that are holding locks and that are in contention. Press **Enter**.

```

Menu View Options Help
-----
GJEP321      Dependent Regions Waiting For Locks      Realtime snapshot
COMMAND ==>                                     Row 1 to 1 of 1
                                                SCROLL ==> PAGE

IMSpIex. . : PLEX1                                Date. . : 02/11/21
SM server. : UIS                                Time. . : 11:16:55
Route. . . : *

IMSid. : IMS2      RegionID. : 4    JobName. : MPP21

Enter 's' to select a LOCK for holders and waiters

Cmd LockID DBName RBA address DCB Lock Global/ Waiter
  LOCK DIVNTZ02 000000001071C500 1 type P Local count 2
***** Bottom of data *****

```

Figure 95. The Dependent Regions Waiting For Locks panel (GJEP321)

Select a database name (for example, a DBName of DIVNTZ02) to display information about the holder and waiters on the lock.

```

Menu View Options Help
-----
GJEP322      Dependent Regions Waiting For Locks      Realtime snapshot
COMMAND ==>                                     Row 1 to 3 of 3
                                                SCROLL ==> PAGE

IMSpIex. . . PLEX1                                Date. . : 02/11/21
SM server. : UIS                                Time. . : 11:16:55
Route. . . . *

IMSid. : IMS2      RegionID . : 4    Jobname. : MPP21    Stepname. : MPP
Lock . : DIVNTZ02 000000001071C500

Enter 'c' to process IMS commands
'r' to display region activity

Holder/
Cmd Waiter IMSid RegionID JobName StepName type state CurExecStatus
  HOLDER IMS1      4    BMP3     BMP      BMP      UPD    ACTIVE
  WAITER IMS2      2    BMP2     BMP      BMP      UPD    ACTIVE
  WAITER IMS2      4    MPP21    TP       TP       UPD    ACTIVE
***** Bottom of data *****

```

Figure 96. The Dependent Regions Waiting For Locks panel (GJEP322)

5. Select option 4 on the IRLM Locks panel to display the IRLM locks being waited on.

```

Menu View Options Help
-----
GJEP330                      Locks Being Waited On                      Row 1 to 2 of 2
COMMAND ===>                      SCROLL ===> PAGE

IMSpIex. . . PLEX1                      Date. . : 02/11/21
SM server. : UIS                      Time. . : 11:18:39
Route. . . : *

Enter 's' to select a LOCK for holders and waiters

Cmd IMSID LockID      DBName      RBA          DCB      Lock  Global/  Waiter
   IMS2 LOCK      DIVNTZ02  address      number type  Local    count
   IMS2 LOCK      DHVNTZ02  0000000001071C500  1    P    G        2
   IMS2 LOCK      DHVNTZ02  000000000006C800  1    P    G        1
***** Bottom of data *****

```

Figure 97. The Locks Being Waited On panel (GJEP330)

Type s in the Cmd column to select a database name (for example, a DBName of DIVNTZ02) to display information about the holder and waiters of the locks in contention. Press **Enter**.

```

GJEP331                      Locks Being Waited On                      Row 1 to 3 of 3
COMMAND ===>                      SCROLL ===> PAGE

IMSpIex. . : PLEX1                      Date. . : 02/11/21
SM server. : UIS                      Time. . : 11:18:39
Route. . . : *

IMSid. : IMS2      Lock. : DIVNTZ02 0000000001071C500

Enter 'c' to process IMS commands
      'r' to display region activity

Holder/
Cmd Waiter  IMSID RegionID JobName  StepName  Job    Lock  CurExecStatus
   HOLDER  IMS1      4    BMP3           BMP      BMP    state  ACTIVE
   WAITER  IMS2      2    BMP2           BMP      BMP    state  ACTIVE
   WAITER  IMS2      4    MPP21          TP        TP     state  ACTIVE
***** Bottom of data *****

```

Figure 98. The Locks Being Waited On panel (GJEP331)

Viewing data sharing statistics for each IMS system

Data sharing is the concurrent access of databases by two or more IMS systems. The IMS systems can be in one operating system image or in separate operating system images. The IMS systems can share data at two levels: the database level and the block level. You can use IMS Sysplex Manager to view data sharing statistics for each IMS system.

Procedure

To view data sharing statistics for each IMS system, select option 3 on the Data Sharing Data panel to display the Data Sharing Statistics panel (GJEP870).

Data sharing statistics for each IMS system are shown for each IMS system that is in the Route field. In this case, the asterisk indicates all IMS systems.

For example:


```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEP870                                     Data Sharing Statistics          Row 1 to 31 of 42
COMMAND ==>                                SCROLL ==> PAGE

IMSpdex. . . PLEX1                        Date. . . : 02/11/21
SM server. : UIS                          Time. . . : 14:31:43
Route. . . . *

IMSid Description                          Value
IMS1 Session Lock Table name for IRLM. . . . . LT01
IMS1 Session Lock Table vers nmbr from IRLM SLM connect.:
IMS1 Session Structure name for OSAM XI. . . . . OSAMESXI
IMS1 Session Structure name for VSAM XI. . . . .
IMS1 OSAM Global buffer count for LCBV . . . . . 12
IMS1 VSAM Global buffer count for LCBV . . . . . 16
IMS1 SB Global buffer count. . . . . 0
IMS1 OSAM Maximum structure size . . . . . 1,024
IMS1 OSAM actual structure size. . . . . 1,024
IMS1 VSAM Maximum structure size . . . . . 0
IMS1 VSAM actual structure size. . . . . 0
IMS1 OSAM Directory ratio. . . . . 0
IMS1 OSAM element ratio. . . . . 0
-----
IMSA Session Lock Table name for IRLM. . . . . LT01
IMSA Session Lock Table vers nmbr from IRLM SLM connect.:
IMSA Session Structure name for OSAM XI. . . . . OSAMESXI
IMSA Session Structure name for VSAM XI. . . . .
IMSA OSAM Global buffer count for LCBV . . . . . 12
IMSA VSAM Global buffer count for LCBV . . . . . 16
IMSA SB Global buffer count. . . . . 0
IMSA OSAM Maximum structure size . . . . . 1,024
IMSA OSAM actual structure size. . . . . 1,024

```

Figure 99. The Data Sharing Statistics panel (GJEP870)

With enhanced IMS Sysplex Manager functionality, a new history record type is now used to capture this IMS command activity. This new history record type for IMS commands is stored in the VSAM history data set along with other record types, and is archived when the history files are archived.

The GJEAUDIT program can extract the new IMS command records from the archived history files and place them into a DASD output data set. The records in the output data set are formatted so that they can be loaded directly into a Db2® table. SQL queries can then be issued to audit the data.

The GJEAUDIT program allows you to specify a date and time range, and then extracts only those records that are within the requested date/time boundaries.

Note: Archived history files can still contain IMS command records previously stored in the older format. The GJEAUDIT program only recognizes the format of the new record type and only extracts those records.

Sample IMS command auditing queries:

- "What IMS commands TSO001 issued and when"
- "What was entered on Master Terminal between 11PM and 12PM"
- "What PSBs issued IMS commands and when"
- "What VTAM node NODE0123 was doing"
- "What command was entered on LTERM LT0012"

IMS command audit record structure

The enhanced audit record that captures IMS command activity has 9 fields, separated by delimiters.

```
DATETIME EXTERNAL ;IMSID ;SOURCE ;ORIGIN ;IDTYPE ;ID ;USERID ;LTERM ;COMMAND TEXT
```

Table 13. Field character lengths

Field	Character length
DATETIME EXTERNAL	19 characters
IMSID	8 characters
SOURCE	8 characters
ORIGIN	13 characters
IDTYPE	6 characters
ID	16 characters
USERID	8 characters
LTERM	8 characters
COMMAND TEXT	80 characters

The values in the fields SOURCE, ORIGIN, IDTYPE are keywords.

The values in the fields IMSID, ID, USERID, LTERM and COMMAND TEXT are the names of IMS objects, date/time, or command texts.

DATETIME EXTERNAL

The date/timestamp when the IMS command was issued, in external format.

External format means characters are used for the date and time. Internal format uses binary. In the VSAM file, the date/timestamp uses internal format; for the audit file, it is converted to external format.

IMSID

IMSID to which the command was issued.

SOURCE

Keywords:

TERMINAL | ICMD | INTERNAL | UNKNOWN | OMGR

ORIGIN

Keywords:

OTHER ORIGIN | VTAM TERMINAL | LU62 | MCS CONSOLE | OTMA CLIENT | z/OS CONSOLE |
MASTER TERM | AOI ICMD PROG | *job-name*

IDTYPE

Keywords:

USERID | LTERM | PSB | OTHER

ID

Dependent on ORIGIN value:

Table 14. ID values

ORIGIN value	ID value
OTHER ORIGIN	Character terminal line number concatenated with physical terminal number.
VTAM TERMINAL	VTAM node name.
LU62	Concatenated network ID with ':' and concatenated logical unit name.
MCS CONSOLE	Numeric MSC terminal ID.
OTMA CLIENT	OTMA member name.
z/OS CONSOLE	z/OS console name.
MASTER TERM	Master terminal name.
AOI ICMD PROG	Automated Operation Interface command.
<i>job-name</i>	The name of the program that issues a command to IMS via OM.

USERID

Dependent on IDTYPE value:

Table 15. USERID values

IDTYPE value	USERID value
USERID	User ID.
PSB	PSB name.

LTERM

Dependent on IDTYPE value:

Table 16. LTERM values

IDTYPE value	LTERM value
LTERM	LTERM name.

COMMAND TEXT

The IMS command that was issued.

Sample audit record output

```
2021-03-29-09.16.09;IEC7 ;TERMINAL;MCS CONSOLE ;USERID; ;TSSMD ; ;/LOG TEST 6:16. ;
2021-03-29-09.16.26;IEC7 ;TERMINAL;MCS CONSOLE ;USERID; ;TSSMD ; ;/DIS TRAN IZTRAN. ;
2021-03-29-09.16.34;IEC7 ;TERMINAL;MCS CONSOLE ;USERID; ;TSSMD ; ;/DIS OTMA. ;
*
2021-03-29-10.25.57;IEC7 ;TERMINAL;z/OS CONSOLE ;OTHER ; ; ;IEC7 ;/DIS NODE LCLE203 ;
2021-03-29-10.26.38;IEC7 ;TERMINAL;z/OS CONSOLE ;OTHER ; ; ;IEC7 ;/DIS LTERM LCLE203 ;
2021-03-29-10.28.19;IEC7 ;TERMINAL;z/OS CONSOLE ;OTHER ; ; ;IEC7 ;/DIS MASTER PMASTER ;
*
2021-03-29-09.48.56;IEC7 ;TERMINAL;VTAM TERMINAL;OTHER ;SI3TCP98 ; ; ;/SIGN ON TSSMDC ;
2021-03-29-09.49.02;IEC7 ;TERMINAL;VTAM TERMINAL;OTHER ;SI3TCP98 ; ; ;/SIGN ON TSSMDC ;
2021-03-29-09.49.10;IEC7 ;TERMINAL;VTAM TERMINAL;OTHER ;SI3TCP98 ; ; ;/SIGN ON TSSMDC ;
*
2021-03-29-05.28.33;IEC7 ;TERMINAL;OTHER ORIGIN ;OTHER ; ; ;DFSTCFI ;/STA DC ;
2021-03-29-05.28.33;IEC7 ;TERMINAL;OTHER ORIGIN ;OTHER ; ; ;DFSTCFI ;/OPN NODE LCLE300 ;
2021-03-29-05.28.33;IEC7 ;TERMINAL;OTHER ORIGIN ;OTHER ; ; ;DFSTCFI ;/OPN NODE LCLE301 ;
*
2021-06-14-12.05.25;IEC7 ;ICMD ;AOI ICMD PROG;USERID;IMSSM ;IMSSM ; ;/RML DBRC='RECON STATUS' ;
2021-06-14-12.12.15;IEC7 ;ICMD ;AOI ICMD PROG;USERID;IMSSM ;IMSSM ; ;/RML DBRC='RECON STATUS' ;
2021-06-14-12.13.48;IEC7 ;ICMD ;AOI ICMD PROG;USERID;IMSSM ;IMSSM ; ;/RML DBRC='RECON STATUS' ;
*
2021-10-03-17.41.33;IEC7 ;ICMD ;AOI ICMD PROG;PSB ;ATYPSB0 ;IEC7CTL ; ;/DIS TMEMBER ALL ;
2021-10-03-17.41.33;IEC7 ;ICMD ;AOI ICMD PROG;PSB ;CCFPSB0 ;IEC7CTL ; ;/DIS OTMA ;
2021-10-03-17.41.33;IEC7 ;ICMD ;AOI ICMD PROG;PSB ;CCFPSB0 ;IEC7CTL ; ;/DIS TMEMBER ALL ;
*
2021-10-03-19.53.46;IEC7 ;OMGR ;IEC7ATYJ ;USERID; ;IEC7CTL ; ;QRY IMSPLEX ;
2021-10-03-19.53.46;IEC7 ;OMGR ;IEC7ATYJ ;USERID; ;IEC7CTL ; ;QRY IMS SHOW(ALL) ;
2021-10-03-19.53.46;IEC7 ;OMGR ;IEC7CCFJ ;USERID; ;IEC7CTL ; ;QRY IMS SHOW(ALL) ;
```

Sample JCL to run GJEAUDIT program

The following sample JCL, located in *hlq*.SAMPLE(GJEAUJCL), searches IMS Sysplex Manager archive history files, recognizes the new IMS command record type, extracts the IMS command records, and assembles the data in a format that can be loaded directly into a Db2 table.

Variables are indicated in lower-case characters.

```
//AUDIT EXEC PGM=GJEAUDIT,PARM='parmvalue'
//STEPLIB DD DSN=imssmhlq.SGJELoad,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//GJEVSAM DD DISP=SHR,
// DSN=&DSN1
//SYSIN DD DISP=SHR,
// DSN=&DSN2
//GJEAUDIT DD DISP=(NEW,CATLG,DELETE),
// UNIT=SYSDA,SPACE=(CYL,(xxx)),VOL=SER=volser,
// DCB=(DSORG=PS,RECFM=FB,LRECL=200),
// DSN=&DSN3
//GJESNAP DD SYSOUT=*
```

EXEC PARM reference for GJEAUDIT program

The value for the PARM parameter in the EXEC statement contains:

- Trace control setting
- Delimiter character (;)
- Date/timestamp format

PARM value format:

```
trace-control-type;date-timestamp-format
```

Trace control character: Y|I|N

The trace control setting is used in coordination with IBM Software Support when troubleshooting is required.

Y

Run with full trace.

I

Run with short, restricted trace.

N

Run without trace.

Delimiter character (;)

Delimiter character between fields in the PARM statement (;).

Date/timestamp format: LOCAL|GMT|UTC|+HHMM|-HHMM

This setting specifies the time format to use for the date/timestamp range that is specified in the control card data set (&DSN2).

LOCAL

Use local timestamp.

GMT

Use GMT timestamp.

UTC

Use UTC timestamp

+HHMM

Use UTC time plus the specified hour and minute adjustment.

-HHMM

Use UTC time minus the specified hour and minute adjustment.

Note: The PARM statement can be omitted. In this case, the default PARM= 'N;LOCAL ' is used.

Example:

```
PARM= 'Y;GMT
```

Data set (&DSN1, &DSN2, &DSN3) reference

The following data set names must be specified in the JCL:

&DSN1

DSN1 is the name of a VSAM data set that contains history records that are created while IMS Sysplex Manager runs.

The data set (maximum of three data sets supported) is initially created and allocated when configuring IMS Sysplex Manager, and is used by the IMS Sysplex Manager server to capture and archive system activity such as exceptions and commands.

IMS Sysplex Manager menu options allow you to view these records, check the history data set utilization, run archive jobs, and perform other actions.

With enhanced IMS Sysplex Manager functionality, a new type of record is now written to the DSN1 data set to support auditing requirements for IMS commands. The GJEAUDIT program extracts the new IMS command records from the DSN1 data set to create the output data set, DSN3. The output in DSN3 is formatted so that it can be loaded directly into a Db2 table. SQL queries can then be issued to audit the IMS command data.

&DSN2

DSN2 is the name of the data set where the control card for the GJEAUDIT program is placed (SYSIN DD *).

The DSN2 data set specifies the date/timestamp range (FROM-TO) for the output data that is extracted to DSN3.

Format for the date/timestamp range (FROM-TO):

```
yyyy-mm-dd-hh.mm.ss yyyy-mm-dd-hh.mm.ss
```


Note: There is one blank space between the FROM date/timestamp value and the TO date/timestamp value.

&DSN3

DSN3 is the name of the output DASD data set.

The DSN3 output data set contains IMS command records (new format) extracted from the specified DSN1 data set, within the date/timestamp range specified in the DSN2 data set.

The output in DSN3 (IMS command records) is formatted so that it can be loaded directly into a Db2 table. SQL queries can then be issued to audit the IMS command data.

Return codes

RC=0

The data set was processed and contains records within the specified date/timestamp range.

RC=4

The data set was processed, but no records were processed due to the selection criteria.

Message GJE8101W is issued and indicates the reason code.

RC=8

The data set was not processed.

Message GJE8102E is issued and indicates the reason code.

Reason codes for message GJE8101W

Table 17. Reason codes for message GJE8101W

Reason code	Description
1	Empty history data set.
2	No commands are recorded in history within the date/timestamp range.

Reason codes for message GJE8102E

Table 18. Reason codes for message GJE8102E

Reason code	Description
11	GJEVSAM IDENTIFY error
12	GJEVSAM ACCESS or MAP error
16	GJEAUDIT Open error
17	SYSIN Open error
22	Data is before IMS Sysplex Manager 1.3
32	GJESNAP Open error
40	HDSW block invalid
41	Exception block IMSID invalid
42	HDXW block invalid
43	Empty block should not be written
44	Other than 024 record in exception block
45	Invalid 024 VARDLL

Table 18. Reason codes for message GJE8102E (continued)

Reason code	Description
46	Invalid 024 VARNUM
47	Invalid 024 Subrecord Length without LLZZ
101	MVS PARMS too long
102	Invalid adjust type
103	Invalid HHMM value DATE.... DESCRIPTION
110	GJEVSAM DD is not allocated
111	GJEAUDIT DD is not allocated
113	SYSIN DD is not allocated

Chapter 19. Viewing z/OS information for IMS address spaces

You can use IMS Sysplex Manager to view z/OS information for IMS address spaces.

Select option 12 on the IMS Sysplex Manager main menu to display the z/OS information for IMS address spaces panel.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPIAS          z/OS Information For IMS Address Spaces          Row 13 to 31 of 31
COMMAND ==>          SCROLL ==> CSR

IMSpIex. . . PLEX1          Date. . : 02/11/21
SM server. : UIS1          Time. . : 16:10:44          More: >

'd' to produce an SVC dump for the selected address space
'dt' to produce SVC dumps for the selected address space type plex-wide
's ' to display the attributes of the selected address space

Cmd Jobname  Type/imsid z/OSname ASID  TCB time  SRB time  CPU time  EXCPs
IMS2  IMS     EC01610 002B   3.43    1.27    4.70    14,768
DBR9CSBM DBRC    EC01610 00A4   .08     .01     .09     490
DLI9CSBM DSAS    EC01610 003E   .14     .11     .25    1,552
IRLME2N IRLM    EC01610 0040   .07     2.52    2.59     329
CQS9M2 CQS     EC01610 002C   .55     1.55    2.10    2,835
OM2     OM      EC01610 0029   .26     .07     .33    1,294
RM2     RM      EC01610 002A   .25     .08     .33    1,333
SCI2    SCI     EC01610 0028   .48     .09     .57    1,544
ODBM2   OD       EC01610 0033   .29     .08     .37    1,805
FDR2    FDBR    EC01757 0030   4.07     .96    5.03   28,340
FDR1    FDBR    EC01610 0031   4.32    1.07    5.39   29,343
BMP3    BMP /IMS1 EC01757 0034   .03     .00     .03     191
BMP1    BMP /IMS1 EC01757 0033   .01     .00     .01     192
MPP02   TP /IMS1 EC01757 0032   1.49     .07    1.56   3,435
MPP01   TP /IMS1 EC01757 0031   .57     .03     .60    1,566
MPP21   TP /IMS2 EC01610 0022   .02     .00     .02     194
MPP22   TP /IMS2 EC01610 0030   .02     .00     .02     194
BMP2    BMP /IMS2 EC01610 002E   .01     .00     .01     192
BMP21   BMP /IMS2 EC01610 002F   .04     .01     .05     565
***** Bottom of data *****

```

Figure 104. z/OS Information for IMS Address Spaces panel (GJEPIAS)

Each row of this table represents an IMS address space and shows the activity in that address space.

The TCB time, SRB time, and CPU time are shown in seconds (to the hundredths of a second).

A supervisor call (SVC) dump is a dump that is generated when z/OS detects a system exception or when the DUMP command is entered by an operator from the console. From this panel, you can request dumps for one or more address spaces.

- Type the d line command in the Cmd column of one or more rows, and press **Enter**, to produce SVC dumps for the selected region.
- Type the dt line command in the Cmd column of an appropriate row, and press Enter, to dump a single region type across the IMSplex.
- From the Options menu, you can use the **Dump all displayed components** menu item. Use this option with caution because requesting too many dumps at one time can significantly impact your system performance.

You can scroll to the right using the PF11 key to display more data (Frame counts and Accumulated I/O times), as shown in the following two figures:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPIBS      z/OS Information for IMS Address Spaces      Row 1 to 11 of 11
COMMAND ==>                                           SCROLL ==> PAGE

IMSpdex. . . PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 19:15:01      More: <>

'd' to produce an SVC dump for the selected address space
'dt' to produce SVC dumps for the selected address space plex-wide
-----Frames-----
Cmd Jobname  Type      CS count  ES count  Total fixed  Target WSS   High UIC
IMSA      IMS       2,655      0         147         0         2,540
DBRECSBJ  DBRC        491         0         52         0         2,540
DLIECSBJ  DSAS        726         0         72         0         2,540
IRLME2N   IRLM       4,825      0        183         0         2,540
IMS1      IMS       2,676      0        148         0         2,540
DBRECSAJ  DBRC        491         0         52         0         2,540
DLIECSAJ  DSAS        726         0         72         0         2,540
CQSEJ1    CQS         854         0        178         0         2,540
OM1       OM          580         0         72         0         2,540
RM1       RM          609         0         74         0         2,540
SCI1      SCI         288         0         66         0         2,540
***** Bottom of data *****

```

Figure 105. z/OS Information for IMS Address Spaces panel (GJEPIBS) - Frame counts

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPICS      z/OS Information for IMS Address Spaces      Row 1 to 11 of 11
COMMAND ==>                                           SCROLL ==> PAGE

IMSpdex. . . PLEX1                      Date. . : 02/11/21
SM server. : UIS                        Time. . : 19:15:01      More: <

d' to produce an SVC dump for the selected address space
dt' to produce SVC dumps for the selected address space type plex-wide
-----Accumulated I/O times-----
Cmd Jobname  Type      Wait Total conn  Connect Disconnect
IMSA      IMS       0         0         0         0
DBRECSBJ  DBRC        0         0         0         0
DLIECSBJ  DSAS        0         0         0         0
IRLME2N   IRLM        0         0         0         0
IMS1      IMS       0         0         0         0
DBRECSAJ  DBRC        0         0         0         0
DLIECSAJ  DSAS        0         0         0         0
CQSEJ1    CQS         0         0         0         0
OM1       OM          0         0         0         0
RM1       RM          0         0         0         0
SCI1      SCI         0         0         0         0
***** Bottom of data *****

```

Figure 106. z/OS Information for IMS Address Spaces panel (GJEPICS) - Accumulated I/O times

Part 5. Monitoring IMS sysplex activity

The topics in this section provide you with information on the capabilities for monitoring IMS sysplex activity:

Topics:

- [Chapter 20, “Using the IMS Sysplex Manager dashboard,” on page 155](#)
- [Chapter 21, “IRLM data sharing long lock detection,” on page 167](#)
- [Chapter 22, “IMS Sysplex Manager journaling,” on page 171](#)
- [Chapter 23, “Shared queue buffer overflow protection overview,” on page 175](#)
- [Chapter 24, “Using the system exceptions and audit log,” on page 179](#)
- [Chapter 25, “CQS log stream overview,” on page 183](#)

Chapter 20. Using the IMS Sysplex Manager dashboard

The IMS Sysplex Manager dashboard feature allows you to continuously view snapshots of current data for key critical areas in the sysplex environment.

Topics:

- [“Dashboard overview and configuration checklist” on page 155](#)
- [“Creating and configuring a new dashboard” on page 156](#)
- [“Previewing a dashboard” on page 159](#)
- [“Viewing the list of configured dashboards” on page 160](#)
- [“Defining monitoring periods” on page 162](#)
- [“Defining threshold values” on page 163](#)
- [“Viewing dashboards” on page 165](#)
- [“Navigating dashboard releases” on page 166](#)

Dashboard overview and configuration checklist

The IMS Sysplex Manager dashboard feature allows you to continuously view snapshots of current data for key critical areas in the sysplex environment.

The IMS Sysplex Manager dashboard provides an ongoing view of critical areas in the sysplex environment. To keep overhead to a minimum, the data is collected by the IMS Sysplex Manager server once and sent to all configured dashboards that request this data.

As part of dashboard management, you can define specific monitoring periods and specify critical threshold ranges for the values of individual data fields. The threshold ranges are valid only during the defined monitoring periods.

In most production environments, meaningful threshold values can be day and time dependent. You can specify several monitoring periods. You can assign different threshold values to the same field for different periods.

When the server does a data collection cycle, it determines the day (for example, Monday, Tuesday) and the hour of the current collection. The data fields are then evaluated against the threshold values set for the matching user-defined monitoring period.

The dashboard display can then show alerts when indicators exceed the thresholds. Additionally, a threshold exception is recorded in the history database. These exceptions can be viewed later online. No exceptions will be missed by not watching the dashboard display.

Dashboard configuration checklist

Follow these steps (all detailed in this user guide) to activate the dashboard and threshold feature:

1. Create and customize a new dashboard
2. Define monitoring periods
3. Define threshold values
4. Set dashboard data collection interval

Option 1 (Settings) of the IMS Sysplex Manager main menu

5. Activate data collection and threshold processing

F *SERV-jobname*, **THRESH START**

Creating and configuring a new dashboard

The IMS Sysplex Manager dashboard management feature allows you to continuously view snapshots of current data for key critical areas in the sysplex environment.

About this task

The data is collected and evaluated by the IMS Sysplex Manager server. The data collection is optional. For the dashboard to be operational, the server data collection needs to be activated.

Dashboard configuration summary:

- A dashboard represents a view of custom-selected elements and fields that display the current data from the sysplex environment.

The data fields are organized in the following manner on the dashboard configuration panel:

Element

An element consists of a group (or category) header title followed by one or more indented field lines representing different data types belonging to that element.

Field

A field consists of a single indented field line representing one type of data.

- You can create multiple dashboards. Each dashboard has a unique name and can have a unique selection of elements and fields that are displayed.
- When you configure a dashboard, you select the specific elements and fields that you want to display for that dashboard.

Procedure

To create and configure a new dashboard, complete the following steps:

1. Select option 10 on the IMS Sysplex Manager main menu to display the Dashboard Management panel.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPDSH                                     Dashboard Management
Option ==>

IMSpdex. . . PLEX1
SM server. : UIS

Select one of the following options:
```

1. Configure dashboards
2. Define monitoring periods and threshold values
3. View Dashboard
4. View Dashboard-threshold fields only

Figure 107. Dashboard Management panel (GJEPDSH)

2. Select option 1 to configure a new dashboard or edit an existing dashboard.

The Configure Dashboards panel is displayed.


```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPDBC                                     Configure Dashboards          Row 1 to 26 of 92
COMMAND ===>                               SCROLL ===> PAGE

IMSpIex. . : PLEX1
SM server. : UIS

Dashboard name . . . IMSSM dashboard Type ? to list defined dashboards
Enter 'x' to exclude the selected field or element from the dashboard
      's' to include the selected field or element in the dashboard
      'i' to insert a blank field at current location
      'd' to delete the blank field

CMD  Element / Field                      Field data
> MSGQ % in use-----
> P-Entry. :                             999
> P-Element:                             999
> O-Entry. :                             999
> O-Element:                             999
> Aggr. local OM request
> Reg commands .:                        99,999
> Notify rdy . .:                        99,999
> Notify not rdy:                        99,999

```

Figure 108. Configure Dashboards panel (GJEPDBC)

When the IMS Sysplex Manager client is run the first time, the default dashboard, IMSSM dashboard (Tablename=IMSSMDEF), is displayed.

The default dashboard displays all possible element groups and data fields.

Note: To see a list of all currently defined dashboards, you can enter the question mark (?) character in the Dashboard name field and press **Enter**. The Dashboard Member List panel displays.

3. Backspace over the default dashboard name and type in your custom dashboard name. Press **Enter**.

The Confirm Dashboard Creation panel displays with the new dashboard name. For example:

```

GJEPDBV Confirm Dashboard Creation
COMMAND ===>

Dashboard name. . : MonitorA
Description . . . Monitoring A data
Share status. . . S Share (S), Exclusive (E)

Create dashboard. . Y Yes (Y),N (No)

```

Figure 109. Confirm Dashboard Creation panel (GJEPDBV)

You can change the dashboard name, the dashboard description, and the share status prior to confirming.

Type a description of this dashboard for your own purposes.

The share status choices are:

Share

Any user can use the dashboard, and modify it (through cut and paste in Dashboard Preview)

Exclusive

Only the creator of the dashboard can use it or modify it.

A z/OS system-wide enqueue is performed on the dashboard. This action prevents a dashboard with Exclusive status from being configured, modified, or viewed by anyone other than the creator of the dashboard.

z/OS enqueue/dequeue facilities are used to ensure that a dashboard is not updated while it is being used by another IMS Sysplex Manager client. The enqueue occurs when the dashboard management function is invoked or when the dashboard is displayed under option 3 of the Dashboard Management panel (GJEPDSH).

If the dashboard is not available (because it is being managed by another client), the Dashboard option cannot be invoked. Each time the enqueue fails, an error message is displayed. The long form of the error message displays the client that is holding the dashboard in exclusive mode.

The dequeue for a dashboard occurs when the dashboard is no longer needed by the dashboard management function. When the dashboard is displayed in preview mode or when the dashboard is selected from panel GJEPDSH, the first page of the dashboard is displayed.

4. Press **Enter** to create the new dashboard.

The Configure Dashboards panel displays again with the new dashboard name.

When you create a new dashboard, all available elements and fields are initially selected to appear on the dashboard. The greater-than character (>) indicates that the element or field has been selected to appear on the dashboard view.

CMD	Element / Field	Field data
-- >	MSGQ % in use-----	
-- >	P-Entry. :	999
-- >	P-Element:	999

Figure 110. Configure Dashboards panel (GJEPDBC) - selected fields

Type an x in the Cmd column of an element or field that you wish to eliminate from the dashboard view. The > character no longer appears.

CMD	Element / Field	Field data
-- >	MSGQ % in use-----	
--	P-Entry. :	999
-- >	P-Element:	999

Figure 111. Configure Dashboards panel (GJEPDBC) - eliminated field

- When x is specified on a header line, all fields under that element will be excluded from the dashboard view.
- The last row that indicates the end of all elements (***End of elements***) cannot be excluded.

When you later view the full dashboard, elements and fields that you eliminated during this configuration process will not appear.

Type an s in the Cmd column of the element or field that you wish to return to the dashboard view. The > character appears next to the element or field.

- When s is specified on a header line, all fields under that element will be included in the dashboard view.

You can create blank rows for better visual appearance and organization in the dashboard view:

- Type an i to insert a blank field at current location.
- Type a d to remove the blank field.

An element or a field line cannot be deleted.

5. When you have finished configuring the new dashboard, exit the Configure Dashboard panel by pressing **PF3**.

Results

Each dashboard is given a name. The elements and fields of each dashboard are stored in an associated ISPF table under its name in the data set *tlibhlq.IMSSM.SGJETLIB*.

tlibhlq is the high level qualifier for the ISPF table data set name. This high level qualifier is specified at client startup time. If this high level qualifier is not specified, the *smphlq* is used to build the ISP tables data set name.

The name of the dashboard that was last selected is saved in your ISPF profile and becomes the active dashboard when you start a new client session.

Previewing a dashboard

As part of the dashboard configuration process, you can periodically preview how the dashboard layout appears.

About this task

A preview only shows the dashboard element and field layout. No data is displayed in a preview.

Procedure

To preview a dashboard, complete the following steps:

1. Select option 10 on the IMS Sysplex Manager main menu to display the Dashboard Management panel.
2. Select option 1 (Configure dashboards) to configure a new dashboard or edit an existing dashboard.

The Configure Dashboards panel is displayed.

3. Select **Preview dashboard** from the **Options** menu to create a preview of the dashboard from the current table.

The Dashboard Preview panel (GJEPDBP) displays. Elements that have been selected become part of the dashboard.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPDBP                                Dashboard Preview
COMMAND ==>                               Page: * (1 of 1)
Enter 'C' to cut, 'P' to paste.  Dashboard name. : MonitorA
- MSGQ % in use----- - Aggr. local OM request- - EMHQ % in use-----
  O-Entry. :          999   Reg commands .: 99,999   P-Entry. :          999
  O-Element:          999   Notify rdy . .: 99,999   P-Element:          999
- Msg queue depths (SMQ)-   Notify not rdy: 99,999   O-Entry. :          999
  COLDQ . . .: 9,999,999   Dereg normal .: 99,999   O-Element:          999
  TRAN RDY Q.: 9,999,999   Dereg abnormal: 99,999   - CQS system resources---
  TRAN SPD Q.: 9,999,999   Commands . . .: 99,999   Sys.chkp: 99,999,999
  TRAN SER Q.: 9,999,999   Queries. . . .: 99,999   Str.chkp: 99,999,999
  LTRM RDY Q.: 9,999,999   AO commands. .: 99,999   - Msg queue depths(Local-
  APPC RDY Q.: 9,999,999   ZQRY requests.: 99,999   TRANSACT: 99,999,999
  RMTE RDY Q.: 9,999,999   ZSHUT requests: 99,999   LTERM. .: 99,999,999
  OTMA RDY Q.: 9,999,999   QRY IMSplx cmd: 99,999   MSNAME .: 99,999,999
  PRGMRDYQ-FP: 9,999,999   Reg. clients .: 99,999   LU6.2. .: 99,999,999
- Aggr. local RM request-   Cmd timeouts .: 99,999   OTMA . .: 99,999,999
  Update. . . .: 999,999   Undel.output .: 99,999   _ DB processing stats---

```

Figure 112. The Dashboard Preview panel (GJEPDBP)

The dashboard name cannot be changed in the Dashboard Preview.

4. You can cut and paste element groups to better arrange and organize the dashboard display.

- Each element header has an input field.
- You can use this field to cut and paste the element groups to different positions on the dashboard.
- Cut an element group by typing the c command in the element's input field.
- When an element group is cut from the dashboard, all elements that follow the cut element are moved one element position to the left/top. Ordering is maintained left-to-right, top-to-bottom.
- A cut element is placed on the clipboard.
- You can cut any number of elements. Each cut element is placed on the clipboard in a *last in, first out* pattern. When you enter the p character to paste an element, the last element on the clipboard is

- selected for paste. After the paste operation is completed, the pasted element is removed from the clipboard.
5. Type a p command in the input field of a visible element to paste the previously cut element group into that position on the dashboard.
 - All elements to its right are moved one element position to the right/bottom.
 - Order is maintained left-to-right, top-to-bottom.
 6. Press **PF3** to redisplay the Configure Dashboards panel to continue the configuration process.

The character C preceding the element/field indicates that the element group is on the clipboard and can be used for a paste operation.

For example:

CMD	Element / Field	Field data
C	MSGQ % in use-----	
C	P-Entry. :	999
C	P-Element:	999
C	O-Entry. :	999
C	O-Element:	999
>	Aggr. local OM request	
>	Reg commands .:	99,999
>	Notify rdy .:	99,999
>	Notify not rdy:	99,999
>	Dereg normal .:	99,999

Figure 113. The Configure Dashboards panel - cut element group indicator

Viewing the list of configured dashboards

You can create multiple dashboards. Each dashboard has a unique name and can have a unique selection of elements and fields that are displayed.

Procedure

To view the list of available dashboards, complete the following steps:

1. Select option 10 on the IMS Sysplex Manager main menu to display the Dashboard Management panel.

You can view the available list of dashboards from several of the dashboard management panels.

- Option 1 - Configure Dashboards (GJEPDBC)

Dashboard name field

- Option 3 - View Dashboard (GJEPDBD)

Dashboard field

- Option 4 - View Dashboard-threshold fields only (GJEPDBD)

Dashboard field

2. Type a question mark (?) in any of the fields listed in Step 1 and press **Enter**.

The Dashboard Member List panel displays.

For example:

```

Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPDBX                      Dashboard Member List                      Row 1 to 4 of 4
COMMAND ==>                   SCROLL ==> PAGE

IMSpIex. . . PLEX1
SM server. : UIS

Current dashboard name. : MonitorA
Enter 's' to select a dashboard
      'd' to delete a dashboard

CMD Dashboard name   Description           Owner-ID Changed  St. Tablename Rel.
  MonitorB          MONITORING B DATA      USRT005 02/04/21  S  D1123348  1.3.0
  IMSSM dashboard                                IMSSMDEF  1.3.0
  MonitorA          MONITORING A DATA      USRT001 02/04/21  S  D1355252  1.3.0
***** Bottom of data *****

```

Figure 114. Dashboard Member List panel (GJEPDBX)

You can issue the following line commands on this panel:

s

Selects the dashboard and makes it the current dashboard for processing.

Entering multiple s line commands causes the first row that is displayed to be used as the current dashboard. All other rows with the S line command are ignored.

d

Deletes the dashboard.

You can specify multiple d line commands. However, you cannot delete the currently selected dashboard.

You also cannot delete the IMS Sysplex Manager default dashboard, which is identified by the table name of IMSSMDEF.

Before any dashboard is deleted from the system, a delete confirmation panel is displayed.

```

GJEPDBW   Confirm Dashboard Delete
COMMAND ==> -----

Dashboard name. : MonitorA
Description . . : MONITORING A DATA
Share status. . : S

_ Set dashboard delete confirmation off

Press ENTER to confirm delete.
Press PF3 (END) to cancel delete.

```

Figure 115. Confirm Dashboard Delete panel (GJEPDBW)

If you enter non-blank data in the field, the delete confirmation is set to off. This off position remains in effect until you exit the dashboard management feature. To delete a table, you must be the owner of the dashboard.

- From the Dashboard Member List panel, you can also optionally edit the appropriate fields to modify the following items for a dashboard:

- The dashboard description
- The share status of the dashboard

The share status has the value S (share) or E (exclusive), and can be changed only if you are the owner of the dashboard.

Defining monitoring periods

The dashboard management feature allows you to define specific monitoring periods. You can assign threshold ranges to the values of individual data fields. These threshold ranges are always assigned to specific monitoring periods.

About this task

You can specify a lower and an upper threshold value for any field.

All defined monitoring periods and threshold values apply to all defined dashboards.

When you view any dashboard, the dashboard display will reveal any deviations from defined threshold ranges. Dashboard data is received from the server. The server periodically collects data. The date and time of the collected data is evaluated against the defined threshold ranges and configured monitoring periods.

If thresholds are exceeded, an exception is recorded in the history database, and the field is marked for special dashboard display:

- If the data that is received for a field is greater than the upper threshold value of that field, the data value on the dashboard is displayed in red color.
- If the data that is received for a field is between the lower and upper threshold values, the data value on the dashboard is displayed in yellow color.

The following guidelines and conditions apply when you define a monitoring period:

- Each defined monitoring period has a name.
- Each monitoring period is set to be active or inactive.

Threshold evaluation occurs only if a period is active.

- The monitoring period is specified using the combination of day and hour settings.

Day values are: Sunday (1), Monday (2), Tuesday (3), Wednesday (4), Thursday (5), Friday (6), Saturday (7)

AM hours are: midnight-1 (00), 1-2 (01), 2-3 (02), 3-4 (03), 4-5 (04), 5-6 (05), 6-7 (06), 7-8 (07), 8-9 (08), 9-10 (09), 10-11 (10), 11-noon (11)

PM hours are: noon-1 (12), 1-2 (01), 2-3 (02), 3-4 (03), 4-5 (04), 5-6 (05), 6-7 (06), 7-8 (07), 8-9 (08), 9-10 (09), 10-11 (10), 11-midnight (11)

For example, if days 1 and 7 (Sunday and Saturday) and hours 0, 1, 2 (AM) and 1, 2, 3 (PM) are entered, then threshold evaluation for this period will be done on every Saturday and Sunday from midnight through 2:59:59 AM and from 1 PM through 3:59:59 PM.

- Each defined period appears as a row in the Define Monitoring Periods panel (GJEPTPD).
- You create a new period by entering a period name, a day entry, and a time entry.

Once a period has been defined and appears in the panel, the following line commands apply:

- e to edit a period
- d to delete a period (after a confirmation panel is displayed)
- s to display the Define Threshold Values panel (GJEPTPC) where you can define threshold values

Procedure

To define monitoring periods for dashboard functionality, complete the following steps:

1. Select option 10 on the IMS Sysplex Manager main menu to display the Dashboard Management panel.
2. Select option 2 (Define monitoring periods and threshold values) to define a new monitoring period or edit an existing monitoring period.

The Define Monitoring Periods panel is displayed.

For example:

```
GJEPTPD                      Define Monitoring Periods                      Row 1 to 3 of 3
COMMAND ===>                  SCROLL ===> PAGE

Enter period data to add/edit a period.

Name. . . . .
Active. . . . Y                (Y = yes, N = no)
Days. . . . .                (1 to 7 (1=Sun, 2= Mon,...))
Hours (AM). . .                (0 to 11)
Hours (PM). . .                (12,1 to 11)

Enter 's' to define thresholds for a period, or 'd' to delete a period,
'e' to edit a period

Cmd  Name      Active Days      Hours
MORNING  Y      - 2 3 4 5 6 - AM: -- -- -- -- -- 06 07 08 09 10 11
                                           PM: -- -- -- -- -- -- -- -- -- --
AFTERNOO Y      - 2 3 4 5 6 - AM: -- -- -- -- -- -- -- -- -- --
                                           PM: 12 01 02 03 04 05 06 -- -- -- --
24-7     Y      1 2 3 4 5 6 7 AM: 00 01 02 03 04 05 06 07 08 09 10 11
                                           PM: 12 01 02 03 04 05 06 07 08 09 10 11
***** Bottom of data *****
```

Figure 116. Define Monitoring Periods panel (GJEPTPD)

Note the 24–7 monitoring period example that is configured for all days and all hours.

3. Enter a name for a new period, plus at least one value for the Day field and the Hours field. Press **Enter**.

You can now use the appropriate line commands to further edit the monitoring period definition or delete the monitoring period.

If you delete a monitoring period, a delete confirmation panel displays.

For example:

```
GJEPPRW                      Confirm Period Delete
COMMAND ===> _____

Period name . . . : TEST

_ Set group delete confirmation off

Press ENTER to confirm delete.
Press PF3 (END) to cancel delete.
```

Figure 117. Confirm Period Delete panel (GJEPPRW)

4. Continue to [“Defining threshold values” on page 163](#) to define the threshold ranges for a monitoring period.

Defining threshold values

The dashboard management feature allows you to define specific monitoring periods and to specify threshold ranges for the values of individual data fields. The threshold ranges are valid only during the defined monitoring periods.

About this task

A monitoring period's threshold ranges are evaluated against the data collected only if the collection date and time falls within the monitoring period.

You can specify a lower and an upper threshold value for any element and field.

When you view any dashboard during a configured monitoring period, the dashboard display evaluates the current data against the defined threshold ranges and will reveal any deviations from these threshold ranges:

- The Define Threshold Values panel (GJEPTPC) has all the elements and fields that can appear on the dashboard.

- ## Procedure

1. Select option 10 on the IMS Sysplex Manager main menu to display the Dashboard Management panel.
2. Select option 2 (Define monitoring periods and threshold values) to define a new monitoring period or edit an existing monitoring period.

3. Type the `s` line command in the Cmd column of a monitoring period and press **Enter**.

```
Menu View Options Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss Realtime snapshot
GJEPTPC Define Threshold Values Row 1 to 29 of 92
COMMAND ==> SCROLL ==> PAGE

IMSpdex. . : PLEX1
SM server. : UIS

Threshold dataset. . : 'IMSTOOL.IMSSM.THRPARMS'
Period name. . . . : MORNING

Element / Field          Field data      Low threshold    High threshold
MSGQ % in use-----
P-Entry. :                999           10              60
P-Element:                999
O-Entry. :                999
O-Element:                999
Aggr. local OM request
Reg commands . :         99,999
```

4. Enter appropriate high and low threshold values for any or all data fields.

5. Save the threshold values by pressing **Enter**.

- ## What to do next

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Viewing dashboards

The IMS Sysplex Manager dashboard management feature allows you to view snapshots of current data for key critical areas in the sysplex environment.

About this task

When you view the dashboard during a configured monitoring period, the dashboard display evaluates the current data against the defined threshold ranges and will reveal any deviations from these threshold ranges:

- If the data that is received for a field is greater than the upper threshold value of that field, the data value on the dashboard is displayed in red color.
- If the data that is received for a field is between the lower and upper threshold values, the data value on the dashboard is displayed in yellow color.

The dashboard management feature provides two types of dashboard views:

- A display of all configured elements and fields for that dashboard
- A display of only the fields affected by the threshold definitions and that deviate from the defined threshold ranges

Procedure

To display dashboard views, complete the following steps:

1. Select option 10 on the IMS Sysplex Manager main menu to display the Dashboard Management panel.
2. Select option 3 (View Dashboard) to view a full dashboard display.

The View Dashboard panel is displayed.

For example:

```
Menu View Options Help
=====
GJEPDBD                      View Dashboard
COMMAND ===>
Page: * (1 of 1)
IMSpIex. : PLEX1 Dashboard. : MonitorA      Date: 02/11/21 Time: 14:57:59
- MSGQ % in use----- - Aggr. local OM request- EMHQ % in use-----
  P-Entry. : <1      Reg commands. : 40      P-Entry. : 1
  P-Element: <1      Notify rdy. : 14      P-Element: 1
  O-Entry. : 0        Notify not rdy: 0      O-Entry. : 0
  O-Element: 0        Dereg normal. : 0      O-Element: 0
- Msg queue depths (SMQ)- Dereg abnormal: 0      CQS system resources--
  COLDQ. . . : 0      Commands. . . : 0      Sys.chkp: 7
  TRAN RDY Q.: 72     Queries. . . : 0      Str.chkp: 0
  TRAN SPD Q.: 0      AO commands. : 8      - Msg queue depths(Local-
  TRAN SER Q.: 0      ZQRY requests.: 13,224  TRANSACT: 0
  LTRM RDY Q.: 0      ZSHUT requests: 0      LTERM. : 0
  APPC RDY Q.: 0      QRY IMSplx cmd: 0      MSNAME. : 0
  RMTE RDY Q.: 0      Reg. clients. : 10      LU6.2. : 0
  OTMA RDY Q.: 0      Cmd timeouts. : 0      OTMA. : 0
  PRGMRDYQ-FP: 0      Undel.output. : 0      - Aggr. local RM request-
```

Figure 119. View Dashboard (GJEPDBD)

To change the view to another dashboard, type the question mark (?) character in the Dashboard field and press **Enter**.

The Dashboard Member List panel displays.

Type the s line command to select another dashboard and press **Enter**.

The View Dashboard panel displays with the newly selected dashboard.

You can also change the view to another dashboard by overwriting the current dashboard name with the new dashboard name.

Chapter 21. IRLM data sharing long lock detection

An internal resource lock manager (IRLM) is a subsystem in a z/OS environment that provides lock management, and is used by multiple IMS systems to share data. IMS Sysplex Manager provides automatic IRLM data sharing long lock detection in real-time.

When the DEADLOCK timer expires, all IRLMs in a data sharing group gather waiter/blocker information from their IRLM/IMS pair. That information is used to determine if there is a valid TIMEOUT candidate.

If one is found, the waiter/blocker information is presented to the IMS TIMEOUT exit, which builds and writes an SMF 79 subtype 15. IMS Sysplex Manager gathers all SMF 79 subtype 15 records across the sysplex for each long lock cycle, analyzes and identifies the top blocker and waiters, and formats the data in a readable report.

IMS Sysplex Manager then performs the following tasks:

- Issues the formatted SMF 79.15 data to the z/OS console (where the IMS Sysplex Manager server is running) via write to operator (WTO).

The WTO messages can be turned off by coding the parameter UXITPARM=NOWTO in the IMS Sysplex Manager server configuration member.

- Records the same WTO messages to IMS Sysplex Manager history database
- Notifies interested IMS Sysplex Manager Time-Sharing Option (TSO) users about the exception

In addition, IMS Sysplex Manager provides a user exit interface that allows you to customize the way IMS Sysplex Manager handles exceptions processing.

For example, you can code a user exit to instruct IMS Sysplex Manager to not log exception messages to the history database and not send notification to TSO users.

You can also build your own Automated Operator Interface (AOI) applications to respond automatically to the IMS Sysplex Manager long lock WTO message (message GJE0360I) (for example, canceling the top blocker to allow the work that waits behind it to continue).

Example of Long Lock Exception write to operator (WTO) messages:

```

GJE0360I IRLM DEADLOCK CYCLE NUMBER:000001A8
GJE0361I LOCKNAME = 09041071C5800101D700000000000000 STRUCTURE = LT01
GJE0361I Top Blocker-Message to IMS2
GJE0361I PSTNumber=0004 PSBName=PLVAPZ12 IMSID=IMS1
GJE0361I Type=BMP Batch/Trans Name=BMP3 CICS Task=
GJE0361I TranElapsedTime=00:26:09
GJE0361I RecoveryToken=IMS1 40404040000002E5
GJE0361I Waiter -Message to IMS2
GJE0361I PSTNumber=0004 PSBName=PMVAPZ22 IMSID=IMS2
GJE0361I Type=MPP Batch/Trans Name=NQF2 CICS Task=
GJE0361I TranElapsedTime=00:25:49
GJE0361I RecoveryToken=IMS2 4040404000000004
GJE0361I Waiter -Message to IMS2
GJE0361I PSTNumber=0002 PSBName=PLVAPZ22 IMSID=IMS2
GJE0361I Type=BMP Batch/Trans Name=BMP2 CICS Task=
GJE0361I TranElapsedTime=00:26:07
GJE0361I RecoveryToken=IMS2 4040404000000002
GJE0361I LOCKNAME = 09000006C8800201D700000000000000 STRUCTURE = LT01
GJE0361I Top Blocker-Message to IMS2
GJE0361I PSTNumber=0003 PSBName=PLVAPZ02 IMSID=IMS1
GJE0361I Type=BMP Batch/Trans Name=BMP1 CICS Task=
GJE0361I TranElapsedTime=00:26:13
GJE0361I RecoveryToken=IMS1 40404040000002E4
GJE0361I Waiter -Message to IMS2
GJE0361I PSTNumber=0003 PSBName=PMVAPZ12 IMSID=IMS2
GJE0361I Type=MPP Batch/Trans Name=NQF1 CICS Task=
GJE0361I TranElapsedTime=00:25:58
GJE0361I RecoveryToken=IMS2 4040404000000003
GJE0361I LOCKNAME = 090000040C800501D700000000000000 STRUCTURE = LT01
GJE0361I Top Blocker-Message to IMS1
GJE0361I PSTNumber=0001 PSBName=HPC$BA00 IMSID=IMS2
GJE0361I Type=BMP Batch/Trans Name=BMP21 CICS Task=
GJE0361I TranElapsedTime=00:26:29
GJE0361I RecoveryToken=IMS2 4040404000000001
GJE0361I Waiter -Message to IMS1
GJE0361I PSTNumber=0002 PSBName=SMQPSB6 IMSID=IMS1
GJE0361I Type=MPP Batch/Trans Name=SMQ6 CICS Task=
GJE0361I TranElapsedTime=00:26:31
GJE0361I RecoveryToken=IMS1 40404040000002E3

```

Field descriptions for WTO messages:

Cycle

Cycle is the deadlock cycle number generated by IRLM and passed to IMS Sysplex Manager.

This number allows unique identification when the data is gathered.

Lock Name

Lock Name is the unique identifier used by IMS to obtain a lock on a resource.

This name varies between 9-11 characters and contains the DMB#/DCB#/RBA of the resource (data) for which you are requesting a lock.

Structure

Structure is the name of the coupling facility (CF) lock structure being used.

Top Blocker/Waiter

Top Blocker/Waiter is used to differentiate between holders or blockers (B), and waiters (W). A holder/blocker is a transaction that holds a lock at the time the exit is driven. A waiter is a transaction waiting for a lock. It is possible for a transaction to be both a holder and a waiter.

Type

Type refers to the type of IMS region processing the transaction. Valid regions are DBCTL(DB control), BMP(batch message processing), IFP(fast path), MPP(message processing region), BATCH, and CICS®.

IMS_ID

IMS_ID identifies the IMS subsystem where the blocker or waiter is running on.

PST_number

As the IMS region is initially brought up, a number of Partition Specification Tables (PST) are initialized. Each PST is assigned a unique ID (or PST number).

The PST block is the primary block used to dispatch transactions in IMS, and the PST number is used to uniquely identify each transaction.

PSB_name

The PSB_name is the name given to a Program Specification Block (PSB) at PSBGEN time. This block is used to define which segments a particular application can have access to.

CICS TaskID

The CICS TaskID is an 8-digit ID generated by CICS and passed to IMS at the time a CICS application is scheduled.

Recovery Token

The Recovery Token is a 16-byte token used to uniquely identify a unit of work. The token contains the IMS ID, the OASN (a 4-byte origin application sequence number assigned at schedule time), and a commit number (a 4-byte field initialized to zeros and incremented each time the application goes through commit processing).

TranElapsedTime

TranElapsedTime is the elapsed time between the time the PST was scheduled (taken from PSTSPTIM) and the time the 79.15 record was created for this entry.

Chapter 22. IMS Sysplex Manager journaling

Commands, command output, and asynchronous IMS system messages are logged in IMS Sysplex Manager history data sets. You can use the IMS Sysplex Manager ISPF dialog to view data in the active history data set. Optionally, full history data sets can be automatically archived for future review.

Most type-1 IMS commands and command output are logged across the sysplex regardless of their origin (for example, z/OS console, MTO terminal, ICMD interface commands, CMD interface commands, and OTMA connections). Type-1 or type-2 commands that are processed by Operations Manager (OM) are also logged if you configured the IMS Sysplex Manager OM user exits.

The audit records contain information about the origin, the user ID, and the Lterm from which the command was issued, followed by the responses to the command, if any.

Asynchronous IMS system messages are logged as they are destined for the MTO terminal. Users can also suppress certain MTO messages from being recorded into the audit log.

The following type-1 commands are not logged:

```
/FORMAT  
/LOOPTEST  
/MSVERIFY  
/RELEASE  
/NRESTART  
/ERESTART
```

To preserve the content of the IMS Sysplex Manager history file, an automatic archive process is provided. Use of this archive facility is optional.

Each time the IMS Sysplex Manager history logger switches history files, it optionally initiates an archive jobstream to offload the contents of the previously used history file. This option is activated by using a keyword specification to the IMS Sysplex Manager server that designates a PROCLIB member that contains the skeletal archive JCL (ACHIVEJCL=*membername*).

When a history file becomes full, the IMS Sysplex Manager history logger switches history files. At this time, it optionally initiates an archive jobstream to offload the contents of the previously used and now full history file to a sequential archive file.

Skeletal archive JCL must be placed in the PROCLIB library in the Sysplex Manager server procedure JCL. The following sample JCL, used to execute the archive, is supplied in the IMS.IMSSM.SAMPLIB(GJEARJCL) and is listed here for convenience:

```
//ARCJOB JOB (userid),'userid',  
// CLASS=H,MSGCLASS=H,MSGLEVEL=(1,1)  
//ARCHIVE EXEC PGM=GJEUV2S,PARM='parmvalue'  
//STEPLIB DD DSN=imssmhlq.SGJELoad,DISP=SHR  
//SYSUDUMP DD SYSOUT=*  
//DIRECTRY DD DSN=directory.dataset,DISP=SHR  
//VSAMIN DD DISP=SHR,  
// DSN=&DSN  
//ARCOU DD DISP=(NEW,CATLG,DELETE),  
// UNIT=SYSDA,SPACE=(CYL,(xxx)),VOL=SER=volser,  
// DCB=(DSORG=PS,RECFM=VB,LRECL=255),  
// DSN=prefix.suffix or generation dataset  
//
```

Before submitting this JCL stream to the internal reader, IMS Sysplex Manager performs some basic edits on the user-customized JCL before execution. Edits to be performed include:

- Input history file specification, such as DSN
- Output archive file specification, such as DSN

You can also use of GDG output. In this case, the output DD statement might not require editing. Alternatively, you can use a non-GDG name prefix and suffix, and the time and date of the archive generation is substituted into the DSN.

For example:

```
IMSSM.Y2021.M0503.T022013.ARCHIVE
```

The archive utility reads all the records from the history VSAM data set and writes the formatted output to the sequential archive file.

You might want to generate archived exceptions and log data in different time. To support this flexibility, the users can use PARM to specify the version of desired timestamp. PARM includes the following valid values:

- LOCAL = LOCAL timestamp
- GMT = GMT timestamp
- UTC = UTC timestamp
- +HHMM = GMT time plus hour and minute adjustment
- HHMM = GMT time minus hour and minute adjustment
- IMS+nnn = IMS time plus multiple of 15 minutes
- IMS-nnn = IMS time minus multiple of 15 minutes

To assist in locating archived audit data, the archive utility maintains an archive directory. The archive directory contains an entry for each archived history data set. You can use an ISPF browse to view a list of the archive data sets. Each entry identifies the data and time window that is contained on the archive data set.

The archive directory is a wrap-around sequential data set. After all directory entries have been used, the oldest entries are reused from the beginning.

The directory data set also contains a header record that facilitates efficient access to the archive entries. The header record includes the following content:

- A record type code - 1 byte
- 4 byte record sequence number
- 4 byte IMS Sysplex Manager version that formatted directory initially
- 4 byte binary total number of directory entries
- 4 byte binary most recently used directory entry sequence number
- Newest directory entry stop date - 8 bytes of format mm/dd/yy
- Newest directory entry stop time - 8 bytes of format hh:mm:ss

The directory entries includes the following content:

- A 1 byte code that indicates the status of the entry
- A - indicates an available entry
- U - indicates a used entry
- * - entry not available for use

You can mark any entry (except header) to remove the entry from the selection cycle and preserve the content.

- 4 byte record sequence number
- Archive data start date - 8 bytes of format mm/dd/yy
- Archive data start time - 8 bytes of format hh:mm:ss
- Archive data stop date - 8 bytes of format mm/dd/yy
- Archive data stop time - 8 bytes of format hh:mm:ss
- JES job number of archive jobstream - 8 bytes

- Archive job run date - 8 bytes of format mm/dd/yy
- Archive job run time - 8 bytes of format hh:mm:ss
- Archive data set name - 44 bytes
- Archive data set volumes - 3 slots of 6 bytes each for archive volume serial numbers
- IMS Sysplex Manager history DB version - 8 bytes
- Number of exception records on archive (character format of 999999999)
- Size in megabytes of archive file size (character format of 9999999)
- Size in megabytes of the history file which was the input for this archive (character format of 9999999)

The following sample JCL, used to execute GJEAINIT, is supplied in the IMS.IMSSM.SAMPLIB(GJEDIRIN) member and listed here for convenience:

```
//DIRINIT JOB (&SYSUID),'&SYSUID',
// CLASS=A,MSGCLASS=H,MSGLEVEL=(1,1),
// REGION=1M,NOTIFY=&SYSUID,USER=&SYSUID
//*****
//* This jobstream initializes the IMS SM archive directory. *
//* The directory file should be allocated with a blocksize which is *
//* a multiple of the logical record length of 160 bytes. *
//* *
//* Note that things you have to change are in lower-case letter *
//* *
//* *
//* imssmhlq - high level qualifier for IMS SM installation library *
//* *
//* directory dataset - name of directory dataset allocated by the *
//* *
//*****
//RUN EXEC PGM=GJEAINIT
//STEPLIB DD DSN=imssmhlq.SGJELOAD,DISP=SHR
//SYSUDUMP DD SYSOUT=*
//DIRECTRY DD DSN=directory.dataset,DISP=(,CATLG),SPACE=((CYL,1)),
// DCB=(DSORG=PS,BLKSIZE=16000,BUFNO=10)
```

GJEAINIT should complete with condition code 0. Otherwise, the job should be checked for accompanying messages that indicate the nature of any error.

Chapter 23. Shared queue buffer overflow protection overview

IMS Sysplex Manager can protect against buffer overflows by failing insert calls when specified thresholds are reached.

IMS Sysplex Manager can monitor and generate messages about local buffer usage. IMS Sysplex Manager uses the DFSQSSP0 exit, which is provided by IMS, to provide a queue space notification (QSN) exit routine for shared queue users to monitor local buffer space usage.

When IMS is initialized, IMS starts the QSN exit, but the exit is activated only when a connection to IMS Sysplex Manager has been established. The QSN exit is called when local buffers are allocated and freed.

The QSN exit for IMS Sysplex Manager is GJEQSSP0, and it must be configured to run under the Generic QSN exit. The configuration for the QSN exit is described in the *IMS Tools Base for z/OS IMS Tools Common Services User's Guide and Reference*.

To provide usage information and to protect IMS shared queues from buffer overflows, IMS Sysplex Manager can generate messages to help identify large buffer users and prevent those users from completing transactions when your defined buffer usage levels are exceeded. IMS Sysplex Manager prevents transactions by failing transactions with different codes that depend on the source of the overflow:

- If the buffer usage is from an application, the transaction fails, and an A7 status code is issued.
- If the buffer usage is from an LU 6.2 conversation, the transaction fails, and message DFS0777I is issued.
- If the buffer usage is from OTMA, the transaction fails, and message DFS1289I is issued.

Important: IMS Sysplex Manager does not affect IMS dynamic buffer expansions and compressions.

Configuring the run mode and thresholds

You can control when messages are generated and when transactions fail by configuring the QSN exit runtime parameters in the IMS Sysplex Manager control region parameters. By configuring the control region parameters, you can specify the run mode and the thresholds for each protection level.

Run modes

For buffer overflow protection, the QSN exit has three run modes that you can select by defining the QSN exit LBUFMODE runtime parameter. You can set LBUFMODE to INACTIVE, REPORT, or ENFORCE. The QSN exit operates in the specified run mode for the entire IMS run.

- In INACTIVE mode, the QSN exit returns with no action.
- In REPORT mode, the QSN exit collects usage information but does not enforce buffer overflow protection. Because the QBUFMAX parameter does not have to be set when you run the REPORT mode, you can use the REPORT mode to understand the buffer usage in your environment without setting the QBUFMAX parameter. The QSN exit collects and outputs usage information to the MVS console and to the IMS master terminal.
- In ENFORCE mode, the QSN exit collects usage information and enforces local buffer limits by failing user transactions when specified thresholds are reached. ENFORCE mode protects IMS from running out of local buffers. You must set the value of the QBUFMAX parameter to a number greater than 0 to prevent the QSN exit from reverting to INACTIVE mode.

Protection levels

When the QSN exit is in ENFORCE mode, the IMS local buffer pool can be in one of three protection levels: WARNING, ACTION, or CRITICAL. The buffer pool must exceed or fall below thresholds that you specify to enter or exit a protection level. You define each protection level by using the IMS Sysplex Manager control region parameters.

When buffer usage enters the WARNING level, the exit periodically reports buffer usage information but does not take any actions. Define the QSN exit LBUFWARN runtime parameter to define the WARNING-level thresholds.

When buffer usage enters the ACTION level, the exit periodically reports buffer usage information and fails allocate buffer calls for large buffer users. Define the QSN exit runtime parameters LBUFACTN and LBUFLBUA to define the ACTION-level thresholds and to define large buffer users at the ACTION level.

When buffer usage enters the CRITICAL level, the exit frequently reports buffer usage information and fails allocate buffer calls for large buffer users. Define the QSN exit runtime parameters LBUFCRIT and LBUFLBUC to define the CRITICAL-level thresholds and to define large buffer users at the CRITICAL level.

QBUFMAX parameter

The QBUFMAX parameter is an IMS parameter, which specifies the maximum number of queue buffers that can be allocated. The QBUFMAX parameter can be set to a minimum of 200 and to a maximum of 9999.

Examples of monitoring and controlling buffer usage

Examples for setting up the QSN exit can help you understand how to use the capabilities that are provided by the QSN exit to monitor and control buffer usage.

Monitoring absolute buffer usage

The following example sets the QSN exit to REPORT mode with a reporting frequency of 900 seconds (15 minutes). Reporting starts after 200 buffers are used, and if buffer usage jumps by 100 buffers at any time, a message is immediately generated.

```
LBUFMODE=REPORT,  
LBUFREPT=(200,0,100,900),
```

Use the REPORT mode when you do not want to enforce any buffer overflow protection. In REPORT mode, the QSN exit monitors and generates buffer usage information.

Absolute buffer usage requires that the QBUFMAX parameter is not set or is set to 0. Because the QBUFMAX parameter is not set or is set to 0, any specified *buffer_percent_increase* is ignored.

Use absolute monitoring when you do not know what value to set the QBUFMAX parameter to.

Monitoring relative buffer usage

The following example sets the QSN exit to REPORT mode with a reporting frequency of 600 seconds (10 minutes). Reporting starts after buffer usage reaches 20% of the QBUFMAX parameter value, and if buffer usage jumps by 5% at any time, a message is immediately generated.

```
LBUFMODE=REPORT,  
LBUFREPT=(20,5,0,600),
```

Use the REPORT mode when you do not want to enforce any buffer overflow protection. In REPORT mode, the QSN exit only monitors and generates buffer usage information.

Relative buffer usage requires that the QBUFMAX parameter is set to a value greater than 0. Because the QBUFMAX parameter is set to a value greater than 0, any specified *buffer_number_increase* is ignored.

Use relative monitoring when you know what value to set the QBUFMAX parameter to.

Protecting IMS from buffer overflows

The following example sets the QSN exit to ENFORCE mode and sets the following conditions for the three protection levels:

- WARNING level:
 - Enter the WARNING level at 10% buffer usage
 - Report buffer usage every 900 seconds (15 minutes)
 - Report any buffer usage that increases by 5%
- ACTION level:
 - Enter the ACTION level at 60% buffer usage
 - Report buffer usage every 600 seconds (10 minutes)
 - Report when buffer usage increases 3%
 - Prevent any transactions that involve users that hold more than 10 buffers
- CRITICAL level:
 - Enter the CRITICAL level at 80% buffer usage
 - Report buffer usage every 300 seconds (5 minutes)
 - Report when buffer usage increases 1%
 - Prevent any transactions that involve users that hold more than 2 buffers

```
LBUFMODE=ENFORCE,  
LBUFREPT=(20,5,0,600),  
LBUFWARN=(10,15,0,900),  
LBUFACTN=(60,3,0,600),  
LBUFCRIT=(80,1,0,300),  
LBUFLBUA=10,  
LBUFLBUC=2,
```

If you are familiar with the buffer usage levels for your environment, use the ENFORCE mode to enforce buffer overflow protection that can protect IMS from running out of local buffers. You must set a value for the QBUFMAX parameter to enable buffer overflow protection.

Important: When LBUFMODE=ENFORCE, the LBUFREPT parameter is ignored.

Chapter 24. Using the system exceptions and audit log

System exceptions and audits are logged to a history database by the IMS Sysplex Manager server.

IMS Sysplex Manager provides both IMS Automated Operator Interface (AOI) type-1 (DFSAOUE0) and type-2 (DFSABOE00) exits to provide audit log functionality.

Note: If you have other DFSAOUE0 and DFSABOE00 exits, the library containing them must be concatenated in front of the IMS Sysplex Manager load library SGJELOAD in the IMS //STEPLIB. This configuration is required so that IMS Sysplex Manager can detect which other AOI exits are active in the IMS environment and drive them properly. If you modify your DFSAOUE0 and DFSABOE00 exits, an IMS recycle is required to activate the change.

You can view the system exceptions and audit log, refresh the data at any time from the log panel, and issue IMS type-1 and type-2 commands directly from the log panel.

Topics:

- [“Viewing the system exceptions and audit log” on page 179](#)
- [“Issuing commands from the system exceptions and audit log” on page 181](#)

Viewing the system exceptions and audit log

System exceptions and audits are logged to a history database by the IMS Sysplex Manager server.

About this task

IMS Sysplex Manager logs the following events into history data sets:

- System exceptions
 - Long lock exceptions
 - CQS system exceptions
 - Application abends
 - CPI driven program terminated
 - Conversation program terminated
 - Buffer handler I/O error
 - EEQE created
- IMS commands and output
- MTO messages
- Audit log record of affinity updates

Procedure

To display the system exceptions and audit log, complete the following steps:

1. You can view the systems exceptions and audit log by selecting option 11 on the IMS Sysplex Manager main menu.

```

Menu View Options Help
#####
GJEPS00          System Exceptions/Log Data Selection Specification
Command ==>

IMSpdex. . : PLEX1
SM server. : UIS

Enter the criteria to view the system exceptions/Log data from history dataset:

System Exception Type for system exception view
Data type. . . . . (LLKX,CQSX,LOG,MTO,CMD,THR or *)

LOG, MTO, CMD filter. . . . . (IMSid, OMID or *)
CQS filter. . . . . (CQSid or *)
THR filter. . . . . (CRIT, WARN or *)

Start date and time of data
Start date . . . . . 02/25/21 (mm/dd/yy)
Start time . . . . . 00:00:00 (hh:mm:ss)

End date and time of data
End date . . . . . 02/25/21 (mm/dd/yy)
End time . . . . . 16:02:59 (hh:mm:ss)

```

Figure 121. The System Exceptions/Log Data Selection Specification panel (GJEPS00)

2. Enter one System Exception Type to select only the records of that type.

Enter * to view all exception records in the selected time period.

If the data type is LOG or MTO, you can enter an IMSid to further narrow the number of exception records.

If the data type is CMD, you can enter an IMSid or OMid to further narrow the number of exceptions records that are returned.

If you entered CQSX, you can enter the CQSid for further filtering.

If you entered THR, you can enter CRIT to get the critical threshold exceptions (upper threshold exceeded), or WARN to get the warning threshold exceptions (lower threshold exceeded but not upper). Enter an asterisk (*) to get both CRIT and WARN.

3. Enter a start date/time and end date/time.

The default value for **Start date** and **Start time** is the current date and 00:00:00.

The default **End date** and **End time** is the current date and time.

Note: When a search is for specific exceptions (for example, Data Type is not set to *), the search result might be inaccurate for infrequent exceptions. If you cannot find certain exceptions for a specific time range, try to search again with Data Type=*.

4. Press **Enter**.

The System Exceptions and Log Data panel (GJEPVIEW) is displayed.

The following example shows sample system exceptions and log data output:


```

GJEPVIEW          SYSTEM EXCEPTIONS AND LOG DATA          Columns 0000 00072
COMMAND ==>          SCROLL ==> PAGE
End of history/exception data for specified criteria
Route. . . : *
SMplex . . : PLEX1          Request : Start date time: 02/27/21    02:18:42
SM server. : UIS1          End   date time: 02/28/21    17:37:56
Filters. . :                Response: First record  : 02/27/21    12:01:16
Data Type. : *              Last record   : 02/27/21    12:18:42
***** ***** Top of Data *****
000001 SYS3 CMD 02/27/21 12:01:16 -----> COMMAND ISSUED FROM: OTHER 0
000002 SYS3 CMD 02/27/21 12:01:16 BY USERID: LTERM: W
000003 SYS3 CMD 02/27/21 12:01:16 /CHE FREEZE
000004 SYS3 CMD 02/27/21 12:01:16 DFS058I 12:01:16 CHECKPOINT COMMAND IN PR
000005 IMS1 MTO 02/27/21 12:08:35 DFS994I COLD START COMPLETED.
000006 IMS1 MTO 02/27/21 12:08:37 GJE2890I CQS INFORM SERVICE COMPLETED
000007 IMS1 CMD 02/27/21 12:08:45 -----> COMMAND ISSUED FROM: OTHER 0
000008 IMS1 CMD 02/27/21 12:08:45 BY USERID: LTERM: I
000009 IMS1 CMD 02/27/21 12:08:45 /STA DC

```

Figure 122. Example System Exceptions and Log Data output

Navigation controls:

- When a large number of exceptions is recorded in the history database and requested by the given date and time range, the response is dependent on the xxx number of lines set in the Settings panel (Main menu option 1).

The number of response rows displayed might exceed this number if this number has not been reached and there is more data to display.

- When there is more data for a selection period, a message displays. For example:

```
--> MORE DATA FOR: 02/27/21 02:18:42 - 02/28/21 17:37:56
```

- Press **n** or **N** or Enter to get xxx lines of next data.
- Press **p** or **P** to get xxx lines of previous data.
- Press **PF7** or **PF8** to more up or down within xxx lines of data.
- When you reach the end of all data for a selection period, a message displays. For example:

```
*** END OF DATA FOR: 02/27/21 02:18:42 - 02/28/21 17:37:56
```

- To go directly to a specific date and time, press **PF3** to exit the View Log Panel and adjust the Start date/time and End date/time in the previous System exceptions/log data selection specification panel (GJEPS00).
5. To refresh the data displayed in the View Log Data panel, press **Enter**.
- The timestamp in the header indicates the change.

Issuing commands from the system exceptions and audit log

You can issue IMS type-1 and type-2 commands directly from the System Exceptions and Log Data panel.

Procedure

To issue IMS type-1 and type-2 commands from the System Exceptions and Log Data panel (GJEPVIEW), complete the following steps:

1. Enter an IMS type-1 or type-2 command in the COMMAND input field.

For example:

```

/type-1-cmd
//type-2-cmd or //type-1-cmd

```

2. Press **Enter**.

Press **PF3** to exit from the command output panel and return to the system exceptions and audit log. The system exceptions and audit log is automatically refreshed and displayed.

- For example:

The Execute IMS Commands panel is displayed.

Figure 123. Execute IMS Commands panel (GJEPWCMD)

The command runs and displays the appropriate output.

Press **PF3** to exit from the command output panel and return to the system exceptions and audit log. The system exceptions and audit log is automatically refreshed and displayed.

Chapter 25. CQS log stream overview

IMS Sysplex Manager can help you monitor the offload activities for the log stream of full function and fast path message queues, which can help you optimize your shared queue environment.

Common queue server (CQS) uses the z/OS System Logger component to log input and output messages before placing them on the shared queue. CQS stores the log data on two coupling facility (CF) list structures: one structure for full function messages and another for fast path messages. This process ensures that the messages can be recovered if the message queue fails.

When either of the CF structures are full, the z/OS System Logger offloads log data to DASD data sets. Frequent offloading occurs when the CF structures are too small or when too many messages are being placed on the queues.

If offload activities occur too often, your IMS systems can be negatively affected (for example, space usage and CPU time can be increased significantly). Therefore, monitoring offload activities and identifying the source of these activities is crucial.

IMS Sysplex Manager provides the following functions and features that can help you monitor offload activities:

- Send alerts if too many offloads occur within a defined period
- Display offload activity on a dashboard
- Log offload exceptions and threshold exceptions in history files
- Display log stream attributes in real time
- Display log stream structure definitions in real time

Requirement: You must configure the FFLSN and FPLSN parameters in the data collector PROCLIB member to enable CQS log stream monitoring.

Topics:

- [“CQS log stream offload monitoring” on page 183](#)
- [“Viewing CQS log streams attributes” on page 184](#)

CQS log stream offload monitoring

You can monitor CQS log stream offload activities by configuring the IMS Sysplex Manager dashboard.

For example, to monitor offloads within a defined period, you can add the LogSt0ffLd element to the dashboard, as shown in the following figure:

```

GJEPDBD                                View Dashboard                                Page: * (1 of 1)
COMMAND ===>
IMSPlex. : PLEX1 Dashboard. : IMSSM dashboard   Date: 02/11/21 Time: 10:46:31
- MSGQ % in use----- - Aggr. local OM request- - EMHQ % in use-----
P-Entry. : 22      Reg commands. : 7      P-Entry. : <1
P-Element: 44      Notify rdy. : 3      P-Element: <1
O-Entry. : 0      Notify not rdy: 3      O-Entry. : 0
O-Element: 0      Dereg normal. : 0      O-Element: 0
- Msg queue depths (SMQ)- Dereg abnormal: 0 - CQS system resources---
COLDQ. : 0      Commands. : 0      Sys.chkp: 3
TRAN RDY Q.: 10    Queries. : 0      Str.chkp: 0
TRAN SPD Q.: 0      AO commands. : 8,250 - Msg queue depths(Local-
TRAN SER Q.: 0      ZQRY requests.: 1      TRANSACT: 0
LTRM RDY Q.: 4,703  ZSHUT requests: 0      LTERM. : 4,719
APPC RDY Q.: 0      QRY IMSPlex cmd: 4      MSNAME. : 0
RMTE RDY Q.: 0      Reg. clients. : 2      LU6.2. : 0
OTMA RDY Q.: 0      Cmd timeouts. : 0      OTMA. : 0
PRGMRDYQ-FP: 0      Undel.output. : 0 - Aggr. local RM request-
- DB processing stats--- - Aggr. local SCI req.--- - Update. : 20
Lcl deadlocks.: 0      Local Regs. : 8      Query. : 10
Glbl deadlock.: 0      Remote Regs. : 0      Delete. : 9
- SCI IXCMMSGO statistics- Notify Rmte reg: 0      Register. : 2
Successful. : 0      Local Ready. : 4      Deregister. : 0
Bfr shortage. : 0      Remote Ready. : 0      Initiate. : 0
Othr Rsrc shtg: 0      Local Quiesce. : 0      Terminate. : 0
- Coupling facility stat- Remote Quiesce.: 0      Process. : 0
EMC high cnt : 632      Lcl Dereg norm.: 4      Response. : 0
Max EMCs. : 33,585      Lcl Dereg abn. : 0      QRY struct. : 0
Max connects.: 32      Rmte Dereg norm: 0      Regtd.clients: 2
IMS connects.: 1      Rmte Dereg abn.: 0      Rsrce create.: 728
Max acc. time: NOLIMIT  Notify abend. : 0      Rsrce update.: 1
- Exceptions----- - Member init. : 0      Rsrce delete.: 17
Bfr ovrfllw: 0
Qbuff util: 79
IRLM locks: 0
PI locks. : 0
LogSt0ffld: 6

```

Figure 124. IMS Sysplex Manager dashboard

See “Creating and configuring a new dashboard” on page 156 for more information about adding elements to the dashboard.

Viewing CQS log streams attributes

You can view CQS log stream attributes in real time to gather information about your system offload activities.

About this task

For example, to troubleshoot frequent offloading issues, you can view the size of the data set offloads by viewing the CQS log stream attributes.

Procedure

To view the CQS log stream attributes, complete the following steps:

1. Select option 5 from the IMS Sysplex Manager main menu panel (GJEPRIM).

The Coupling Facility Structures panel is displayed.

2. In the Cmd column, enter 1 on the row of the log stream that you want to view, as shown in the following figure:

```

GJEP900                      Coupling Facility Structures          Row 1 to 9 of 9
COMMAND ===>                  SCROLL ===> PAGE

IMSpIex. . . PLEX1           Date. . : 02/11/21
SM server. : UIS1            Time. . : 10:36:06
Route. . . : *

Enter 's' to select a structure for statistics
'1' to select a structure for logstream information

  Cmd Structure name      Type Status      -Connections-  ---Utilization---
                                Conns/Maxconns Entries   Elements
  IMMSGQ01      MSGQ ALLOCATED      1 /   32      22 %      44 %
  IMMSGQ010FLW  OVFL UNALLOCATED    0 /    0       0 %       0 %
  IMSEMHQ01     EMHQ ALLOCATED      1 /   32       0 %       0 %
  IMSEMHQ010FLW OVFL UNALLOCATED    0 /    0       0 %       0 %
  IMSR SRC01     RSRC ALLOCATED      1 /   32      12 %       0 %
  1 MVSLOGMSGQ01 FFLS ALLOCATED      1 /   32      15 %      13 %
  MVSLOGEMHQ01  FPLS ALLOCATED      1 /   32       2 %       1 %
  LT01          IRLM ALLOCATED      1 /   32       0 %       0 %
  OSAMSESXI     OSAM ALLOCATED      1 /   32       0 %       0 %
***** Bottom of data *****

```

Figure 125. Coupling Facility Structures panel (GJEP900)

Tip: The log streams are the CF structures with type FFLS or FPLS. FFLS is the full function log stream and FPLS is the fast path log stream.

Results

After you press Enter, the CQS log stream attributes for the CF structure that you selected are displayed, as shown in the following figure:

```

GJEP904                      CQS Logstream information          Row 1 to 21 of 21
COMMAND ===>                  SCROLL ===> PAGE

IMSpIex. . : PLEX1           Date. . : 02/11/21
SM server. : UIS1            Time. . : 10:36:06
Route. . . : *

Structure name. : MVSLOGMSGQ01      Type. : FFLS

Description                                     Value
LOGSTREAM INFORMATION
Logstream name . . . . . : SYSLOG.MSGQ01.LOG
Auto delete. . . . . : N
Loss of data . . . . . : N
Uses physical structure. . . : Y
Uses secondary structure . . : N
Local buffer duplexing . . . : Y
Staging DS duplexing . . . : N
Staging DS duplexing with XRC.: N
Structure duplexing. . . . . : N
DASD only logstream. . . . . : N
Retention period . . . . . : 0
Low loss data blockid. . . . : 0000000000000000
High loss data blockid . . . : 0000000000000000
Most recent offload dataset. . : IXGLOGR.SYSLOG.MSGQ01.LOG.A0000002
Most recent offload DS size. . : 1,474,560
Structure size . . . . . : 18,612,224
Staging dataset size . . . . : 0
Max # of logstream to structr.: 1
Nr of logstreams to strcuture.: 1
Nr of bytes usable in structr.: 4,033,792
***** Bottom of data *****

```

Figure 126. Real-time CQS log stream information

Part 6. Managing IMS Sysplex Manager

The topics in this section provide you with information on managing IMS Sysplex Manager components:

Topics:

- [Chapter 26, “Managing IMS Sysplex Manager components,” on page 189](#)
- [Chapter 27, “User exit routine interface,” on page 199](#)

Chapter 26. Managing IMS Sysplex Manager components

IMS Sysplex Manager provides several features for managing the IMS Sysplex Manager components.

Topics:

- [“Managing IMS Sysplex Manager within the IMS control region” on page 189](#)
- [“Managing the IMS Sysplex Manager data collector” on page 191.](#)
- [“Managing the IMS Sysplex Manager server” on page 193.](#)

Managing IMS Sysplex Manager within the IMS control region

This section discusses managing IMS Sysplex Manager within the IMS control region.

Procedure

To manage IMS Sysplex Manager within the IMS control region, you can use the following commands:

- START SM *ims-id*
- STOP SM *ims-id*
- REINIT SM *ims-id*

Issue the commands by using the z/OS console interface that accesses the data collector address space. The command format is:

```
F dc-jobname,command modifier target
```

dc-jobname

The job/started task name that is associated with the data collector address space

command

The command

modifier

The modifier that is associated with the command

target

The target IMS system to which the command should be sent

For those commands with a *target* parameter, if the target is omitted, the command is sent to each IMS system to which the data collector is connected.

Starting IMS Sysplex Manager within the IMS control region

Use the **START SM** command to activate IMS Sysplex Manager within the IMS control region.

Procedure

You usually issue the **START SM** command after IMS Sysplex Manager has been stopped by using the **STOP SM** command.

Example

The following example shows a sample **START SM** command that is issued in the data collector, and shows the resulting output:

```
F dc-jobname,START SM IMS1
```

```
GJE2200I IMS SYSPLEX MANAGER IS NOW ACTIVE   IMS1
GJE0910I - IMS SM CONTROL REGION COMPONENT START REQUESTED
BPE0032I START SM COMMAND COMPLETED
```

If the **START** command fails, ensure that IMS Sysplex Manager is installed and initialized within the IMS control region and that no errors have occurred that cause permanent termination.

Stopping IMS Sysplex Manager within the IMS control region

Use the **STOP SM** command to stop IMS Sysplex Manager within the IMS control region.

About this task

The **STOP SM** command is intended to temporarily stop IMS Sysplex Manager within the IMS control region. When IMS Sysplex Manager is inactive within the IMS control region, any snapshot request that requires the services of the IMS control region is rejected. Snapshot requests that can be completed by the data collector continue to function.

Procedure

1. To temporarily stop IMS Sysplex Manager within the IMS control region, issue the **STOP SM** command.
2. To stop IMS Sysplex Manager more permanently, issue the **STOP SM** command and then issue the **STOP DC** command to stop the data collector address space.

Example

The following example illustrates a sample STOP SM command issued in the data collector and the resulting output:

```
F dc-jobname,STOP SM IMS1
```

```
GJE2200I IMS SYSPLEX MANAGER IS NOW INACTIVE IMS1
GJE0906I - IMS SM CONTROL REGION COMPONENT STOP
BPE0032I STOP SM COMMAND COMPLETED
```

Re-initializing IMS Sysplex Manager

After applying any maintenance that affects the IMS Sysplex Manager control region component, you can re-initialize IMS Sysplex Manager without an IMS restart by using the **REINIT** command.

About this task

The **REINIT** command causes IMS Sysplex Manager to reload and re-initialize within the IMS control region.

Procedure

Issue the **REINIT** command only after you have stopped IMS Sysplex Manager within the IMS control region using the **STOP SM** command.

Example

The following example shows a sample REINIT command and the resulting output:

```
F dc-jobname,REINIT SM IMS1
```

```
GJE2205I IMS SYSPLEX MANAGER REINIT IN PROGRESS IMS1
BPE0032I REINIT COMMAND COMPLETED
GJE2006I IMS SYSPLEX MANAGER REQ ITASK TERMINATION COMPLETE IMS1
GJE2006I IMS SYSPLEX MANAGER EVT ITASK TERMINATION COMPLETE IMS1
GJE2030I PROCESSING PROCLIB CONFIGURATION MEMBER GJEIIMS1 IMS1
GJE2002I IMS SYSPLEX MANAGER REQ ITASK INITIALIZATION COMPLETE IMS1
GJE2002I IMS SYSPLEX MANAGER EVT ITASK INITIALIZATION COMPLETE IMS1
GJE2201I DATA COLLECTOR JOB/STC DCIMS1 IMS INITIALIZATION COMPLETE IMS1
GJE2200I IMS SYSPLEX MANAGER IS NOW INACTIVE IMS1
GJE2000I IMS SYSPLEX MANAGER INITIALIZATION COMPLETE IMS1
GJE2207I IMS SYSPLEX MANAGER REINIT COMPLETE IMS1
```

Managing the IMS Sysplex Manager data collector

This section discusses managing the IMS Sysplex Manager data collector.

Procedure

To manage the IMS Sysplex Manager data collector, you can use the following commands:

- `DISPLAY OPTIONS ims-id`
- `DISPLAY STATS ims-id`
- `STOP DC`

Issue the commands by using the z/OS console interface that accesses the data collector address space.

The command format is:

```
F dc-jobname,command modifier target
```

dc-jobname

The job/started task name that is associated with the data collector address space

command

The command

modifier

The modifier that is associated with the command

target

The target IMS system to which the command should be sent

For those commands with a *target* parameter, if the target is omitted, the command is sent to each IMS system to which the data collector is connected.

Displaying data collector options

To help manage IMS Sysplex Manager, you can display the processing options that are set for the data collector.

Procedure

Use the **DISPLAY OPTIONS** command to display the current list of processing options that are set for IMS Sysplex Manager within the data collector and the IMS control region.

The options for the data collector are displayed in the data collector job log. The options for the IMS control region are displayed in the IMS control region job log.

Example

The following example shows a sample command and the resulting output:

```
F dc-jobname,DISPLAY OPTIONS IMS1
```

```

F DCIMS1B,DISPLAY OPTIONS
GJE0800I - *****
GJE0802I - * DC SYSTEM OPTIONS FOR EXECUTION: *
GJE0804I - * ISMCFG = GJEDIMS1 *
GJE0804I - * XCFMEMB = DCIMS1 *
GJE0804I - * XCFGROUP = GJEISM01 *
GJE0804I - * IMSPLEX = PLEX1 *
GJE0804I - * CQSSN = CQS1 *
GJE0804I - * MSGQ = IMSMSGQ01 *
GJE0804I - * EMHQ = *
GJE0804I - * AFNQ = GJESMAFN *
GJE0804I - * SQGROUP = DFSGRUP1 *
GJE0804I - * WAITRBLD = N *
GJE0800I - *****
BPE0032I DISPLAY OPTIONS COMMAND COMPLETED
GJE2250I - ***** IMS1
GJE2250I - * CR SYSTEM OPTIONS FOR EXECUTION: * IMS1
GJE2250I - * PARM = GJEIIMS1 * IMS1
GJE2250I - * XCFGROUP = GJEISM01 * IMS1
GJE2250I - * XCFMEMB = ECIMS1@VM * IMS1
GJE2250I - * LOGDC = ACTIVE * IMS1
GJE2250I - * LDBMIN = 00010 * IMS1
GJE2250I - * LDBMAX = 00020 * IMS1
GJE2250I - * SDBMIN = 00010 * IMS1
GJE2250I - * SDBMAX = 00020 * IMS1
GJE2250I - * DCNAME = DCIMS1B * IMS1
GJE2250I - * ARPARM = GJEARTG1 * IMS1
GJE2250I - * STRUCTURE= GJESMAFN * IMS1
GJE2250I - * SUPPRESS = * IMS1
GJE2250I - ***** IMS1

```

Displaying data collector statistics

You can display statistics for the data collector to check the performance and operation of IMS Sysplex Manager.

Procedure

Issue the **DISPLAY STATS** command to display statistics that are associated with the performance and operation of IMS Sysplex Manager within the data collector and the IMS control region.

The statistics for the data collector are displayed in the data collector job log. The statistics for the IMS control region are displayed in the IMS control region job log.

Example

The following example shows a sample **DISPLAY STATS** command and the resulting output:

```
F dc-jobname,DISPLAY STATS IMS1
```

```

GJE0800I - *****
GJE0806I - * DC SYSTEM STATISTICS: *
GJE0808I - * REQUESTS = 00000 *
GJE0808I - * MSGCOLDQ = 00000 *
GJE0808I - * EMHCOLDQ = 00000 *
GJE0800I - *****
BPE0032I DISPLAY STATS COMMAND COMPLETED
GJE2251I - *****
GJE2251I - * CR STATISTICS: *
GJE2251I - * LDB CURRENT = 00010 *
GJE2251I - * LDB SIZE = 22736 *
GJE2251I - * LDB N/A = 00000 *
GJE2251I - * LDB ENQ = 00000 *
GJE2251I - * LGR COUNT = 00000 *
GJE2251I - * SDB CURRENT = 00010 *
GJE2251I - * SDB SIZE = 32760 *
GJE2251I - * SDB WAIT = 00000 *
GJE2251I - * SDB ENQ = 00030 *
GJE2251I - * REINIT TIME = N/A *
GJE2251I - *****

```

Stopping the data collector

Several commands are available to stop the data collector. This section discusses the benefits and restrictions for using each of these commands.

Procedure

It is recommended that you use the z/OS **P** *dc-jobname* command to request a scheduled stop of the DC component. This command allows any outstanding user requests to be completely processed before stopping.

Alternatively, the **F** *dc-jobname*, **STOP DC** command immediately stops the data collector component, regardless of outstanding user requests. Use this command only when the data collector will not terminate because of outstanding user requests.

If both of the above commands fail, the use z/OS **Cancel** *dc-jobname* to terminate the data collector.

Example

The following example shows a sample **P** *dc-jobname* command and the resulting output:

```
P dc-jobname
```

```
GJE0900I - SHUTDOWN SCHEDULED
BPE0007I SMDC BEGINNING PHASE 1 OF SHUTDOWN
GJE0003I - TDCM TCB TERMINATION COMPLETE
GJE0003I - TUI TCB TERMINATION COMPLETE
GJE0003I - TTRA TCB TERMINATION COMPLETE
GJE0003I - TCSV TCB TERMINATION COMPLETE
GJE0003I - TRSP TCB TERMINATION COMPLETE
GJE0003I - TDH TCB TERMINATION COMPLETE
GJE6003I - TSAF TCB TERMINATION COMPLETE
CQS0103I CLEANUP SUCCESSFUL: CLIENT=DCSYS3
BPE0008I SMDC BEGINNING PHASE 2 OF SHUTDOWN
BPE0009I SMDC SHUTDOWN COMPLETE
GJE0990I - A/S CLEANUP COMPLETE
$HASP395 DCSYS3 ENDED
```

The following example shows a sample **STOP DC** command and the resulting output:

```
F dc-jobname, STOP DC
```

```
GJE0902I - IMMEDIATE SHUTDOWN REQUESTED
BPE0032I STOP DC COMMAND COMPLETED
GJE2203I DATA COLLECTOR JOB/STC DCIMS1 HAS TERMINATED IMS1
GJE2200I IMS SYSPLEX MANAGER IS NOW INACTIVE IMS1
BPE0007I SMDC BEGINNING PHASE 1 OF SHUTDOWN
GJE0003I - TDCM TCB TERMINATION COMPLETE
GJE0003I - TUI TCB TERMINATION COMPLETE
GJE0003I - TTRA TCB TERMINATION COMPLETE
GJE0003I - TCSV TCB TERMINATION COMPLETE
GJE0003I - TRSP TCB TERMINATION COMPLETE
GJE0003I - TDH TCB TERMINATION COMPLETE
GJE0003I - TLOG TCB TERMINATION COMPLETE
BPE0008I SMDC BEGINNING PHASE 2 OF SHUTDOWN
BPE0009I SMDC SHUTDOWN COMPLETE
GJE0990I - A/S CLEANUP COMPLETE
$HASP395 DCIMS1 ENDED
```

Managing the IMS Sysplex Manager server

You can use commands to manage the IMS Sysplex Manager server.

Procedure

Use the following commands to manage the IMS Sysplex Manager server:

- DISPLAY OPTIONS
- DISPLAY STATS
- RACFRESH
- STOP SERV
- ARCHIVE DDN *ddname*
- ARCHIVE DSN *datasetname*
- THRESH START
- THRESH STOP

Issue the commands by using the z/OS console interface to the IMS Sysplex Manager server address space.

The command format is:

```
F SERV-jobname,command modifier
```

where:

SERV-jobname

The job or started task name that is associated with the IMS Sysplex Manager server address space

command

The command

modifier

The modifier that is associated with the command

Displaying IMS Sysplex Manager server options

You can display IMS Sysplex Manager server options by issuing the **DISPLAY OPTIONS** command.

Procedure

Use the **DISPLAY OPTIONS** command to display the current list of processing options that are set within the IMS Sysplex Manager server. The processing options are displayed in the IMS Sysplex Manager server job log.

The following example shows a sample **DISPLAY OPTIONS** command and the resulting output:

```
F SERV-jobname,DISPLAY OPTIONS
```

```
GJE6010I - *****
GJE6012I - * SM SERVER OPTIONS FOR EXECUTION: *
GJE6014I - * ISMCFG = GJEUIMS1 *
GJE6014I - * XCFMEMB = UIIMS1 *
GJE6014I - * XCFGROUP = IMSGROUP *
GJE6014I - * RACFAPPL = IMS SM *
GJE6014I - * RACFAGE = 0065 *
GJE6014I - * UXITPARM = *
GJE6010I - *****
BPE0032I DISPLAY OPTIONS COMMAND COMPLETED
```

Figure 127. Sample DISPLAY OPTIONS command and the resulting output

Displaying IMS Sysplex Manager server statistics

You can display IMS Sysplex Manager server statistics by issuing the **DISPLAY STATS** command.

Procedure

Use the **DISPLAY STATS** command to display statistics that are associated with the performance and operation of IMS Sysplex Manager within the IMS Sysplex Manager server. The statistics are displayed in the IMS Sysplex Manager server job log.

Example

The following example shows a sample **DISPLAY STATS** command and the resulting output:

```
F SERV-jobname,DISPLAY STATS
```

```
GJE6010I - *****
GJE6016I - * SM SERVER STATISTICS:      *
GJE6018I - * REQUESTS = 00000           *
GJE6018I - * USERS    = 00002           *
GJE6018I - * USERID   = USRT007         *
GJE6018I - * USERID   = USRT008         *
GJE6018I - * DC'S     = 00001           *
GJE6010I - *****
BPE0032I DISPLAY STATS COMMAND COMPLETED
```

Re-initializing RACF profiles and cached ACEE

You can re-initialize in-storage RACF (or equivalent) profiles and cached Accessor Environment Elements (ACEE) by using the **RACFRESH** command.

Procedure

Use the **RACFRESH** command to request that the IMS Sysplex Manager server address space re-initialize in-storage RACF (or equivalent) profiles and cached ACEEs. Use the **RACFRESH** command to activate changes to IMS Sysplex Manager–Security Access Facility (SAF) authorization, without the need to recycle the IMS Sysplex Manager server address space.

Example

The following example shows a sample **RACFRESH** command and the resulting output:

```
F SERV-jobname,RACFRESH
```

```
BPE0032I RACFRESH COMMAND COMPLETED
```

Stopping the IMS Sysplex Manager server

Several commands are available to stop the IMS Sysplex Manager server. This section discusses the benefits and restrictions for using each of these commands.

Procedure

Use the **P SERV-jobname** command to schedule the IMS Sysplex Manager server to stop. Using this command is recommended for stopping the IMS Sysplex Manager server because it allows all outstanding user requests to finish processing before the server is stopped.

Alternatively, the **F SERV-jobname,STOP SERV** command immediately stops the IMS Sysplex Manager server component without completing outstanding user requests. Use the command only when the IMS Sysplex Manager server does not have any outstanding user requests.

If both of the above commands fail, the use z/OS **Cancel** *dc-jobname* to terminate the server.

Example

The following example illustrates a sample STOP server command and the resulting output:

```
P SERV-jobname
```

```
GJE0900I - SHUTDOWN SCHEDULED
BPE0007I SMUI BEGINNING PHASE 1 OF SHUTDOWN
GJE6003I - TCOL TCB TERMINATION COMPLETE
GJE6003I - TTRA TCB TERMINATION COMPLETE
GJE6003I - TCSV TCB TERMINATION COMPLETE
GJE6003I - TURQ TCB TERMINATION COMPLETE
GJE6003I - THST TCB TERMINATION COMPLETE
GJE6003I - TLLK TCB TERMINATION COMPLETE
GJE6003I - TUIM TCB TERMINATION COMPLETE
GJE6003I - TTHR TCB TERMINATION COMPLETE
GJE6003I - TSYX TCB TERMINATION COMPLETE
BPE0008I SMUI BEGINNING PHASE 2 OF SHUTDOWN
BPE0009I SMUI SHUTDOWN COMPLETE
GJE0990I - A/S CLEANUP COMPLETE
$HASP395 UIS          ENDED
```

Resubmitting a failed archive job

Use the **ARCHIVE DDN** or **ARCHIVE DSN** command to resubmit a failed archive job.

About this task

An archive job is usually submitted automatically for a full history file when IMS Sysplex Manager switches to a new history file.

Procedure

If the job does not complete successfully, determine the error, correct the error, and then use the **ARCHIVE DDN** or **ARCHIVE DSN** command to rerun the archive job. You can use the ddname of the full history data set as input or the full data set name as input.

Example

The following example illustrates a sample **ARCHIVE** server command and the resulting output:

```
- 10.58.48 F UIS,ARCHIVE DDN HIST1
- 10.58.48 STC00147 GJE0903I - LOG ARCHIVE REQUESTED
- 10.58.48 STC00147 BPE0032I ARCHIVE DDN COMMAND COMPLETED
- 10.58.48 STC00147 GJE8013I ARCHIVE JOB SUBMITTED. JOBID=JOB00242
- INPUT DSN=USRT001.ADN.IMSSM.HIST5
- OUTPUT DSN=ADN12345.Y2021.M0629.T175848.ARCHIVE1
- 10.58.49 JOB00242 $HASP373 ARCJOB STARTED - INIT 3 - CLASS H - SYS
- STL1
- 10.58.49 JOB00242 SMF000I ARCJOB ARCHIVE GJEUV2S 00
- 10.58.49 JOB00242 $HASP395 ARCJOB ENDED
```

Starting and stopping threshold processing

The IMS Sysplex Manager dashboard provides an ongoing view of critical areas in the sysplex environment.

Procedure

To keep overhead to a minimum, the data is collected by the IMS Sysplex Manager server once and sent to all configured dashboards that request this data.

Use the **F SERV-jobname,THRESH START** command to have IMS Sysplex Manager server start to collect data for dashboard and threshold evaluation. The data collection will continue at user-defined intervals until the **THRESH STOP** command is issued or the server is stopped.

The data collection interval can be configured from option 1 (Settings) of the IMS Sysplex Manager main menu:

```
Dashboard data collection intvl    060          15-999 seconds (default 60)
```

Use the **F SERV-jobname,THRESH STOP** command to have IMS Sysplex Manager server stop data collection for dashboard and threshold evaluation. The data collection is stopped. The dashboard function will stop working.

If you want to start threshold collection again, use the **F SERV-jobname,THRESH START** command.

If you change threshold parameters, you must stop and restart the server.

Example

The following example illustrate sample output for **THRESH START**:

```
F UIS1,THRESH START
BPE0032I THRESH START COMMAND COMPLETED
GJE6001I - THRESH  START    COMMAND EXECUTED
```

The following example illustrate sample output for **THRESH STOP**:

```
F UIS1,THRESH STOP
BPE0032I THRESH STOP COMMAND COMPLETED
GJE6001I - THRESH  STOP    COMMAND EXECUTED
```

Chapter 27. User exit routine interface

The IMS Sysplex Manager server provides you with a user exit routine interface. You can use this user exit routine interface to customize systems exception and security processing within the server address space.

The two user exit routines that you can define include:

- Systems exceptions exit routine

You can use the systems exceptions exit routine to drive processing when system exceptions are encountered.

- Security exit routine

You can use the security exit routine to authorize commands when commands are issued in the client interface.

You can also use BPE user-supplied exit routine interfaces and services.

Topics:

- [“System exceptions exit routine” on page 199](#)
- [“Security exit routine” on page 200](#)
- [“Activating user exit routines” on page 200](#)
- [“EXITDEF statement” on page 201](#)
- [“USEREXIT commands” on page 201](#)
- [“Exit routine runtime environment” on page 201](#)
- [“Link-editing user exit routines” on page 202](#)
- [“Exit routine call types” on page 202](#)
- [“Exit routine interface” on page 202](#)
- [“GJEUExpl DSECT” on page 202](#)
- [“GJEUSTPL DSECT” on page 203](#)
- [“System exceptions exit routine calls” on page 204](#)
- [“Sample system exceptions exit routine” on page 205](#)
- [“Security exit routine calls” on page 206](#)

System exceptions exit routine

If defined, the System Exceptions exit routine is called each time that a system exception is received by the server address space.

This exit routine can be used to customize system exception processing within the server address space.

You can determine what actions are to be taken when these system exceptions are encountered, such as:

- Allow installation-specific use of system exceptions
- Create unique notifications (WTO, e-mail, and so on) of exceptions
- Perform automated operations processing for exceptions
- Direct IMS Sysplex Manager not to record specific system exceptions in the history file
- Direct IMS Sysplex Manager not to notify users about specific system exceptions
- Provide the exit with BPE callable services capability

Security exit routine

If defined, the Security exit routine is called each time that a user enters a command from the IMS Sysplex Manager client interface.

This exit routine is passed the RACF (or equivalent) user ID, group, command, and authorization level that was requested.

This exit routine can take one of three actions:

- Allow the command to be processed.
- Reject the command.
- Indicate that IMS Sysplex Manager should verify the authority by using SAF security profiles.

This exit routine is currently called when IMS commands are entered from the client interface. However, it is not called if the command is entered from the Single Point of Control (SPOC) command interface. The exit routine is also called when a request to delete a Resource Manager (RM) resource definition.

Activating user exit routines

Activate the IMS Sysplex Manager user exit routines by using BPE.

Procedure

Activate the IMS Sysplex Manager exit routines through BPE by completing the following steps:

1. Ensure that your JCL references the BPE PROCLIB member. Specify the PROCLIB member that you want to use by coding `BPECFG=membername` on the `EXEC PARM=` statement in the address space startup JCL.

An example is shown here:

```
//STEP1 EXEC PGM=GJECI000,  
//          PARM='BPECFG=BPECUI,TYPE=UI,ISMCFG=GJEUIGEN'
```

In this example, the name of the BPE PROCLIB member is BPECUI.

2. Include an `EXITMBR=` statement in the BPE PROCLIB member (for example, in BPECUI). This `EXITMBR` statement identifies the name of the PROCLIB member that defines the user exit routines.

An example is shown here:

```
EXITMBR=(UISEXIT0,SMUI)          /* SPECIFY PROCLIB DATA SET */  
                                  /* MEMBER UISEXIT0 AS THE */  
                                  /* USER EXIT LIST MEMBER    */
```

3. Create a user exit routine list PROCLIB member that contains an `EXITDEF` statement that defines the user exits.

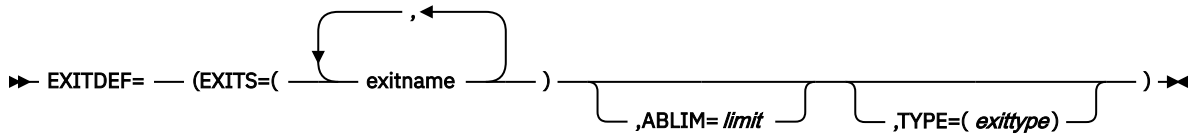
The following example shows a definition for both the system exceptions exit routine (GJEUEXT) and the security exit routine (GJUEXST):

```
*****  
* UIS USER EXIT LIST PROCLIB MEMBER *  
*****  
*  
#-----#  
# DEFINE 1 CLIENT EXCEPTIONS EXIT: GJEUEXT #  
#-----#  
  
EXITDEF (TYPE=EXCEPTNS,EXITS=(GJEUEXT))  
  
#-----#  
# DEFINE 1 CLIENT EXCEPTIONS EXIT: GJUEXST #  
#-----#  
  
EXITDEF (TYPE=SECURITY,EXITS=(GJUEXST))
```

4. Create an EXITDEF statement.

EXITDEF statement

The EXITDEF statement associates an exit routine type with a list of one or more exit routine modules to be called.



The modules are called in the order that they are listed.

The EXITDEF statement consists of a sublist (enclosed in parentheses) that contains the keywords TYPE, EXITS, and ABLIM.

EXITS=(exitname,...)

Specifies a list of one or more exit routine module names. The position of the exit routine in the list determines the order in which the exit routine is driven. When an exit routine returns to its caller, it indicates whether additional exit routines are to be called.

ABLIM=limit

A number from 0 to 2147483647 that specifies the abend limit for the type of exit routine being defined. If the number of abends for an exit routine module reaches the abend limit for the exit routine type, the module is removed from the exit routine list, and is not called until the exit routine type is refreshed.

This parameter is optional; the default is 1. If you specify a value of 0, no abend limit exists.

TYPE=(exittype)

Specifies the type of exit routine that is being defined. Valid values are EXCEPTNS (for the System Exceptions exit routine) and SECURITY (for the User Security exit routine).

USEREXIT commands

Two **BPE USEREXIT** commands are available to help you manage the user exit routine.

The two **BPE USEREXIT** commands are:

- DISPLAY USEREXIT
- REFRESH USEREXIT

Exit routine runtime environment

IMS Sysplex Manager uses the Base Primitive Environment (BPE) for the exit routine runtime environment.

The BPE exit routine interfaces are described in [Chapter 31, “BPE user-supplied exit routine interfaces and services,”](#) on page 257.

Restrictions:

- The exit routine must be reentrant, because it can receive control under multiple BPE threads simultaneously.
- The exit routine cannot receive control under the same task on each invocation.

Link-editing user exit routines

You must link-edit your user exit routines.

Procedure

Link-edit the exit routine, or process it by using the binder. Use the following attributes:

- RMODE=ANY or 24
- AMODE=31
- REENTRANT

Exit routine call types

IMS Sysplex Manager server exit routines are driven for three types of calls.

The three types of calls are:

- During server initialization so that the exit routine can prepare the environment
- During action processing, when a system exception is received for the system exception exit routine or when a command is entered for the security exit routine, so that the action can be processed
- During server termination to dismantle the user exit routine environment

Exit routine interface

User exit routines are called within the IMS Sysplex Manager server address space by using the BPE user exit routine interface.

The BPE interface passes a standard user exit routine parameter list that is mapped by the GJEUXPL\$ macro.

The GJEUXPL\$ macro is distributed in SGJESAMP for you to use in customizing the exit routine. The macro contains the standard user exit routine parameter list (BPEUXPL DSECT) that contains a pointer to the exit routine-specific parameter list.

For the System Exceptions exit routine, this parameter list is mapped by the GJEUEXPL macro.

For the Security exit routine, this parameter list is mapped by the GJEUSTPL macro.

These macros are distributed in SGJESAMP for exit routine customization purposes.

GJEUEXPL DSECT

The layout of the GJEUEXPL DSECT is provided for your reference and contains the required fields that are used during exception processing.

The following fields are used during exception processing:

- For each call to the exit routine, EXPLPARM contains an optional 8-byte customization parameter string of your choice. The string can be specified by the server address space configuration member UXITPARM= parameter. The string can be used by the exit routine to perform user-specific processing. If the string is not supplied, the default value of UXITPARM is assumed to be a string of eight blanks (X'40's).
- EXPLCALL indicates the reason for calling the exit routine: initialization, termination, or system exception.
- EXPLIMS contains the subsystem ID of the subsystem (IMS, CQS, and so on) that encounters the exception for system exception processing.
- EXPLSTYP indicates the type of system exception that was encountered. The equated values for EXPLSTYP can be used by the exit routine to determine any action that can be taken. EXPLSTYP should be used only when the exit routine is called for system exception processing.

- EXPLREC contains a pointer to an exception record. For system exceptions, EXPLREC points to the first segment of a variable-length, multi-segment system exceptions message. The format of the message segment is: 11zzmessage. The first two bytes of the message segment are the length of the message segment (which includes the length of the 4-byte 11zz). The third and fourth bytes contain binary zeroes. Following 11zz is the message text that describes the system exception in detail. Additional message segments can follow the first segment. EXPLSVL# contains the number of message segments in the message and can be used to index through the message segments.

The layout of the GJEUEXPL DSECT is shown in [Figure 128 on page 203](#).

GJEUEXPL	DSECT		exit-specific parameter list
EXPLEYE	DS	CL4	eyecatcher
EXPLEYEL	EQU	C'EXPL'	eyecatcher literal
EXPLREC	DS	A	a(11zzmsg) - system exception
*			
EXPLCALL	DS	F	exit call type
EXPLCALI	EQU	0	initialization call
EXPLCALZ	EQU	4	termination call
EXPLCALS	EQU	8	system exception
EXPLSVL#	DS	F	system exception # of varlen segments
EXPLSTYP	DS	F	system exception type
EXPLS_LONGL	EQU	36	long lock
*			
*			
EXPLS_CQSSTRAV	EQU	40	structure available
EXPLS_CQSSTRFL	EQU	44	structure failed
EXPLS_CQSCONLO	EQU	48	connection lost
EXPLS_CQSLOGAV	EQU	52	log stream available
EXPLS_CQSLOGUV	EQU	56	log unavailable
EXPLS_CQSRBBGN	EQU	60	rebuild begin
EXPLS_CQSCPYEN	EQU	64	copy end
EXPLS_CQSCPYFL	EQU	68	copy failed
EXPLS_CQSRBFAL	EQU	72	rebuild failed
EXPLS_CQSRCEND	EQU	76	recovery end
EXPLS_CQSRCFAL	EQU	80	recovery failed
EXPLS_CQSUOWLO	EQU	84	lost uows
EXPLS_CQSCKBGN	EQU	88	checkpoint begin
EXPLS_CQSCKEND	EQU	92	checkpoint end
EXPLS_CQSCKFAL	EQU	96	checkpoint failed
EXPLS_CQSOVTOO	EQU	100	messages moved to overflow
EXPLS_CQSOVFRM	EQU	104	messages moved from overflow
EXPLS_CQSOVOUT	EQU	108	structure out of overflow
*			
* DS 4F reserved words for expansion *			
EXPLIMS	DS	CL4	subsystem id encountering exception
EXPLPARM	DS	CL8	exit parm string from uexitparm=
EXPLLEN	EQU	*-GJEUEXPL	parameter list length
*			
* return codes in R15 set by user exit			
EXPLRNRM	EQU	0	normal - log and notify
EXPLRLOG	EQU	4	log only - skip notify
EXPLRNOT	EQU	8	notify only - skip log
EXPLRNON	EQU	12	none - skip log and notify

Figure 128. GJEUEXPL DSECT layout

GJEUSTPL DSECT

The layout of the GJEUSTPL DSECT is provided for your reference and contains the required fields that are used during security processing.

The following fields are used during security processing:

- STPLCALL indicates the reason for calling the exit routine: initialization, termination, or security call.
- STPLFLG1 indicates whether an IMS command extension is present starting at STPLXCMD.
- STPLFLG2 indicates the type of command that was entered. STPL2IMS indicates that an IMS command was entered. STPL2RMD indicates a request to delete an RM resource was entered.
- The RACF (or equivalent) user ID that issued the command is passed in STPLUSER. The associated group is passed in STPLGRP.
- STPLAUTH indicates the requested level of authority that is required for the specific command that was entered.

- If an IMS command was entered, STPLCVRB contains the IMS command abbreviation.

The layout of the GJEUSTPL DSECT is shown in [Figure 129 on page 204](#).

GJEUSTPL DSECT		exit-specific parameter list
STPLEYE DS	CL4	eyecatcher
STPLEYEL EQU	C'STPL'	eyecatcher literal
*		
STPLCALL DS	F	exit call type
STPLCALI EQU	0	initialization call
STPLCALZ EQU	4	termination call
STPLCAL5 EQU	8	security call
*		
*		
STPLFLG1 DC	X'00'	flag byte 1 - call type
STPL1CMD EQU	X'80'	command call
STPL1UX EQU	X'40'	user exit in control
STPL1XCM EQU	X'20'	extended command present
*		
STPLFLG2 DC	X'00'	flag byte 2 - command type
STPL2IMS EQU	X'80'	IMS command
STPL2RMD EQU	X'40'	RM resource delete command
*		
STPLFLG3 DC	X'00'	flag byte 2 - unused
*		
STPLAUTH DC	X'00'	required auth level
STPLAUTH_Read EQU	2	READ authority required
STPLAUTH_Update EQU	4	UPDATE authority required
STPLAUTH_Control EQU	8	CONTROL authority required
STPLAUTH_Alter EQU	128	ALTER authority required
*		
STPLUSER DC	CL8'	SAF userid
STPLGRP DC	CL8'	SAF group
*		
STPLCVRX DC	0CL8'	COMMAND VERB AS 8 BYTES
STPLCVRB DC	CL3'	COMMAND VERB (#CMD = 1)
DC	CL5'	ALWAYS BLANK
*		
STPLXCM@ DC	A(0)	ADDRESS TO THE EXTEND COMMAND
*		
DC	0F'0'	ALIGNMENT
STPLRSLT DC	0XL12'00'	RESULTANTS AREA
STPLRC DC	F'0'	RETURN CODE
STPLRSN DC	F'0'	REASON CODE
STPLEXCD DC	F'0'	EXTENDED CODE
*		
STPLBLEN EQU	*-GJEUSTPL	basic block length
STPLBEND EQU	*	basic block end
*		
* COMMAND EXTENSION AREA		
*		
STPLXCMD DC	0F'0'	command extension start
STPLXLLZZ DC	0F'0'	LLZZ field as a fullword
STPLXCLL DC	H'0'	LL - length field
STPLXCZZ DC	H'0'	ZZ - always zero
STPLXCSTR DC	256CL1'	command area
STPLXCXSZ EQU	*-STPLXCMD	Extent Size
*		
STPLXLEN EQU	*-STPLXCMD	extension length
STPLXEND EQU	*	extension end
*		
STPLLEN EQU	*-GJEUSTPL	block length
STPLEND EQU	*	block end
*		
* return code equates		
*		
STPLPASS EQU	0	return codes in R15 by user exit
STPLSAFC EQU	4	command passed security
STPLFAIL EQU	8	check further with SAF
		command failed security

Figure 129. GJEUSTPL DSECT layout

System exceptions exit routine calls

The systems exceptions exit routine receives control in the IMS Sysplex Manager server address space for three call types.

The call types include:

Initialization call

For initialization processing, the exit routine is called during the initialization of the IMS Sysplex Manager server address space. Field EXPLCALL of GJEUEXPL will equal the equated value of EXPLCALI. The return code that is set by the exit routine in R15 must be zero.

Termination call

For termination processing, the exit routine is called during the termination of the IMS Sysplex Manager server address space. Field EXPLCALL of GJEUEXPL will equal the equated value of EXPLCALZ. The return code that is set by the exit routine in R15 must be zero.

System Exception call

For System Exception processing, the exit routine is called when a system exception has been received by the IMS Sysplex Manager server address space. Field EXPLCALL of GJEUEXPL will equal the equated value of EXPLCALZ. The return code that is set by the exit routine in R15 is used by the IMS Sysplex Manager server to determine the disposition of the exception:

0

IMS Sysplex Manager should process the exception normally (notify and log).

4

IMS Sysplex Manager should log the message, but skip notification processing for this exception.

8

IMS Sysplex Manager should notify interested users, but skip log processing for this exception.

12

IMS Sysplex Manager should skip notification and log processing for this exception.

Sample system exceptions exit routine

You can use the sample system exceptions exit routine that is provided by IMS Sysplex Manager as-is, or modify it to meet your individual needs.

The sample exit routine GJEUEXT is distributed in source format in SGJESAMP and can be modified to meet your specific requirements. IBM provides ongoing maintenance for GJEUEXT, as required. If you modify a copy of GJEUEXT, you will need to refit your modifications whenever IBM supplied-maintenance is installed.

IMS Sysplex Manager also provides the sample exit routine in load module format for your use without any required modification. As provided, the sample exit routine performs the following functions:

- At initialization, just exit
- At termination, just exit
- At system exceptions call:
 - Check for CQS checkpoint begin/end system exception. If either, return with R15=4 (log the message, but skip notification). CQS checkpoint begin/end are noteworthy, but do not necessarily require user notification.
 - If the system exception is other than CQS checkpoint begin/end, access the llzzmsg message field, where ll = two bytes of binary length (including the 4-byte length of LLZZ plus the length of MSG) and zz = two bytes of binary zeros, and create write-to-operator messages in the following format:

```
GJE0340I SYSTEM EXCEPTION FOR subsys, MESSAGE=GJExxxxI  
GJExxxxI variable length message text for system exception
```

- In the IMS Sysplex Manager server configuration member, you can specify UXITPARM=NOWTO. In this case, the sample exit routine will not issue any write-to-operator messages.

Security exit routine calls

The security user exit routine receives control in the IMS Sysplex Manager server address space for three types of calls.

The Security user exit routine receives control for the following call types:

- Initialization call
- Termination call
- Security call

Initialization call

For initialization processing, the security exit routine is called during the initialization of the IMS Sysplex Manager server address space.

The STPLCALL field of GJEUSTPL equals the value of STPLCALI.

The return code that is set by the exit routine in R15 must be zero.

Termination call

For termination processing, the security exit routine is called during the termination of the IMS Sysplex Manager server address space.

The STPLCALL field of GJEUSTPL equals the value of STPLCALZ.

The return code that is set by the exit routine in R15 must be zero.

Security call

For command security processing, the security exit routine is called when a command has been entered by a client from the interface.

The STPLCALL field of GJEUSTPL equals the value of STPLCALS.

The return code that is set by the exit routine in R15 is used by the IMS Sysplex Manager server to determine what action to take for processing the command.

0

Allow the command to run.

4

The IMS Sysplex Manager server should invoke the SAF security interface to determine whether the command should be allowed or rejected.

8

Reject the command.

Sample security exit routine

IMS Sysplex Manager provides a sample security exit routine in source format in member GJEUEXT in SGJESAMP.

This exit routine should not be used as-is. Modify the exit routine to meet your specific needs.

The sample exit routine performs some basic processing to show you examples of its capabilities.

Review the member for more information about the exit routine.

Part 7. Troubleshooting

The topics in this section provide you with technical references to help you troubleshoot and diagnose IMS Sysplex Manager problems:

Topics:

- [Chapter 28, “Runtime messages \(GJE\),” on page 209](#)
- [Chapter 29, “Abend codes,” on page 249](#)
- [Chapter 30, “Troubleshooting common errors,” on page 253](#)

Chapter 28. Runtime messages (GJE)

This reference section provides detailed information about IMS Sysplex Manager runtime messages.

Message format

IMS Sysplex Manager runtime messages adhere to the following format:

GJEnnnnæ

Where:

GJE

Indicates that the message was issued by IMS Sysplex Manager

nnnn

Indicates the message identification number

x

Indicates the severity of the message:

A

Indicates that operator intervention is required before processing can continue.

E

Indicates that an error occurred, which might or might not require operator intervention.

I

Indicates that the message is informational only.

W

Indicates that the message is a warning to alert you to a possible error condition.

Each message also includes the following information:

Explanation:

The Explanation section explains what the message text means, why it occurred, and what its variables represent.

System action:

The System action section explains what the system will do in response to the event that triggered this message.

User response:

The User response section describes whether a response is necessary, what the appropriate response is, and how the response will affect the system or program.

GJE0002I	<i>task-id</i> TCB INITIALIZATION COMPLETE	GJE0003I	<i>task-id</i> TCB TERMINATION COMPLETE
Explanation		Explanation	
Initialization for an IMS Sysplex Manager Data Collector task <i>task-id</i> has successfully completed.		Termination for an IMS Sysplex Manager Data Collector task <i>task-id</i> has completed.	
System action		System action	
IMS Sysplex Manager Data Collector initialization continues.		IMS Sysplex Manager Data Collector termination continues.	
User response		User response	
None. This message is informational.		None. This message is informational.	

**GJE0004I DC SYSTEM INITIALIZATION
COMPLETE**

Explanation

Initialization for an IMS Sysplex Manager Data Collector System has successfully completed.

System action

IMS Sysplex Manager Data Collector continues normal operation.

User response

None. This message is informational.

Explanation

An invalid PROCLIB configuration member name was specified on the Data Collector JCL execute statement.

System action

The Data Collector abnormally terminates with a user abend U0070-40.

User response

Specify a valid PROCLIB member name for the ISMCFG= subparameter on the Data Collector JCL execute statement.

GJE0005E KEY 7 EXECUTION REQUIRED

Explanation

An error has been detected in the Data Collector's or IMS Sysplex Manager server's program execution key. The Data Collector and IMS Sysplex Manager server are required to execute in key 7.

System action

The Data Collector or IMS Sysplex Manager server abnormally terminate with a user abend U0050-X'0A'.

User response

An MVS Program Properties Table entry must be created for program GJECI000 with a key 7 specification.

**GJE0020E INVALID CONFIGURATION
PARAMETER SPECIFIED -
*parameter***

Explanation

An invalid PROCLIB configuration parameter *parameter* value was specified in the Data Collector or IMS Sysplex Manager server configuration member.

System action

The Data Collector or IMS Sysplex Manager server abnormally terminates with user abend U0070-40.

User response

Correct the specified parameter value.

GJE0007E INVALID TYPE= PARAMETER

Explanation

An error has been detected in the initialization of the Data Collector or IMS Sysplex Manager server address space. The TYPE= subparameter specification on the job step PARM= is invalid.

System action

The address space abnormally terminates with a user abend U0050-30.

User response

Correct the TYPE= specification to reflect the proper address space type.

GJE0030E INVALID AWE FUNCTION

Explanation

An AWE with an invalid function identifier was detected by a Data Collector AWE server or an IMS Sysplex Manager server AWE server. This is an internal IMS Sysplex Manager problem.

System action

The invalid AWE is ignored and Data Collector processing continues, or the IMS Sysplex Manager server continues.

User response

Contact IBM Software Support.

**GJE0010E INVALID CONFIGURATION
MEMBER SPECIFIED**

**GJE0040E UNSUPPORTED component
RELEASE FOR component name**

Explanation

The Data Collector detected an unsupported release of an IMS system component. The component type and name are included in the message.

System action

The component is ignored by the Data Collector. No data will be collected from this component.

User response

Use a release of the IMS Sysplex Manager that is compatible with the IMS component release.

GJE0045E	IMS SYSTEM SM LEVEL INCOMPATIBLE WITH DC SM LEVEL
-----------------	--

Explanation

During DC initialization, the DC detected that the IMS Sysplex Manager level that is running in IMS is incompatible with the Sysplex Manager level that is running in the Data Collector.

System action

Initialization for the IMS control region in the DC fails. Requests to this IMS system are not allowed.

User response

Ensure that the IMS Sysplex Manager level that is running in the DC and the IMS control region are compatible.

GJE0050I	NO DATA COLLECTED YET FOR IMCID <i>imcid code</i>
-----------------	--

Explanation

The Data Collector or IMS Sysplex Manager server received a request from an IMS Sysplex Manager client for which the IMCID has not data.

System action

IMS Sysplex Manager execution continues.

User response

None. This message is informational.

GJE0051E	ERROR ENCOUNTERED PROCESSING IMCID <i>imcid</i>
-----------------	--

Explanation

While processing the specified request for the listed IMCID, an internal error was encountered that prevented IMS Sysplex Manager from completing the request.

System action

The request does not complete.

User response

If the problem persists, contact IBM Software Support.

GJE0055E	NOT ENOUGH SM SERVER STORAGE FOR IMCID <i>imcid code</i>
-----------------	---

Explanation

The IMS Sysplex Manager server received a request from an IMS Sysplex Manager client for which there was no storage cell large enough to accommodate the IMCID

System action

IMS Sysplex Manager execution continues.

User response

None.

GJE0080E	INVALID IMCID CODE, IMCID <i>imcid code</i>
-----------------	--

Explanation

The IMS Sysplex Manager Data Collector received a request from an IMS Sysplex Manager server for an IMCID with an invalid code value.

System action

IMS Sysplex Manager execution continues.

User response

None.

GJE0091E	INVALID COMMAND
-----------------	------------------------

Explanation

An invalid IMS or IMS Sysplex Manager command was sent to the Data Collector or IMS Sysplex Manager server.

System action

The request is rejected.

User response

Correct the command input and resubmit.

GJE0092E ACCESS DENIED

Explanation

The user who submitted a request was denied access by the SAF service or user security exit routine.

System action

The request is rejected.

User response

Consult your security administrator.

**GJE0093E COMMAND DENIED BY IMS SAF
COMMAND SECURITY**

Explanation

The user does not have authority to issue the command.

System action

The request is rejected.

User response

Ensure that the user is given proper authority to issue commands.

**GJE0095I IMS/SAF SYSTEM COMMAND
SECURITY USED FOR IMS cccc**

Explanation

Informational message indicating that IMS Sysplex Data Collect has successfully set up IMS/SAF environment for command security.

System action

Processing continues.

User response

None. This message is informational.

**GJE0300E CQS service SERVICE FAILURE RC=
retcode , RSN= rsncode , SUB=
subcode , STRUC= structure**

Explanation

A Common Queue Server (CQS) service request failed. The requested *service* in the message indicates the failing CQS service. The *retcode* and *rsncode* are the return and reason codes returned by CQS, respectively. For CQS requests that support a list interface, *subcode* is the list entry completion code. For CQS requests that are structure related, *struc* is the structure name for which the request was made.

System action

If the CQS service is CQSREG, the Data Collector terminates with a user abend U0090-01. For all other request failures, Data Collector processing will continue, but the request for data from CQS might fail.

User response

Additional information about CQS services can be found in *IMS System Programming APIs*. If the problem persists, contact IBM Software Support.

**GJE0302I WAITING FOR type SUBSYSTEM
subsystem**

Explanation

The Data Collector attempted to register with the *subsystem* and subsystem *type* that are indicated in the message. The registration request failed because the subsystem address space is not available.

System action

The registration request is periodically reissued until the request is successful. The GJE0302I message is reissued every 8 hours until the registration request is successful.

User response

Determine why the subsystem address space is not available and make it available.

**GJE0304I CQS SUBSYSTEM INITIALIZATION
DETECTED**

Explanation

The Data Collector has detected the availability of the CQS address space.

System action

Data Collector processing continues. Requests for data from CQS are now possible.

User response

None. This message is informational.

GJE0305I **CONNECTED TO LOG STREAM:**
log_name

Explanation

This message indicates that IMS Sysplex Manager successfully connected to the *log_name* log stream.

System action

IMS Sysplex Manager continues normal processing.

User response

Verify that *log_name* is the log stream that you want IMS Sysplex Manager to monitor. If not, modify the FFLSN or FPLSN parameter to specify the correct log name.

GJE0306E **CONNECT ERROR FOR LOG**
STREAM: *log_name* RC=xxxxxx,
RSN=xxxxxx

Explanation

IMS Sysplex Manager attempted to connect to the *log_name* log stream, but an error occurred. The return code and reason code are from the IXGCONN macro.

System action

IMS Sysplex Manager continues processing, but the log stream data and the monitoring function will not be available.

User response

Verify that the log stream name matches the LOGNAME parameter in the CQSSGxxx member. If the log stream name is correct, contact IBM Software Support and provide the IMS Sysplex Manager data collector job log.

GJE0306W **CQS SUBSYSTEM TERMINATION**
DETECTED

Explanation

The Data Collector has detected the termination of the CQS address space.

System action

Data Collector processing continues. Requests for data from CQS are not possible. The Data Collector is notified by CQS when it is available again.

User response

Determine why the CQS address space is not available and make it available.

GJE0307E **ERROR ESTABLISH ENF48**
RC=xxxxxx

Explanation

IMS Sysplex Manager attempted to establish the ENF 48 listing exit but encountered an error. The return code is from the ENFREQ macro.

System action

IMS Sysplex Manager continues processing, but the function for the log stream offload activity monitoring will not be available.

User response

This error is an internal error. Contact IBM Software Support and provide the IMS Sysplex Manager data collector job log.

GJE0308E **DC IMSPLEX MISMATCH FOR IMS**
SYSTEM *imsid* - IMS IGNORED

Explanation

The Data Collector recognized the presence of an IMS system and checked it for use of IMSPLEX. The IMSPLEX= parameter value that was specified for the Data Collector is incompatible with that specified for IMS.

System action

The Data Collector ignores the IMS system. No data from the IMS will be available.

User response

Correct the Data Collector IMSPLEX= configuration parameter value and restart the Data Collector.

GJE0309I **ENF48 LISTEN EXIT INSTALLED**

Explanation

This message indicates that IMS Sysplex Manager successfully activated its ENF 48 listening exit.

System action

IMS Sysplex Manager continues normal processing.

User response

None. This message is informational.

GJE0310E RESOURCE IS UNAVAILABLE:
resource

Explanation

The Data Collector detected an unavailable *resource*.

System action

Any request for data from the *resource* will fail.

User response

Determine why the *resource* is unavailable. Following is a list of the possible *resource* types:

- SHARED MESSAGE QUEUE - A request for data failed because the IMS system is not configured for shared message queues.
- COMMON QUEUE SERVER - Data was requested from the shared message queue. The common queue server (CQS) is not available.
- SHARED MESSAGE QUEUE STRUCTURE - Data was requested for a shared message queue structure. The shared message queue structure is not available.
- SM AFFINITY STRUCTURE - A request for data failed because IMS Sysplex Manager is not connected to the affinity structure.
- CQSQUERY BUFFER - Data was requested for destination queue depths. The number of destinations with queued messages exceeds the capacity of the Data Collector buffer size. Contact IBM Software Support.
- LOCAL MESSAGE QUEUE - Data was requested for a resource related to Local Message Queues (Transactions, Destination Queues, Message Queue Data set Statistics, etc.). However, the IMS system is configured for Shared Message Queues or for DBCTL.
- DBCTL - Data was requested for a resource that is not available in a DBCTL IMS Subsystem.
- PRIMARY TARGET NOT DEFINED - A request to update affinity failed because a destination was assigned to a primary system target that has not been defined to IMS Sysplex Manager. Ensure the target name is correct or define this target to IMS Sysplex Manager, and then try again.

- BACKUP TARGET NOT DEFINED - A request to update affinity failed because a destination was assigned to a backup system target that has not been defined to IMS Sysplex Manager. Ensure the target name is correct or define this target to IMS Sysplex Manager, and then try again.

GJE0311E TARGET IS UNAVAILABLE: *target*

Explanation

During the processing of a request, the Data Collector detected that the target address space, indicated by *target*, was unavailable.

System action

The request fails.

User response

Determine why the target is unavailable.

GJE0320E SCI service SERVICE FAILURE RC=
retcode , RSN= *rsncode*

Explanation

A Structured Call Interface (SCI) service request failed. The requested service in the message indicates the failing SCI service. The *retcode* and *rsncode* are the return and reason codes returned by SCI, respectively.

System action

If the SCI service is CSLSCREG or CSLSCRDY, the Data Collector terminates with a user abend U0120-01 or U0120-02, respectively. For all other request failures, Data Collector processing continues, but the request for data from SCI might fail.

User response

For more information about SCI services, see the IMS/ESA CSL Guide and Reference. If the problem persists, contact IBM Software Support.

GJE0330E RM service SERVICE FAILURE RC=
retcode , RSN= *rsncode*

Explanation

A Resource Manager (RM) service request failed. The requested service in the message indicates the failing RM service. The *retcode* and *rsncode* are the return and reason codes returned by RM, respectively.

System action

Data Collector processing continues, but the request for data from RM might fail.

User response

For more information about RM services, see the *IMS/ESA CSL Guide and Reference*. If the problem persists, contact IBM Software Support.

GJE0335E	OM service SERVICE FAILURE RC= retcode , RSN= rsncode
-----------------	--

Explanation

A Operations Manager (OM) service request failed. The requested service in the message indicates the failing OM service. The *retcode* and *rsncode* are the return and reason codes returned by OM, respectively.

System action

Data Collector processing continues, but the request for data from OM might fail.

User response

For more information about OM services, see the *IMS/ESA CSL Guide and Reference*. If the problem persists, contact IBM Software Support.

GJE0340I	exception EXCEPTION FOR subsys, MESSAGE= msg
-----------------	---

Explanation

A system exception was detected by the sample user exceptions exit routine. The exception type is indicated by *exception*, the subsystem ID is indicated by *subsys*, and the exceptions message number is indicated by *msg*.

System action

The message is issued for your information only.

User response

None. This message is informational.

GJE0350I	STRUCTURE structure CHECKPOINT action DETECTED
-----------------	---

Explanation

A structure checkpoint was detected for structure *structure*. The action *action* indicates whether the

message is issued for checkpoint begin, end, or checkpoint failure.

System action

The message is issued for your information only.

User response

None. This message is informational.

GJE0352I	STRUCTURE structure STATUS CHANGE: status
-----------------	--

Explanation

A status change *status* for structure *structure* was detected.

System action

The message is issued for your information only.

User response

Following is a list of the possible *status* changes:

- STRUCTURE AVAILABLE - The structure is now available.
- STRUCTURE FAILURE - The structure failed.
- CONNECTION LOST - Connectivity to the structure was lost.
- LOG STREAM AVAILABLE - The MVS log stream associated with the structure is now available.
- LOG STREAM UNAVAILABLE - The MVS log stream associated with the structure is now unavailable.

GJE0354I	STRUCTURE structure REBUILD phase DETECTED
-----------------	---

Explanation

The structure *structure* is in the process of being rebuilt. The *phase* represents the rebuild phase or event that is detected.

System action

The message is issued for your information only.

User response

Following is a list of the possible phases or events:

- BEGIN - Structure rebuild has begun.
- COPY END - Structure copy has completed.
- COPY FAILURE - Structure copy has failed.

- FAILURE - Structure rebuild has failed.
- RECOVERY END - Structure recovery has completed.
- RECOVERY FAILURE - Structure recovery has failed.
- LOST UNITS OF WORK - Structure rebuild has lost one or more units of work.

GJE0356I **STRUCTURE *structure* QUEUE
queue MOVED action OVERFLOW
STRUCTURE**

Explanation

Structure overflow activity was detected for the structure *structure*. The queue *queue* was moved to or from the overflow structure as determined by the *action* in the message.

System action

The message is issued for your information only.

User response

None. This message is informational.

GJE0358I **STRUCTURE *structure* OUT OF
OVERFLOW**

Explanation

Structure *structure* is no longer in overflow mode.

System action

The message is issued for your information only.

User response

None. This message is informational.

GJE0359I **LOGSTREAM *log_name* OFFLOAD
COMPLETE, HI BLOCK ID *xxxxx***

Explanation

This message indicates that IMS Sysplex Manager detected offload activity for the log stream.

System action

IMS Sysplex Manager logs this message in its history data sets.

User response

None. This message is informational.

GJE0360I **IRLM DEADLOCK CYCLE NUMBER:**

Explanation

The message is issued when an IRLM Deadlock is detected. It is followed by several lines of output identifying the specifics of the Deadlock situation which are all prefixed with GJE0361I.

System action

None.

User response

None. This message is informational.

GJE0361I ***various deadlock info associated
with GJE0360I***

Explanation

The message is issued when an IRLM Deadlock is detected. It is preceded by GJE0360I.

System action

None.

User response

None. This message is informational.

GJE0400E **LOCATE FAILURE FOR BLOCK *block***

Explanation

The Data Collector detected an error while attempting to locate a control block that is required to complete initialization.

System action

The Data Collector terminates with a user abend U0060-01.

User response

Contact IBM Software Support.

GJE0410E **LOAD FAILED FOR MODULE *module*
RC= *retcode***

Explanation

An MVS LOAD macro/service was issued for module *module*. The module could not be loaded. The return code *retcode* is the return code from the MVS LOAD macro/service.

System action

The Data Collector terminates with a user abend.

User response

Check the MVS LOAD return code issued with the message for a possible installation error, such as a missing module from the Data Collector program library or insufficient region specification.

GJE0420E	MVS SERVICE FAILURE <i>service</i> RC= <i>retcode</i>
-----------------	--

Explanation

An MVS service request *service* failed with return code *retcode*.

System action

For service ALESERV ADD, the Data Collector terminates with a user abend U0050-X'05'.

User response

Contact IBM Software Support.

GJE0430E	XCF service SERVICE FAILURE RC= retcode, RSN= <i>rsncode</i>
-----------------	---

Explanation

A cross-system coupling facility (XCF) request failed. The requested *service* in the message indicates the failing XCF service. The *retcode* and *rsncode* are the return and reason codes returned by XCF, respectively.

System action

Processing continues unless the error is critical to the caller of XCF services.

User response

A common cause of XCF errors is a missing IMS Sysplex Manager component address space. Another cause might be an improperly specified XCF group or member name for a component address space. For more information about XCF services, see the *z/OS MVS Programming: Sysplex Services Reference*. If the problem persists, contact IBM Software Support.

GJE0470E	MISSING DIRECTORY DATASET
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Explanation

The Archive Directory DD statement with DD name DIRECTORY was not found in the jobstream.

System action

The job terminates.

User response

Add a DIRECTORY DD statement to the job and rerun.

GJE0472E	OPEN FAILED FOR DIRECTORY DATASET
-----------------	--

Explanation

Data Set open failed for the Archive Directory DD statement with DD name DIRECTORY.

System action

The job terminates.

User response

Correct the DIRECTORY DD statement to reference a valid directory data set name and rerun.

GJE0474E	TRKCALC FAILED FOR DIRECTORY DATASET
-----------------	---

Explanation

The TRKCALC function failed for the Archive Directory DD statement with DD name DIRECTORY.

System action

The job terminates.

User response

Correct the DIRECTORY DD statement to reference a valid directory data set name and rerun. If the problem persists, contact IBM Software Support.

GJE0480E	RDJFCB FAILED FOR DIRECTORY DATASET
-----------------	--

Explanation

The Archive Directory DD statement with DD name DIRECTORY was not found in the jobstream.

System action

Archive job continues, but the archived data is not tracked in the directory.

User response

Add a valid DIRECTORY DD statement to the job.

GJE0482E OPEN FAILED FOR DIRECTORY DATASET

Explanation

Data Set open failed for the Archive Directory DD statement with DD name DIRECTORY.

System action

Archive job continues, but the archived data is not tracked in the directory.

User response

Correct the DIRECTORY DD statement to reference a valid directory data set name.

Explanation

The POINT function failed for the Archive Directory DD statement with DD name DIRECTORY.

System action

Archive job continues, but the archived data is not tracked in the directory.

User response

This is likely an internal logic error. If the problem persists, contact IBM Software Support.

GJE0484E INVALID HEADER RECORD IN DIRECTORY DATASET

Explanation

The first logical record within the DIRECTORY data set is not the expected header record. The data set might have been accidentally corrupted.

System action

Archive job continues, but the archived data is not tracked in the directory.

User response

Reinitialize the DIRECTORY data set.

Explanation

The directory maintenance utility is unable to locate the target directory entry.

System action

Archive job continues, but the archived data is not tracked in the directory.

User response

This is likely an internal logic error. If the problem persists, contact IBM Software Support.

GJE0486E TRKCALC FAILED FOR DIRECTORY DATASET

Explanation

The TRKCALC function failed for the Archive Directory DD statement with DD name DIRECTORY.

System action

Archive job continues, but the archived data is not tracked in the directory.

User response

Correct the DIRECTORY DD statement to reference a valid directory data set name and rerun. If the problem persists, contact IBM Software Support.

Explanation

The directory maintenance utility reached an end of file condition while reading the directory data set.

System action

Archive job continues, but the archived data is not tracked in the directory.

User response

This is likely an internal logic error or the DIRECTORY data set header record contains invalid data. Reinitialize the directory data set. If the problem persists, contact IBM Software Support.

GJE0488E POINT FAILED FOR DIRECTORY DATASET

GJE0490E LOCATE FAILED FOR TARGET DIRECTORY ENTRY

Explanation

The logical record length of the DIRECTORY data set is invalid.

System action

Archive job continues, but the archived data is not tracked in the directory.

User response

Correct the logical record length of the DIRECTRY data set.

GJE0500I	DUPLICATE IMS SYSTEM IGNORED
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Explanation

The Data Collector detected the initialization of an IMS system in the Sysplex Management Group. The Data Collector previously established communications with another IMS system with the same IMS ID.

System action

The new IMS system is considered to be a duplicate and is ignored by the Data Collector.

User response

The message is for your information only.

GJE0502I	CONNECTION TO IMS <i>ims id</i> JOB/STC <i>name</i> ESTABLISHED
-----------------	--

Explanation

The Data Collector has completed its connection to the IMS system *ims id* with job/stc name *name*.

System action

The Data Collector is ready to receive requests for IMS system data.

User response

None. This message is informational.

GJE0550W	INPUT BLOCKED: DC INITIALIZATION NOT COMPLETE
-----------------	--

Explanation

The Data Collector received an input request from an IMS Sysplex Manager server while its initialization was still in process.

System action

This error is uncommon. You will receive this error only if startup communication between Data Collector and IMS Sysplex Manager server breaks down.

User response

Shut down both Data Collector and IMS Sysplex Manager servers. Restart them. If the problem persists, submit a trouble report to IBM.

GJE0551W	INPUT BLOCKED: DC SHUTTING DOWN
-----------------	--

Explanation

The Data Collector received an input request from an IMS Sysplex Manager server while it was shutting down.

System action

The input request is rejected.

User response

None.

GJE0600W	SAF service SERVICE FAILURE SAF=<i>safrc</i>, RC=<i>retcode</i>, RSN= <i>rsncode</i>
-----------------	---

Explanation

A System Authorization Facility (SAF) service request failed. The requested *service* in the message indicates the failing SAF/RACF (or equivalent) service. The *safrc* is the SAF return code returned in R15 from the call to SAF. The *retcode* and *rsncode* are the return and reason codes returned by RACF (or equivalent) respectively.

System action

IMS Sysplex Manager server processing continues. The authorization request might be denied.

The most likely cause of this warning is due to RACF protection of entering IMS commands from the IMS Sysplex Manager client. In that case, messages GJE0603E and GJE0604E are written to the job log and GJE0092E is displayed on the IMS Sysplex Manager client.

User response

Additional information about SAF services can be found in *z/OS Security Server RACROUTE Macro Reference*.

If the problem persists, contact IBM Software Support.

GJE0603E	SECURITY VIOLATION DUE TO <i>type</i> RC=<i>rc</i> RSN=<i>rsn</i> EXRC=<i>exrc</i>
-----------------	---

Explanation

A command was entered from the IMS Sysplex Manager interface and was rejected. The reason for the rejection (*type*) is either "SAF FAILURE" (if it was rejected by SAF) or "CUSTOMER EXIT" (if it was rejected by the customer security exit routine). The return code (*rc*) and reason code (*rsn*) are related to the calling of the exit routine or the issuing of the SAF call. The exit routine return code (*exrc*) is the return code set by the customer exit routine, if called.

System action

The command is rejected.

User response

Review the associated GJE0604E message to determine the command that was issued and the user issuing the command. If the user requires access to the command, if the *type* was "SAF FAILURE", the SAF profiles must be updated to grant the user ID access. If the *type* was "CUSTOMER EXIT", the customer security exit routine must be modified and reloaded to grant the user ID access.

GJE0604I	GROUP=(group) USER=(userid) AUTH=(level) TYPE=(type) CMD=(cmd)
-----------------	---

Explanation

Initialization for an IMS Sysplex Manager Data Collector System has successfully completed.

System action

None.

User response

None. This message is informational.

GJE0605I	IMS SYSPLEX MANAGER SECURITY EXIT ENTERED
-----------------	--

Explanation

This is an informational message issued by the sample customer security exit routine. It is issued each time that the security exit routine is invoked.

System action

None.

User response

None. This message is informational.

GJE0606I	GROUP=(group) USER=(userid) ACCESS=(level) COMMAND=(command)
-----------------	---

Explanation

This is an informational message issued by the sample customer security exit routine. It is issued each time that the security exit routine is invoked. The message lists the RACF group (*group*), user ID (*userid*), the requested access level (*level*), and the command (*command*) being processed.

System action

None.

User response

None. This message is informational.

GJE0607I	IMS SYSPLEX MANAGER SECURITY EXIT RC=(rc)
-----------------	--

Explanation

This is an informational message issued by the sample customer security exit routine. It is issued each time that the security exit routine is invoked and lists the return code (*rc*) that was set by the security exit routine.

System action

If the return code is zero, the command is allowed. If the return code is 4, SAF called to validate the command. If the return code is greater than 4, the command is rejected.

User response

None. This message is informational.

GJE0800I	***** *****
-----------------	------------------------

Explanation

This message indicates the beginning or ending "enclosure" for the Data Collector display command output.

System action

Data Collector processing continues.

User response

None. This message is informational.

GJE0802I * DC SYSTEM OPTIONS FOR EXECUTION: *

Explanation

This message indicates the beginning of the Data Collector **DISPLAY OPTIONS** command output.

System action

Data Collector processing continues.

User response

None. This message is informational.

GJE0804I * *parameter* = *value*

Explanation

This message is issued once for each Data Collector configuration parameter. The message contains keyword *parameter* and keyword *value pairs*. The message is issued as a response to the Data Collector **DISPLAY OPTIONS** command output.

System action

Data Collector processing continues.

User response

None. This message is informational.

GJE0806I * DC SYSTEM STATISTICS: *

Explanation

This message indicates the beginning of the Data Collector **DISPLAY STATS** command output.

System action

Data Collector processing continues.

User response

None. This message is informational.

GJE0808I * *statistic* = *value*

Explanation

This message is issued once for each displayed Data Collector statistic. The message contains statistics *statistic* and *value pairs*. The message is issued as

a response to the Data Collector **DISPLAY STATS** command output.

System action

Data Collector processing continues.

User response

None. This message is informational.

GJE0900I SHUTDOWN SCHEDULED

Explanation

The Data Collector received a scheduled shutdown request.

System action

The Data Collector has internally queued the request for shutdown. Shutdown processing will continue when all outstanding IMS Sysplex Manager server requests have been processed.

User response

None. This message is informational.

GJE0902I IMMEDIATE SHUTDOWN REQUESTED

Explanation

The Data Collector received an immediate shutdown request.

System action

The Data Collector will immediately initiate shutdown processing.

User response

None. This message is informational.

GJE0904I IMS SM CONTROL REGION COMPONENT TERMINATION DETECTED

Explanation

The Data Collector detected the termination of IMS Sysplex Manager within one of the associated IMS systems.

System action

None.

User response

None. This message is informational.

GJE0906I	IMS SM CONTROL REGION COMPONENT STOP REQUESTED
-----------------	---

Explanation

The Data Collector received a request to terminate the execution of IMS Sysplex Manager in the IMS control region.

System action

The Data Collector forwards the request to the IMS control region.

User response

None. This message is informational.

GJE0910I	IMS SM CONTROL REGION COMPONENT START REQUESTED
-----------------	--

Explanation

The Data Collector received a request to initiate execution of IMS Sysplex Manager in the IMS control region.

System action

The Data Collector forwards the request to the IMS control region.

User response

None. This message is informational.

GJE0990I	A/S CLEANUP COMPLETE
-----------------	-----------------------------

Explanation

The Data Collector or IMS Sysplex Manager server has completed the final phase of termination processing.

System action

Data Collector or IMS Sysplex Manager server address space termination follows immediately.

User response

None. This message is informational.

GJE0991E	(variable text describing a system internal error condition)
-----------------	---

Explanation

The Data Collector has detected a system internal error. The message text starts with the program CSECT name.

System action

Data Collector address space termination follows immediately.

User response

Submit a trouble report with supporting documentation to IBM Software Support.

GJE0992I	(variable text for ad hoc system diagnostic information)
-----------------	---

Explanation

The Data Collector displays ad hoc system diagnostic information through this message. The message text starts with the program CSECT name. The triggering conditions will be at the specific request of IBM Software Support.

System action

None.

User response

Submit supporting documentation as requested by IBM Software Support.

GJE0997E	SDUMP FAILED FOR ABEND <i>abend,retcode,rsncode</i>
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Explanation

IMS Sysplex Manager error recovery attempted to issue an SDUMP macro/service to capture diagnostic information for the ABEND *abend* in the message. The SDUMP macro/service returned a nonzero return code *retcode*. The SDUMP reason code *rsncode* is also included in the message.

System action

The SDUMP failure has no impact on any IMS Sysplex Manager address space.

User response

Additional information about SDUMP return codes can be found in *z/OS MVS Programming: Authorized Assembler Services Reference, Volume 3 (LLA-SDU)*. If the problem persists, contact IBM Software Support.

GJE0998I **DAE SUPPRESSED DUMP FOR
ABEND***abend*

Explanation

IMS Sysplex Manager error recovery attempted to issue an SDUMP macro/service to capture diagnostic information for the ABEND *abend* in the message. The SDUMP was suppressed by MVS dump analysis and elimination (DAE). IMS Sysplex Manager recovery routines gather symptom string data related to an abend and provide this data to MVS when an SDUMP is requested. If DAE is enabled, MVS will suppress duplicate dumps; for example, dumps that have symptom strings identical to previously captured dumps are suppressed. DAE is controlled through the MVS ADYSETxx PARMLIB member and the MVS **SET DAE** command. For details on specifying DAE options, see *z/OS MVS Initialization and Tuning Reference*.

System action

The SDUMP is skipped. Note that an IMS Sysplex Manager generated dump will be suppressed if its symptom string matches a previous dump, and if the current DAE setting in ADYSETxx is either SUPPRESS OR SUPPRESSALL.

User response

None. This message is informational.

GJE0999E **IMS SM *component* *subcomponent*
ABEND***abend*

Explanation

IMS Sysplex Manager error recovery detected an ABEND *abend* in component *component* and subcomponent *subcomponent*.

System action

IMS Sysplex Manager error recovery attempts to generate a system dump to capture diagnostic data.

User response

Retain the generated system dump and contact IBM Software Support.

GJE2000I **IMS SYSPLEX MANAGER
INITIALIZATION COMPLETE**

Explanation

Initialization for the IMS Sysplex Manager in the IMS control region has successfully completed.

System action

IMS Sysplex Manager processing is now available.

User response

None. This message is informational.

GJE2001E **IMS SYSPLEX MANAGER
INITIALIZATION FAILED**

Explanation

An error has occurred this caused the initialization of the IMS Sysplex Manager to fail in the IMS control region.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the abend. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2002I **IMS SYSPLEX MANAGER
name ITASK INITIALIZATION
COMPLETE**

Explanation

One of the ITASKs created by IMS Sysplex Manager within the IMS control region has successfully been initialized. The possible values for *name* are: CTL for the IMS Sysplex Manager control ITASK, REQ for the IMS Sysplex Manager request ITASK, or EVT for the IMS Sysplex Manager event ITASK.

System action

The services provided by the ITASK are now available.

User response

None. This message is informational.

GJE2003E **IMS SYSPLEX MANAGER *name*
ITASK INITIALIZATION FAILED**

Explanation

One of the ITASKs created by IMS Sysplex Manager within the IMS control region has failed during initialization. The possible values for *name* are: CTL for the IMS Sysplex Manager control ITASK, REQ for

the IMS Sysplex Manager request ITASK or EVT for the IMS Sysplex Manager event ITASK.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the abend. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2004I	IMS SYSPLEX MANAGER TERMINATION IN PROGRESS
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Explanation

The IMS control region is terminating and as a result, IMS Sysplex Manager is beginning termination processing.

System action

IMS Sysplex Manager will be terminated.

User response

None. This message is informational.

GJE2005I	IMS SYSPLEX MANAGER TERMINATION COMPLETE
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Explanation

IMS Sysplex Manager termination processing is complete.

System action

The IMS control region will continue termination.

User response

None. This message is informational.

GJE2006I	IMS SYSPLEX MANAGER <i>name</i> ITASK TERMINATION COMPLETE
-----------------	---

Explanation

One of the ITASKs created by IMS Sysplex Manager within the IMS control region has successfully been terminated. The possible values for *name* are: CTL for the IMS Sysplex Manager control ITASK, REQ for the IMS Sysplex Manager request ITASK, or EVT for the IMS Sysplex Manager event ITASK.

System action

The services provided by the ITASK are no longer available.

User response

None. This message is informational.

GJE2010E	IMS SYSPLEX MANAGER TERMINATED DUE TO ERROR
-----------------	--

Explanation

An error has occurred within IMS Sysplex Manager code during normal processing that has caused the product to terminate.

System action

IMS Sysplex Manager services are no longer available within the IMS control region. The IMS control region will continue to operate without IMS Sysplex Manager.

User response

Review the IMS control region job log for other messages associated with the abend. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2020E	UNABLE TO LOCATE IMS SSCD
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Explanation

During initialization processing, IMS Sysplex Manager was unable to locate the IMS SSCD control block.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the abend. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2021E	IMS RELEASE NOT SUPPORTED
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Explanation

During IMS Sysplex Manager initialization processing, it was determined that the IMS release associated with the IMS control region is not supported by IMS Sysplex Manager.

System action

The IMS control region willabend.

User response

See “Hardware and software prerequisites” on page 9 for a list of supported IMS releases.

GJE2022E LOAD FAILED FOR IMS SM INITIALIZATION ROUTINE

Explanation

During IMS Sysplex Manager initialization processing, an attempt to load the initialization routine failed.

System action

The IMS control region willabend.

User response

Make sure IMS Sysplex Manager has been successfully installed in the IMS control region. See step 5 of Chapter 4, “Configuring the IMS control region,” on page 29 for a list of the load modules required for IMS control region processing.

GJE2030I PROCESSING PROCLIB CONFIGURATION MEMBER GJEI imsid

Explanation

This message is issued during IMS Sysplex Manager initialization in the IMS Control Region and specifies the IMS PROCLIB member that contains the processing parameters. The IMS ID associated with the IMS system is *imsid*.

System action

The processing parameters specified in the member are read and used for processing.

User response

None. This message is informational.

GJE2031E ERROR *action* PROCLIB MEMBER member, REASON= *reason*

Explanation

An error has occurred attempting to read the specified IMS Sysplex Manager PROCLIB member, *member*. The action taken may be READING or PARSING. The possible reasons for the error are: NOSTG (no storage

available to perform read), OPENFAIL (open failed for IMS PROCLIB data set), NOTFIXED (IMS PROCLIB data set format is not FIXED), READFAIL (read failed for IMS PROCLIB data set), or NOTFOUND (specified PROCLIB member could not be found).

System action

The IMS control region willabend.

User response

See Chapter 4, “Configuring the IMS control region,” on page 29 to ensure that the IMS PROCLIB member *member* has been correctly designated.

GJE2032E MISSING OR INVALID VALUE FOR CONFIGURATION PARAMETER parm

Explanation

An error has occurred while attempting to process the specified IMS Sysplex Manager configuration parameter *parm*.

System action

The IMS control region willabend.

User response

Review the IMS Sysplex Manager installation guide to ensure that the IMS PROCLIB member *parm* has been correctly designated.

GJE2033W DEFAULT VALUES ARE USED FOR ALL CONFIGURATION PARAMETERS

Explanation

An error has occurred during configuration parameters processing.

System action

IMS Sysplex Manager will use default values for all configuration parameters and will not the IMS control region.

User response

See Chapter 4, “Configuring the IMS control region,” on page 29 to ensure that the IMS PROCLIB member has been correctly designated. Correct the error and re-initialize the IMS Sysplex Manager control region component to refresh the configuration parameters.

**GJE2040E IMS SYSPLEX MANAGER ESTAE
CREATE FAILED**

Explanation

A failure has occurred setting up the IMS Sysplex Manager ESTAE.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the abend. Contact IBM Software Support if necessary and provide them with the dump and messages.

**GJE2050E DYNAMIC ALLOCATION FAILED
FOR *data set***

Explanation

Dynamic allocation failed for the specified data set *data set*.

System action

The process being performed will fail.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

**GJE2051E DYNAMIC ALLOCATION FAILED
FOR *ddname*, RC= *retcode*, RSN=
rsncode, INFO= infocode**

Explanation

Dynamic allocation failed for the specified *ddname*. The dynamic allocation return code *retcode*, reason code *rsncode* and info code *infocode* are shown in the message.

System action

The process being performed will fail.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

**GJE2100E IMODULE *function* FAILED FOR
name, RC= *retcode***

Explanation

An error has occurred processing an IMODULE service call. One of the valid IMODULE functions (for example, LOAD, GETMAIN, and so on) will be *function*. The target associated with the IMODULE call is *name*. The return code returned by the function is *retcode*.

System action

The process being performed will fail.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

**GJE2101E DFSTCBTB FUNC=LOCATE,
DSPTYPE=CTX FAILED,
RC=*retcode***

Explanation

An attempt to locate the dispatcher work area for the CTX TCB has failed with the specified return code, *retcode*.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

**GJE2102E DFSCIR FUNC=ITASK FAILED FOR
itaskname, RC= *retcode***

Explanation

An attempt to create one of the IMS Sysplex Manager ITASKs *itaskname* has failed with the specified return code, *retcode*.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2103E	IPOST ECB= <i>itaskname</i> FAILED, RC= <i>retcode</i>
-----------------	---

Explanation

An attempt to POST the specified IMS Sysplex Manager ITASKs *itaskname* has failed with the specified return code, *retcode*.

System action

The IMS control region willabend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2104E	DFSTCBTB FUNC=LOCATE, TCB=CURRENT FAILED, RC= <i>retcode</i>
-----------------	---

Explanation

An attempt to locate the dispatcher work area for the current TCB has failed with the specified return code, *retcode*.

System action

The IMS control region willabend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2105E	DFSPPOOL FUNC= <i>function</i> FAILED FOR ISMB, RC= <i>retcode</i>
-----------------	---

Explanation

An attempt to STORE or FIND the IMS Sysplex Manager ISMB control block using DFSSPOOL has failed with the specified return code, *retcode*.

System action

The IMS control region willabend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2106E	ALESERV EXTRACTH FOR <i>name</i> FAILED, RC= <i>retcode</i>
-----------------	--

Explanation

An attempt to locate the STOKEN for the either the IMS control region (IMSCTL) or the DLI/SAS Region (DLISAS) has failed with the specified return code, *retcode*.

System action

The IMS control region willabend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2108E	DFSBCB FUNC=GET, BLK= <i>block</i> FAILED
-----------------	--

Explanation

An attempt to get a block of type *block* using DFSBCB services has failed.

System action

The process being performed will fail.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2109E	LOAD FAILED FOR <i>member</i>, RC= <i>retcode</i>, RSN= <i>rsncode</i>
-----------------	---

Explanation

An attempt to load member *member* has failed with the specified return and reason code.

System action

The IMS control region willabend.

User response

Make sure IMS Sysplex Manager has been successfully installed in the IMS control region. Refer to the installation guide for a list of the load modules required for IMS control region processing.

**GJE2110E CPOOL ALLOCATE FAILED FOR
block, RC= retcode**

Explanation

An attempt to get a block of type *block* using CPOOL services has failed with return code *retcode*.

System action

The process being performed will fail.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2111E DFSPPOOL GET, POOL= pool FAILED

Explanation

An attempt to get a block of storage from pool *pool* using DFSPPOOL services has failed.

System action

The process being performed will fail.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

**GJE2112E IMS SYSPLEX MANAGER INVALID
INITIALIZATION CALL**

Explanation

During IMS Sysplex Manager initialization processing, an invalid call to the initialization routine was performed.

System action

The IMS control region willabend.

User response

Ensure that IMS Sysplex Manager was successfully installed in the IMS control region. See the installation information for a list of the load modules that are required for IMS control region processing. The IMS Sysplex Manager copy of DFSFLGX0 *must* be the first copy of the module present in the //STEPLIB concatenation.

**GJE2113E DFSCBTS FUNC= FIND, TYPE= type
FAILED**

Explanation

An attempt to FIND a block of type *type* using DFSCBTS services has failed.

System action

The process being performed will fail.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2114E DFSLM STAT, TYPE= type FAILED

Explanation

An attempt to obtain IRLM statistics of type *type* using DFSLM services has failed.

System action

The process being performed will fail.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

**GJE2115E PROCESSING ERROR
ENCOUNTERED IN ROUTINE
routine, RC=retcode**

Explanation

An unrecoverable error occurred during processing in routine, *routine*.

System action

The IMS control region willabend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2120E	XCF SERVICES INITIALIZATION FAILED
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Explanation

An attempt to initialize the IMS Sysplex Manager XCF services has failed.

System action

The IMS control region will abend.

User response

Make sure IMS Sysplex Manager has been successfully installed in the IMS control region. Refer to the installation guide for a list of the load modules required for IMS control region processing.

GJE2121E	SRB SERVICES RESMGR ADD FAILED, RC= <i>retcode</i>
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Explanation

An attempt to initialize IMS Sysplex Manager SRB services has failed. The RESMGR ADD service failed with *retcode*.

System action

The IMS control region will abend.

User response

Make sure IMS Sysplex Manager has been successfully installed in the IMS control region. See Chapter 4, “Configuring the IMS control region,” on page 29 for a list of the load modules required for IMS control region processing.

GJE2150E	INVALID CALL TYPE FOR DFSFLGX0
-----------------	---

Explanation

A call made to the logger exit, DFSFLGX0 specifies an invalid call type.

System action

The call to DFSFLGX0 is rejected.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2151E	INVALID INITIALIZATION CALL TYPE FOR DFSFLGX0
-----------------	--

Explanation

A invalid initialization call has been made to logger exit DFSFLGX0.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2152E	INVALID LOG WRITE CALL TYPE FOR DFSFLGX0
-----------------	---

Explanation

A invalid log write call has been made to logger exit DFSFLGX0.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2153E	INVALID TERMINATION CALL TYPE FOR DFSFLGX0
-----------------	---

Explanation

An invalid termination call has been made to logger exit DFSFLGX0.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2154E UNABLE TO LOCATE DISPATCHER WORKAREA

Explanation

IMS Sysplex Manager was unable to locate the dispatcher work area for the active task.

System action

The IMS control region will abend.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2200I IMS SYSPLEX MANAGER IS NOW *state*

Explanation

This is an informational message that indicates that IMS Sysplex Manager is either ACTIVE or INACTIVE in the IMS control region.

System action

IMS Sysplex Manager services are either active or inactive.

User response

None. This message is informational.

**GJE2201I DATA COLLECTOR JOB/STC *name*
IMS INITIALIZATION COMPLETE**

Explanation

The data collector *name* has initialized and is now active. IMS Sysplex Manager processing is now available.

System action

IMS Sysplex Manager services are available.

User response

None. This message is informational.

**GJE2202I LOG RECORD DATA CAPTURE
FEATURE IS *state***

Explanation

This informational message indicates that the IMS Sysplex Manager log record data capture feature is either ACTIVE or INACTIVE in the IMS control region.

System action

IMS Sysplex Manager log data capture services are either active or inactive.

User response

None. This message is informational.

**GJE2203I DATA COLLECTOR JOB/STC *name*
HAS TERMINATED**

Explanation

The Data Collector *name*, associated with this IMS control region, has terminated.

System action

IMS Sysplex Manager services are now unavailable.

User response

If you want IMS Sysplex Manager services, restart the Data Collector.

**GJE2204E REINIT REQUEST REJECTED, IMS
SM IS ACTIVE**

Explanation

A request to re-initialize IMS Sysplex Manager in the IMS control region has been rejected because IMS Sysplex Manager is currently active.

System action

The request is rejected.

User response

Before performing the REINIT process, IMS Sysplex Manager must first be made inactive with the **STOP SM** command.

**GJE2205I IMS SYSPLEX MANAGER REINIT
IN PROGRESS**

Explanation

A REINIT request has been received and IMS Sysplex Manager is being re-initialized in the IMS control region.

System action

The request is in progress.

User response

None. This message is informational.

GJE2206E	IMS SYSPLEX MANAGER ACTIVATE REQUEST REJECTED, <i>reason</i>
-----------------	---

Explanation

A request to activate IMS Sysplex Manager in the IMS control region has been rejected for one of the following reasons: REINIT REQUEST IN PROGRESS or INACTIVE DUE TO PRIOR ERROR

System action

The request is rejected and IMS Sysplex Manager remains inactive.

User response

If the reason for the rejection is 'REINIT REQUEST IN PROGRESS,' wait until IMS Sysplex Manager is re-initialized and try the command again. If the reason is 'INACTIVE DUE TO PRIOR ERROR,' IMS must be recycled to activate IMS Sysplex Manager.

GJE2207I	IMS SYSPLEX MANAGER REINIT COMPLETE
-----------------	--

Explanation

IMS Sysplex Manager has been successfully re-initialized in the IMS control region.

System action

The request is complete.

User response

The Data Collector address space should be restarted.

GJE2208E	IMS SYSPLEX MANAGER REINIT FAILED
-----------------	--

Explanation

An attempt to re-initialize IMS Sysplex Manager in the IMS control region has failed.

System action

IMS Sysplex Manager is inactive.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2209E	IMS SYSPLEX MANAGER REINIT FAILED - GJEIRNTX NOT LOADED
-----------------	--

Explanation

An attempt to re-initialize IMS Sysplex Manager in the IMS control region has failed because the IMS Sysplex Manager re-initialization routine GJEIRNTx could not be loaded.

System action

The re-initialization request is rejected.

User response

Make sure the routine exists in the STEPLIB concatenation of the IMS control region.

GJE2210E	COMMAND REJECTED - IMS SYSPLEX MANAGER IS INACTIVE
-----------------	---

Explanation

An IMS Sysplex Manager command was issued to the IMS control region but was rejected because IMS Sysplex Manager is inactive.

System action

The command is rejected.

User response

IMS Sysplex Manager must first be activated.

GJE2211I	AFFINITY ROUTING FEATURE IS <i>state</i>
-----------------	---

Explanation

This informational message indicates that the IMS Sysplex Manager affinity routing feature is either ACTIVE or INACTIVE in the IMS control region.

System action

IMS Sysplex Manager affinity routing functions are either active or inactive.

User response

None. This message is informational.

GJE2250I *text*

Explanation

This message is issued to display the various processing options currently in use by IMS Sysplex Manager in the IMS control region.

System action

None.

User response

None. This message is informational.

GJE2251I *text*

Explanation

This message is issued to display statistics associated with IMS Sysplex Manager processing in the IMS control region.

System action

None.

User response

None. This message is informational.

GJE2300I **COMMAND EXECUTED
SUCCESSFULLY, NO RESPONSES
RETURNED**

Explanation

An IMS command has been successfully issued through the user interface but no response to the command was generated.

System action

None.

User response

None. This message is informational.

GJE2301E **IMS COMMAND PROCESSING
FAILURE, *reason***

Explanation

A failure has occurred attempting to issue an IMS command. The reason for the failure is shown by *reason*. Valid reasons are: MISSING OUTPUT BUFFER PREFIX (this is an internal error), INVALID COMMAND (this is an internal error), INVALID IMS COMMAND (the command entered is not a valid IMS command), INVALID AWE (this is an internal error), CSA SHORTAGE (a CSA shortage prevented the command from being processed), and PRIVATE SHORTAGE (a PRIVATE shortage prevented the command from being processed).

System action

The command is rejected.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2302E **SNAPSHOT PROCESSING
FAILURE, *reason***

Explanation

A failure has occurred attempting to perform a snapshot request. The reason for the failure is shown by *reason*. One valid reason is a MISSING IMCID LIST. This is an internal error.

System action

The request is rejected.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2303E **IMCID NOT RETURNED - *reason***

Explanation

A failure has occurred when IMS Sysplex Manager attempted to perform a snapshot request. The reason for the failure is shown by *reason*.

System action

The specific IMC ID is rejected.

User response

None.

GJE2304I	NO RECORDS FOUND WHICH MEET THE SELECTION CRITERIA
-----------------	---

Explanation

A snapshot request that included selection criteria for limiting the amount of data returned was entered. No records meet the selection criteria.

System action

No records are returned.

User response

None. This message is informational.

GJE2306I	SELECTION CRITERIA NOT FOUND
-----------------	-------------------------------------

Explanation

A snapshot request was executed and indicated the presence of selection criteria but the selection criteria could not be located. This is an internal error.

System action

No records are returned.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM Software Support if necessary and provide them with the dump and messages.

GJE2307I	INVALID SELECTION CRITERIA
-----------------	-----------------------------------

Explanation

A snapshot request was executed and included selection criteria but the criteria was invalid and could not be interpreted. This is an internal error.

System action

No records are returned.

User response

Review the IMS control region job log for other messages associated with the problem. Contact IBM

Software Support if necessary and provide them with the dump and messages.

GJE2308E	GJEPREQ0 PMB LOCATE FAILURE. COMMAND JOURNALING DISABLED
-----------------	---

Explanation

IMS Sysplex Manager module GJEPREQ0 could not locate PMB control block.

System action

IMS Sysplex Manager journaling function is not available.

User response

Contact IBM Software Support.

GJE2309E	ICLC0 HOOK INSTALL FAILURE. COMMAND JOURNALING DISABLED
-----------------	--

Explanation

IMS Sysplex Manager could not establish a hook into IMS module DFSICLC0 for journaling function.

System action

IMS Sysplex Manager journaling function is not available.

User response

Contact IBM Software Support.

GJE2310E	GJEICLC0 PMB LOCATE FAILURE. COMMAND JOURNALING DISABLED
-----------------	---

Explanation

IMS Sysplex Manager module GJEICLC0 could not locate PMB control block.

System action

IMS Sysplex Manager journaling function is not available.

User response

Contact IBM Software Support for assistance.

GJE2700I	IMS SYSPLEX MANAGER AFFINITY ROUTER INITIALIZATION COMPLETE
-----------------	--

Explanation

Initialization for an IMS Sysplex Manager affinity router component has successfully completed.

System action

IMS Sysplex Manager initialization continues.

User response

None. This message is informational.

GJE2710E	IMS SYSPLEX MANAGER AFFINITY ROUTER INITIALIZATION FAILED ROUTING DISABLED
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Explanation

Initialization for an IMS Sysplex Manager affinity router component has failed. Affinity routing will be disabled until IMS is restarted.

System action

IMS Sysplex Manager initialization continues.

User response

Additional messages describing the nature of the error will precede this message. Take corrective action on these messages.

GJE2720E	ERROR <i>action</i> PROCLIB MEMBER <i>member</i>, REASON= <i>reason</i> PARM= <i>parm</i>
-----------------	--

Explanation

An error has occurred attempting to read the specified IMS Sysplex Manager PROCLIB member, *member*. The action taken may be READING or PARSING. The possible reasons for the error are:

- NOSTG (no storage available to perform read)
- OPENFAIL (open failed for IMS PROCLIB data set)
- NOTFIXED (IMS PROCLIB data set format is not FIXED)
- READFAIL (read failed for IMS PROCLIB data set)
- NOTFOUND (specified PROCLIB member could not be found)

When a parsing error is the cause, if the erroneous parameter can be identified it is displayed as the value for *parm*.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

See “Activating affinity routing” on page 37 to ensure that the IMS PROCLIB member *member* has been correctly designated.

GJE2730E	MISSING/INVALID VALUE FOR CONFIG PARM <i>parm</i>
-----------------	--

Explanation

An error has occurred validating the indicated affinity router parameter(s).

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

See “Activating affinity routing” on page 37 to ensure that the IMS PROCLIB affinity router parameters have been correctly specified.

GJE2740E	RDJFCB FOR PROCLIB FAILED <i>reason</i>
-----------------	--

Explanation

An error has occurred while attempting to process the affinity router PROCLIB member. The possible reasons for the error are:

- OPEN (open failed for IMS PROCLIB data set)
- BLDL (the affinity routing PDS member could not be located)
- RDJFCB (the JFCB for the PROCLIB data set could not be read)

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

See “Activating affinity routing” on page 37 to ensure that the IMS PROCLIB data set is allocated to IMS and that the affinity router PROCLIB member specifies a valid member name.

**GJE2750I PROCESSING PROCLIB
CONFIGURATION MEMBER
member**

Explanation

This message identifies the affinity router PROCLIB member in use.

System action

This is an informational message only.

User response

None. This message is informational.

**GJE2800E IMODULE *function* FAILED FOR
name, RC= *retcode***

Explanation

An error has occurred processing an IMODULE service call. One of the valid IMODULE functions (for example, LOAD, GETMAIN, and so on) will be *function*. The target associated with the IMODULE call is *name*. The return code returned by the function is *retcode*.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

Review the IMS control region job log for other messages associated with the problem. If necessary, contact IBM Software Support provide them the messages.

GJE2810E UNSUPPORTED RELEASE FOR CQS

Explanation

The release level of CQS to which IMS is registered is not supported by this release of IMS Sysplex Manager.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

Install a release of IMS Sysplex Manager that is compatible with CQS and IMS.

**GJE2812E UNSUPPORTED AFFINITY CF
STRUCTURE VERSION**

Explanation

The existing affinity coupling facility structure is not compatible with this release of IMS Sysplex Manager.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

The affinity coupling facility structure will need to be scratched and redefined. Follow the procedure for cold-starting the structure documented in this user's guide.

**GJE2814E AFFINITY ROUTING PROCLIB
MEMBER MISMATCH**

Explanation

During initialization of affinity routing, it was determined that the affinity routing PROCLIB member in use by this system is not the same used when the affinity routing coupling facility structure was initially populated. All IMS systems in the affinity routing group must use the same PROCLIB data set and member name.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

Change the PROCLIB member name to use the proper data set and member name. A valid attempt to change the PROCLIB data set and member name requires the affinity coupling facility structure to be scratched and redefined. In this case, follow the procedure for cold-starting the structure documented in [“Cold starting affinity routing”](#) on page 36.

**GJE2860E AFFINITY ROUTER TABLE BUILD
FAILED: *reason***

Explanation

During initialization of affinity routing, the contents of the affinity routing coupling facility structure is retrieved and examined. This message indicates that

the structure contents may have been corrupted. This is not a typical situation.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

The affinity coupling facility structure may need to be scratched and redefined. Follow the procedure for cold-starting the structure documented in [“Cold starting affinity routing”](#) on page 36. If the problem persists, contact IBM Software Support.

GJE2880E	DFSTIMER SERVICE FAILURE
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Explanation

During initialization of the affinity routing CQS inform component, an attempt to use the DFSTIMER service failed.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be enabled. Transaction messages with affinity for the current IMS system might not be processed.

User response

Contact IBM Software Support.

GJE2885E	CQS INFORM SERVICE FAILURE
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Explanation

During initialization of affinity routing, an attempt to use the CQSINFRM service failed.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be enabled. Transaction messages with affinity for the current IMS system may not be processed.

User response

Contact IBM Software Support.

GJE2886W	CQS UNIFORM SERVICE FAILURE
-----------------	------------------------------------

Explanation

During update or add affinity definition, an attempt to use the CQSINFRM service failed.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will continue to function properly, however, the coupling facility EMC count might increase or run out.

User response

Contact IBM Software Support.

GJE2890I	CQS INFORM SERVICE COMPLETED
-----------------	-------------------------------------

Explanation

The affinity routing inform component completed initialization.

System action

This is an informational message only.

User response

None. This message is informational.

GJE2891I	CQS UNIFORM SERVICE COMPLETED
-----------------	--------------------------------------

Explanation

The affinity routing inform component completed the UNIFORM process for a changed or deleted affinity definition.

System action

This is an informational message only.

User response

None. This message is informational.

GJE2900E	IMS RELEASE NOT SUPPORTED
-----------------	----------------------------------

Explanation

During initialization of affinity routing, it was determined that the current IMS release level is not supported by affinity routing.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

Install a release of IMS Sysplex Manager that supports affinity routing for the IMS level.

GJE2940E **CQS service SERVICE FAILURE RC=**
retcode , RSN= rsncode , SUB=
subcode , STRUC= structure

Explanation

The affinity router component issued a Common Queue Server (CQS) service request that failed. The requested *service* in the message indicates the failing CQS service. The *retcode* and *rsncode* are the return and reason codes returned by CQS, respectively. For CQS requests that support a list interface, *subcode* is the list entry completion code. For CQS requests that are structure related, *struc* is the structure name for which the request was made.

System action

The IMS control region will continue processing. IMS Sysplex Manager affinity routing will be disabled until IMS is restarted.

User response

Additional information about CQS services may be found in *IMS System Programming APIs*. If the problem persists, contact IBM Software Support.

GJE2950I **IMS SYSPLEX MANAGER**
AFFINITY ROUTER MSCE0 EXIT
INSTALLED

Explanation

The affinity router DFSMSCE0 exit is installed.

System action

This is an informational message only.

User response

None. This message is informational.

GJE6000I **cmd-name cmd-type COMMAND**
REJECTED

Explanation

The IMS Sysplex Manager server Modify command *cmd-name cmd-type* was successfully rejected. If the *cmd-type* is START, threshold processing is already active. If the *cmd-type* is STOP, threshold processing is already inactive.

System action

The IMS Sysplex Manager server rejected the command.

User response

If you want to stop threshold processing, ensure that it is active and then use the **STOP** command type. If you want to start threshold processing, ensure that it is inactive and then use the **START** command type.

GJE6001I **cmd-name cmd-type COMMAND**
EXECUTED

Explanation

The IMS Sysplex Manager server Modify command *cmd-name cmd-type* was successfully executed.

System action

The IMS Sysplex Manager server has taken the command action and the operation continues in the state requested.

User response

None. This message is informational.

GJE6002I **task-id TCB INITIALIZATION**
COMPLETE

Explanation

Initialization for an IMS Sysplex Manager server task *task-id* has completed successfully.

System action

IMS Sysplex Manager server initialization continues.

User response

None. This message is informational.

GJE6003I **task-id TCB TERMINATION**
COMPLETE

Explanation

Termination for an IMS Sysplex Manager Data Collector task *task-id* has completed.

System action

IMS Sysplex Manager Data Collector termination continues.

User response

None. This message is informational.

GJE6004W	<i>cmd-name cmd-type</i> COMMAND FAILED
-----------------	--

Explanation

The IMS Sysplex Manager server Modify command *cmd-name cmd-type* was not successfully executed.

System action

IMS Sysplex Manager server has attempted a command action that failed, but operation continues in the unaltered state.

User response

See the job log for other messages indicating the reason for the failure.

GJE6005I	UI SYSTEM INITIALIZATION COMPLETE
-----------------	--

Explanation

Initialization for an IMS Sysplex Manager server has successfully completed.

System action

IMS Sysplex Manager Server continues normal operation.

User response

None. This message is informational.

GJE6009I	*****

Explanation

This message indicates the beginning or ending "enclosure" for the IMS Sysplex Manager server display Threshold Status output.

System action

IMS Sysplex Manager server processing continues.

User response

None. This message is informational.

GJE6010I	*****

Explanation

This message indicates the beginning or ending "enclosure" for the IMS Sysplex Manager server display command output.

System action

IMS Sysplex Manager server processing continues.

User response

None. This message is informational.

GJE6012I	* SM Server OPTIONS FOR EXECUTION: *
-----------------	---

Explanation

This message indicates the beginning of the IMS Sysplex Manager server **DISPLAY OPTIONS** command output.

System action

IMS Sysplex Manager server processing continues.

User response

None. This message is informational.

GJE6014I	* <i>parameter</i> = <i>value</i>
-----------------	--

Explanation

This message is issued once for each IMS Sysplex Manager server configuration parameter. The message contains keyword *parameter* and keyword *value pairs*. The message is issued as a response to the IMS Sysplex Manager server **DISPLAY OPTIONS** command output.

System action

IMS Sysplex Manager server processing continues.

User response

None. This message is informational.

GJE6016I * SM SERVER STATISTICS: *

Explanation

This message indicates the beginning of the IMS Sysplex Manager server **DISPLAY STATS** command output.

System action

IMS Sysplex Manager server processing continues.

User response

None. This message is informational.

GJE6018I * *statistic* = *value*

Explanation

This message is issued once for each displayed IMS Sysplex Manager server statistic. The message contains statistics *statistic* and *value pairs*. The message is issued in response to the IMS Sysplex Manager server **DISPLAY STATS** command output.

System action

IMS Sysplex Manager server processing continues.

User response

None. This message is informational.

GJE6019I * *status*

Explanation

This message is issued once for each displayed IMS Sysplex Manager server Threshold Processor status indicator. Status indicators include whether the Threshold Processor is started or stopped, which Threshold Definition data sets are allocated and which Threshold Definition Members are active within each Threshold Definition data set.

System action

IMS Sysplex Manager server processing continues.

User response

None. This message is informational.

**GJE6020E MISSING REQUIRED COMMAND
LANGUAGE KEYWORD - *parameter***

Explanation

The command language string being processed by the IMS Sysplex Manager server is invalid due to a missing keyword *parameter*.

System action

The command is rejected.

User response

Submit a trouble report with supporting documentation to IBM Software Support.

**GJE6021E INVALID VALUE SPECIFIED FOR
KEYWORD *parameter* , value=
*value***

Explanation

An invalid keyword value was specified on a command that was being processed by the server.

System action

The command is rejected.

User response

Submit a trouble report with supporting documentation to IBM Software Support.

**GJE6022E INVALID COMMAND LANGUAGE
VERB - *parameter***

Explanation

The command language string being processed by the IMS Sysplex Manager server is invalid due to an invalid command verb *parameter*.

System action

The command is rejected.

User response

Submit a trouble report with supporting documentation to IBM Software Support.

**GJE6023E ERROR PARSING COMMAND
LANGUAGE STRING**

Explanation

The command language string being processed by the IMS Sysplex Manager server is invalid and failed during parsing.

System action

The command is rejected.

User response

Submit a trouble report with supporting documentation to IBM Software Support.

GJE6550E	GJEUSURQ INPUT BLOCKED: INVALID REQUEST
-----------------	--

Explanation

The IMS Sysplex Manager server received an input request from an IMS Sysplex Manager client that could not be processed by the User Request Manager. This problem is the result of an internal communication or logic error.

System action

This is due to an internal communication or logic error. The IMS Sysplex Manager server continues normal operation, without processing the request.

User response

Contact IBM Software Support.

GJE6551W	INPUT BLOCKED: UI SHUTTING DOWN
-----------------	--

Explanation

The IMS Sysplex Manager server received an input request from an IMS Sysplex Manager client while it was shutting down.

System action

The IMS Sysplex Manager server continues shutdown processing.

User response

None.

GJE6552W	REQUEST UNSATISFIED: DC NO LONGER AVAILABLE
-----------------	--

Explanation

The Data Collector to which a request was sent is no longer available. The request cannot be satisfied.

System action

The IMS Sysplex Manager server continues normal operation.

User response

None.

GJE6553E	INPUT BLOCKED: SM CLIENT NOT FOUND BY SERVER
-----------------	---

Explanation

The IMS Sysplex Manager server received an input Request from an IMS Sysplex Manager client, but the Server could not find the control block representing the Client.

System action

This is due to an internal communication or logic error. The IMS Sysplex Manager server continues normal operation.

User response

If the message is not due to an IMS Sysplex Manager client logoff or abend, contact IBM Software Support.

GJE6554E	INVALID EXCEPTION ENCOUNTERED BY SM SERVER
-----------------	---

Explanation

The IMS Sysplex Manager server received an exception from the Data Collector, but the Server could not find the control block representing the exception.

System action

This is due to an internal communication or logic error. The IMS Sysplex Manager server continues normal operation without processing the exception.

User response

Contact IBM Software Support.

GJE6555E	INVALID RESPONSE ENCOUNTERED BY SM SERVER
-----------------	--

Explanation

The IMS Sysplex Manager server received a response from the Data Collector that could not be processed.

System action

This is due to an internal communication or logic error. The IMS Sysplex Manager server continues normal operation.

User response

Contact IBM Software Support.

GJE6556E INVALID REQUEST IN SCOL Server

Explanation

The IMS Sysplex Manager server dashboard data collector received an invalid request from the client.

System action

The IMS Sysplex Manager server stops the dashboard data collection process.

User response

This is a logic error. Contact IBM Software Support if the problem persists.

GJE6557E COULD NOT READ THRPARMS

Explanation

The IMS Sysplex Manager server dashboard data collector encountered a problem while attempting to read the THRPARMS data set.

System action

The IMS Sysplex Manager server stops the dashboard data collection process.

User response

Verify that the THRPARMS data set is allocated to the server. Contact IBM Software Support if the problem persists.

GJE6558E FOUND INVALID PARAMETER LINE

Explanation

The IMS Sysplex Manager server dashboard data collector found invalid data in the THRPARMS data set.

System action

The IMS Sysplex Manager server stops the dashboard data collection process.

User response

Contact IBM Software Support if the problem persists.

GJE6559E INVALID REQUEST IN History Server

Explanation

The IMS Sysplex Manager server history task received an invalid request from the client.

System action

The IMS Sysplex Manager server ignores the history request.

User response

This is a logic error. Contact IBM Software Support if the problem persists.

GJE6560E INVALID REQUEST IN THRESHOLD SERVER

Explanation

The IMS Sysplex Manager server threshold task received an invalid request from the client.

System action

The IMS Sysplex Manager server ignores the threshold request.

User response

This is a logic error. Contact IBM Software Support if the problem persists.

GJE6570E NO VALID TARGET FOUND

Explanation

This message is issued when a request has been entered from the IMS Sysplex Manager client interface, but the target of the request is not active.

System action

The request is rejected.

User response

Ensure that the correct target was specified for the request. If the target name is correct, check the system log to make sure IMS Sysplex Manager did not abend with the IMS control region or that the Data Collector did not abend. If the target is CQS, RM, OM, or SCI, make sure these components are still active.

GJE6571I DC NOT AVAILABLE

Explanation

This message is issued when a request has been entered from the IMS Sysplex Manager client

interface, but no Data Collector is available to process the request.

System action

The request is rejected.

User response

Start a Data Collector so that requests can be processed.

GJE6991E	variable text describing a system internal error condition
-----------------	---

Explanation

The Data Collector has detected a system internal error. The message text starts with the program CSECT name.

System action

Data Collector address space termination follows immediately.

User response

Submit a trouble report with supporting documentation to IBM Software Support.

GJE7000I	IMS SM VERSION <i>vrn</i> SSI INITIALIZATION COMPLETE
-----------------	--

Explanation

The IMS Sysplex Manager User Interface Subsystem initialization routine completed initialization. The *vrn* within the message identifies the version and release of the initialization routine.

System action

None.

User response

None. This message is informational.

GJE7002E	IMS SM SSI ERROR ACTION=<i>action</i>, RC=<i>rc</i>, RSN=<i>rsn</i>
-----------------	--

Explanation

The IMS Sysplex Manager Subsystem Interface encountered an error.

System action

Initialization of the IMS Sysplex Manager Subsystem Interface fails.

User response

Contact IBM Software Support.

GJE7004I	IMS SM SSI PREVIOUSLY ESTABLISHED IS DISABLED
-----------------	--

Explanation

The IMS Sysplex Manager subsystem was re-initialized.

System action

The instance of the IMS Sysplex Manager subsystem that was previously initialized is now disabled. This message is issued for informational purposes only.

User response

None. This message is informational.

GJE8000E	IMSSM HISTORY ERROR: ACTION=<i>action</i>, RC=<i>rc</i>, RSN=<i>rsn</i>
-----------------	--

Explanation

The IMS Sysplex Manager History component encountered an error. The *action*, *rc*, and *rsn* listed in the message provide additional information.

System action

None.

User response

Contact IBM Software Support.

GJE8002E	ARCHIVE JOB NOT SUBMITTED
-----------------	----------------------------------

Explanation

The archive job was not successful submitted due to error.

System action

Archive job is not submitted.

User response

Check subsequent message for reason.

GJE8003E	REASON= INPUT DDNAME NOT FOUND
-----------------	---------------------------------------

Explanation

The DD name supplied to the archive process is invalid.

System action

Archive job is not submitted.

User response

If the archive process was initiated by the **/F ARCHIVE** command, make sure the DD name specified is for the log data set that just became full. Otherwise, this is likely an internal logic error. If the problem persists, contact IBM Software Support.

GJE8004E	REASON= JCL MEMBER NOT FOUND IN PROCLIB
-----------------	--

Explanation

An error occurs during reading PROCLIB member for archive JCL.

System action

Archive job is not submitted.

User response

Make sure the IBM-supplied archive JCL exist in PROCLIB of SM server. Also, ARCHIVEJCL= keyword in the server PROCLIB member is pointing to the IBM-supplied archive JCL.

GJE8005E	REASON= VSAMIN DD MISSING FROM JCL
-----------------	---

Explanation

VSAMIN DD is not found in the archive JCL.

System action

Archive job is not submitted.

User response

Correct the error and try again.

GJE8006E	REASON= INPUT DSN SUBSTITUTION FAILED
-----------------	--

Explanation

An error occurred when substituting input VSAM data set name into the archive JCL.

System action

Archive job is not submitted.

User response

Modify the IBM-supplied JCL and submit the job manually. This is likely an internal logic error. If the problem persists, contact IBM Software Support.

GJE8007E	REASON= ARCOUT DD MISSING FROM JCL
-----------------	---

Explanation

ARCOUT DD is not found in the archive JCL.

System action

Archive job is not submitted.

User response

Correct the error and try again.

GJE8008E	REASON= OUTPUT DSN SUBSTITUTION FAILED
-----------------	---

Explanation

An error occurred when substituting output sequential data set name into the archive JCL.

System action

Archive job is not submitted.

User response

Modify the IBM-supplied JCL and submit the job manually. This is likely an internal logic error. If the problem persists, contact IBM Software Support.

GJE8009E	REASON= INVALID PREFIX FOR ARCOUT DSN=
-----------------	---

Explanation

An invalid prefix was found in the output DSN name.

System action

Archive job is not submitted.

User response

Correct the error and try again.

GJE8010E	REASON= INVALID SUFFIX FOR ARCOUT DSN=
-----------------	---

Explanation

An invalid suffix was found in the output DSN name.

System action

Archive job is not submitted.

User response

Correct the error and try again.

GJE8011E	REASON= OPEN INTERNAL READER FAILED
-----------------	--

Explanation

Attempt to open internal reader data set failed.

System action

Archive job is not submitted.

User response

Make sure //ARSSUBMIT DD SYSOUT=(A,INTRDR) is included in Sysplex Manager Server procedure. Correct the error and submit archive job manually. If the problem persists, contact IBM Software Support.

GJE8012E	REASON= WRITE TO INTERNAL READER FAILED
-----------------	--

Explanation

Attempt to write to internal reader data set failed.

System action

Archive job is not submitted.

User response

Modify JCL and submit archive job manually. This is likely an internal logic error. If the problem persists, contact IBM Software Support.

GJE8013I	ARCHIVE JOB SUBMITTED. JOBID=<i>jobid</i> INPUT DSN=<i>dsname</i> OUTPUT DSN=<i>dsname</i>
-----------------	---

Explanation

Informational message indicating ARCHIVE job was submitted.

System action

Archive job is submitted.

User response

Check job output for successful completion. If the job failed, modify the JCL, and resubmit the job.

GJE8020W	IMSSM history is not active. Exceptions will not be recorded.
-----------------	--

Explanation

The IMS Sysplex Manager server detected no usable history files allocated for recording. Exceptions recording is disabled.

System action

None.

User response

None.

GJE8021W	IMSSM HISTORY > 8 DATASETS, FIRST 8 USED
-----------------	--

Explanation

IMSSM History supports up to 8 data sets. More than 8 HISTx data sets were given.

System action

None.

User response

Check HIST1-HIST8 DD-s in server JCL.

GJE8101W	COMMAND AUDIT WARNING REASON: <i>x</i>
-----------------	---

Explanation

Command audit warning reason codes:

- 1: Empty history data set.
- 2: No commands are recorded in history within the date/timestamp range.

System action

Job ends with RC=04; no output data in the output file.

User response

Ensure the correct VSAM history file is used.

GJE8102E COMMAND AUDIT ERROR
REASON: xxx

Explanation

Command audit reason codes:

- 11: GJEVSAM IDENTIFY error
- 12: GJEVSAM ACCESS or MAP error
- 16: GJEAUDIT Open error
- 17: SYSIN Open error
- 22: Data is before IMS Sysplex Manager 1.3
- 32: GJESNAP Open error
- 40: HDSW block invalid
- 41: Exception block IMSID invalid
- 42: HDXW block invalid
- 43: Empty block should not be written
- 44: Other than 024 record in exception block
- 45: Invalid 024 VARDLL
- 46: Invalid 024 VARNUM
- 47: Invalid 024 Subrecord Length without LLZZ
- 101: MVS PARMS too long
- 102: Invalid adjust type
- 103: Invalid HHMM value DATE.... DESCRIPTION
- 110: GJEVSAM DD is not allocated
- 111: GJEAUDIT DD is not allocated
- 113: SYSIN DD is not allocated

System action

Job ends with RC=08. Processing stops.

User response

For reason codes 11, 12, 32-47:

Ensure the correct VSAM history file is used.
Repeat the job with trace and send trace to IBM Software Support.

For reason code 16:

Ensure the GJEAUDIT DD points to a valid file.

For reason code 17:

Ensure the SYSIN points to a valid file.

For reason code 22:

The VSAM history file is created with an older IMS Sysplex Manager release that does not support the enhanced auditing function.

For reason code 101:

Correct the EXEC parameter and run the job again.

For reason codes 102-103:

Correct the control input data in SYSIN DD and run the job again.

For reason code 110:

Ensure the GJEVSAM DD is present and points to a valid file.

For reason code 111:

Ensure the GJEAUDIT DD is present and points to a valid file.

For reason code 113:

Ensure the SYSIN DD is present and points to a valid file.

GJE9000I DFSQSSPO INITIALIZED : MODE
IS mode

Explanation

The QSN exit has connected to IMS Sysplex Manager and processed the runtime parameters. The *mode* variable indicates the run mode that is in effect: INACTIVE, REPORT, or ENFORCE.

System action

Exit is operational.

User response

None. This message is informational.

GJE9001I DFSQSSPO IMSSM CONNECTION
ESTABLISHED IMS_name

Explanation

The QSN exit has connected and is processing the runtime parameters.

System action

The IMS Sysplex Manager connection is active.

User response

None. This message is informational.

GJE9010I DFSQSSPO REPORT MODE:
num_of_buffers_used BUF
percent_of_buffers_used PCT

Explanation

Information about current buffer usage is provided. The number of buffers that are currently being used is displayed first, followed by the percentage of buffers

that are in use based on the QBUFMAX parameter setting.

System action

System buffer usage is displayed.

User response

None. This message is informational.

GJE9020I	DFSQSSP0 WARNING MODE: <i>num_of_buffers_used</i> BUF <i>percent_of_buffers_used</i> PCT
-----------------	---

Explanation

The IMS buffer usage has reached the WARNING level. The *percent_of_buffers_used* is a percentage of the value of the QBUFMAX parameter. For example, if QBUFMAX is 500 and the *num_of_buffers_used* is 5, *percent_of_buffers_used* must be 1.

System action

The current buffer usage is displayed.

User response

None. This message is informational.

GJE9021I	DFSQSSP0 WARNING MODE: ENTER
-----------------	--

Explanation

The IMS local buffer usage has reached the specified threshold for the WARNING level.

System action

The QSN exit enters WARNING mode.

User response

None. This message is informational.

GJE9022I	DFSQSSP0 WARNING MODE: EXIT
-----------------	------------------------------------

Explanation

The buffer usage dropped below the specified threshold for WARNING mode.

System action

The QSN exit exits WARNING mode.

User response

None. This message is informational.

GJE9030I	DFSQSSP0 ACTION MODE: <i>num_of_buffers_used</i> BUF <i>percent_of_buffers_used</i> PCT
-----------------	--

Explanation

The IMS buffer usage has reached the ACTION level. The *percent_of_buffers_used* is a percentage of the value of the QBUFMAX parameter. For example, if QBUFMAX is 500 and the *num_of_buffers_used* is 5, *percent_of_buffers_used* must be 1.

System action

The current buffer usage is displayed.

User response

None. This message is informational.

GJE9031I	DFSQSSP0 ACTION MODE: ENTER
-----------------	------------------------------------

Explanation

The IMS local buffer usage has reached the specified threshold for the ACTION level.

System action

The QSN exit enters ACTION mode. Allocate buffer calls for large buffer users will fail.

User response

None. This message is informational.

GJE9032I	DFSQSSP0 ACTION MODE: EXIT
-----------------	-----------------------------------

Explanation

The buffer usage dropped below the specified threshold for ACTION mode.

System action

The QSN exit exits ACTION mode.

User response

None. This message is informational.

GJE9040I	DFSQSSP0 CRITICAL MODE: <i>num_of_buffers_used</i> BUF <i>percent_of_buffers_used</i> PCT
-----------------	--

Explanation

The IMS buffer usage has reached the CRITICAL level. The *percent_of_buffers_used* is a percentage of the value of the QBUFMAX parameter. For example, if QBUFMAX is 500 and the *num_of_buffers_used* is 5, *percent_of_buffers_used* must be 1.

System action

The current buffer usage is displayed.

User response

None. This message is informational.

**GJE9041I DFSQSSP0 CRITICAL MODE:
ENTER**

Explanation

The IMS local buffer usage has reached the specified threshold for the CRITICAL level.

System action

The QSN exit enters CRITICAL mode. Allocate buffer calls for large buffer users will fail.

User response

None. This message is informational.

GJE9042I DFSQSSP0 CRITICAL MODE: EXIT

Explanation

The buffer usage dropped below the specified threshold for CRITICAL mode.

System action

The QSN exit exits CRITICAL mode.

User response

None. This message is informational.

**GJE9050I DFSQSSP0 LARGE USER:
num_of_buffers_used BUF FOR
large_user_identification**

Explanation

The defined value for a large user are displayed. The *large_user_identification* is the user that is based on the information passed to the exit when the buffer is allocated.

System action

When the IMS buffer usage operates at ACTION and CRITICAL levels, the defined large users will fail on buffer allocations.

User response

None. This message is informational.

GJE9500E CREATE NAMED STORAGE FAILED

Explanation

The IMS Sysplex Manager Operations Manager (OM) INIT/TERM exit failed to create a named storage area.

System action

The GJEOMIT0 exit abends with U0070 and RSN=X'65'.

User response

Contact IBM Software Support.

**GJE9501E DESTROY NAMED STORAGE
FAILED**

Explanation

The IMS Sysplex Manager Operations Manager (OM) exit failed to delete a named storage area.

System action

The GJEOMIT0 exit abends with U0070 and RSN=X'65'.

User response

Contact IBM Software Support.

**GJE9502E ERROR action SM OM EXIT
PROCLIB MEMBER**

Explanation

The IMS Sysplex Manager Operations Manager (OM) exit failed to process the OM exit PROCLIB member. *action* is either READING or PARSING.

System action

The GJEOMIT0 exit abends with U0070 and RSN=X'65'.

User response

If the action is READING, specify a valid member name and verify that the member exists. If you have specified a valid member name and the member exists, contact IBM Software Support.

If the action is PARSING, specify valid control statements inside the PROCLIB member.

**GJE9503E RETRIEVE NAMED STORAGE
 FAILED**

Explanation

The IMS Sysplex Manager Operations Manager (OM) exit failed to retrieve a named storage area.

System action

The GJEOMIT0 or GJEOMOP0 exit abends with U0070 and RSN=X'65'.

User response

Contact IBM Software Support.

GJE9504E BPE CS GETSTG SERVICE FAILED

Explanation

The IMS Sysplex Manager Operations Manager (OM) exits failed to acquire the necessary storage to continue processing.

System action

The IMS Sysplex Manager OM exits abends with U0070 and RSN=x'65'.

User response

Contact IBM Software Support.

GJE9505I SM OM INIT/TERM EXIT *status*

Explanation

The IMS Sysplex Manager Operations Manager (OM) initialization or termination exit received control. *status* is either INITIALIZED or TERMINATED.

System action

The process continues.

User response

None. This message is informational.

Chapter 29. Abend codes

This reference section provides detailed information about IMS Sysplex Managerabend codes.

For eachabend code, the following information is provided where applicable:

Explanation:

The Explanation section explains what theabend code means, why it occurred, and what its variable entry fields are (if any)

System action:

The System action section explains what the system will do next

User response:

The User response section describes whether a response is necessary, what the appropriate response is, and how the response will effect the system or program

0020

Explanation

An error occurred in the use of a BPE service. Theabend subcode details the nature of the error:

- X'01' - AWE get failed
- X'05' - AWE enqueue failed
- X'0A' - BPETIMER initialization failed
- X'0F' - BPETIMER cancel failed
- X'14' - BPEATTCH failed
- X'19' - BPELTCH failed
- X'1E' - BPELOADC failed
- X'23' - BPEPOST failed
- X'64' - BPETERM failed
- X'69' - BPELAGET failed
- X'6E' - BPELAREL failed
- X'73' - BPESPRNT failed

System action

The Data Collector or IMS Sysplex Manager server address space is abnormally terminated.

User response

Retain diagnostic information and contact IBM Software Support.

0030

Explanation

An error occurred in a Data Collector IMC ID subroutine. Theabend subcode details the nature of the error:

- X'01' - IMC ID subroutine contains or detected a programming logic error

System action

The Data Collector IMC ID subroutine is abnormally terminated.

User response

Retain diagnostic information and contact IBM Software Support.

0040

Explanation

An error occurred while trying to obtain virtual storage. Theabend subcode details the nature of the error:

- X'01' - MSCD storage unavailable
- X'05' - SSBL storage unavailable
- X'0A' - XCF JOIN answer area storage unavailable
- X'0F' - XCF QUERY buffer storage unavailable
- X'14' - XCF QUERY response buffer storage unavailable
- X'19' - XCF group exit work area storage unavailable
- X'1E' - XCF message exit work area storage unavailable
- X'23' - XCF send parameter list buffer unavailable
- X'32' - LLK anchor blk obtain fail

System action

The IMS Sysplex Manager address space in which theabend occurred is abnormally terminated.

User response

Retain diagnostic information and contact IBM Software Support.

0050

Explanation

An error occurred in the use of an MVS service. The abend subcode details the nature of the error:

- X'01' - STOKEN extract failed
- X'05' - ALESERV ADD failed
- X'0A' - Non Key 7 execution
- X'0F' - RESMGR ADD failed
- X'14' - TCBTOKEN failed
- X'19' - CSRP* failed
- x'1E' - Invalid TYPE= sub-parameter on execute statement

System action

The IMS Sysplex Manager address space in which the abend occurred is abnormally terminated.

User response

For subcode X'0A', verify that the job step program GJECI000 was correctly added to the MVS Program Properties Table (PPT).

For all other subcodes, retain diagnostic information and contact IBM Software Support.

0060

Explanation

An error occurred in the Data Collector IMS interface. The abend subcode details the nature of the error:

- X'01' - Control block locate failed
- X'0A' - The IMS Sysplex Manager release level within IMS is not equal to the Data Collector release level

System action

The Data Collector address space is abnormally terminated.

User response

For subcode X'0A', use the same release of the IMS Sysplex Manager for both the IMS Control Region and the Data Collector.

For all other subcodes retain diagnostic information and contact IBM Software Support.

0070

Explanation

An error occurred in an internal IMS Sysplex Manager service. The abend subcode further determines the nature of the error:

- X'01' - Multiple Data Collectors for the same XCF group/MVS system
- X'05' - Multiple Data Collectors for the same XCF group/MVS system
- X'0A' - XCF QUERY for IMS failed
- X'0F' - XCF QUERY for IMS Sysplex Manager servers failed
- X'14' - XCF JOIN failed
- X'1E' - XCF LEAVE failed
- X'28' - PROCLIB processing failed
- X'2C' - Data set OPEN failed
- X'2D' - GJEDTDB alter failed
- X'32' - Cell Pool services get failed
- X'3C' - AWE server initialization failed
- X'46' - AWE server termination failed
- X'5A' - Common services join failed
- X'5F' - Response service - no RB
- X'65' - Internal logic error detected

System action

The address space in which the error occurred is abnormally terminated.

User response

- X'01': Multiple Data Collectors for the same Sysplex Management Group are not allowed within a single MVS image. Bring down the duplicate Data Collector.
- X'05': Multiple Data Collectors for the same Sysplex Management Group are not allowed within a single MVS image. Bring down the duplicate Data Collector.
- X'0A', X'0F', X'14', and X'1E': System message GJE0430E will also be issued. Refer to message GJE0430E for further information.
- X'28' and X'2C': A system message will also be issued indicating the nature of the error.
- X'65': System message GJE0991E or GJE0992I will also be issued, indicating the nature of the error. Retain diagnostic information and contact IBM Software Support.

For all other subcodes retain diagnostic information and contact IBM Software Support.

0080**Explanation**

An error occurred in an SRB service routine. The abend subcode details the nature of the error:

- X'01' - SRB service initialization failure
- X'1E' - SRB service cell pool get failure
- X'23' - SRB service BPEAWSRV enqueue failed
- X'28' - XCF message length exceeded maximum support length
- X'2D' - XCF build of GEPL block failed
- X'32' - XCF SRB service BPEAWSRV enqueue failed
- X'37' - XCF build of MEPL block failed

System action

Subcodes X'01', X'1E', and X'23': The IMS Sysplex Manager address space is abnormally terminated.

Subcode X'28', X'2D', X'32', and X'37': Only the XCF message exit fails and an SVC dump accompanies the abend.

User response

Retain diagnostic information and contact IBM Software Support.

0090**Explanation**

An error occurred in the CQS service routine. The abend subcode details the nature of the error:

- X'01' - CQS registration failed

System action

The Data Collector address space is abnormally terminated.

User response

Retain diagnostic information and contact IBM Software Support.

0110**Explanation**

An error occurred in the IMS Sysplex Manager server. The abend subcode further determines the nature of the error:

- X'14' - XCF join failure

- X'1E' - XCF leave failure
- X'2D' - XCF DBLK GEPL initialization failed
- X'32' - cpool get failed
- X'37' - XCF DBLK MEPL initialization failed
- X'3C' - AWE ENQ failed
- X'41' - XCF Send Failed
- X'46' - Internal logic error

System action

None.

User response

None.

0120**Explanation**

An error occurred in the IMS Sysplex Manager Structured Call Interface (SCI). The abend subcode further determines the nature of the error:

- X'01' - SCI registration failed
- X'02' - SCI ready failed
- X'03' - SCI service create failed
- X'04' - SCI event exit routine buffer obtain failure
- X'65' - RM registration failed

System action

None.

User response

None.

4015**Explanation**

An error occurred in the IMS Sysplex Manager within the IMS control region. Additional error messages indicating the cause of the errors relating to the abend. The abend subcode further determines the nature of the error:

- X'65' - MVS CPOOL service failure
- X'66' - Locate CTW work area failure
- X'67' - Load of load module GJEIIPMx failed
- X'68' - Locate PMB work area failed
- X'69' - Locate PMB work area failed
- X'6A' - MVS Cpool service failure

- X'6E' - DFSFLGX0 INIT call invalid
- X'6F' - DFSFLGX0 WRITE call invalid
- X'70' - DFSFLGX0 TERM call invalid
- X'71' - DFSFLGX0 TERM call unable to locate TCB
- X'78' - GETMAIN storage failure
- X'79' - DFSBCB GET LGWA failure
- X'7A' - Locate CTX Dispatcher work area failed
- X'7B' - ITASK create failed
- X'7C' - ITASK IPOST failed
- X'7D' - Locate TCB failed
- X'82' - Locate SCD failed
- X'83' - IMS release not supported
- X'84' - Load of load module GJEIINTx failed
- X'8C' - IMODULE LOAD failed
- X'8D' - MVS CPOOL services for SDB failed
- X'8E' - IMODULE GETMAIN failed
- X'8F' - DFSSPOOL failed
- X'90' - Error reading PROCLIB parms member

- X'91' - Error parsing PROCLIB parms member
- X'92' - Missing or invalid PROCLIB parms member
- X'93' - ESTAE failed
- X'94' - ALESERVE EXTRACTH failed
- X'95' - DFSBCB GET failed
- X'96' - XCF services initialization failed
- X'97' - SRB services initialization failed
- X'98' - Locate CTX TCB failed
- X'99' - ITASK create failed
- X'9A' - ITASK IPOST failed

System action

The IMS control region address space is abnormally terminated.

User response

Retain diagnostic information and contact IBM Software Support.

Chapter 30. Troubleshooting common errors

The information in this section can be used to help you troubleshoot and diagnose IMS Sysplex Manager problems.

How do I use IMS Sysplex Manager IPCS dump formatting?

To use IMS Sysplex Manager IPCS dump formatting:

1. Display the main IMS dump formatter menu.
2. Select option 7 (Other products).
3. Select option 6 (IMS SM).

Why am I getting user abend 4095 when I start the IMS Sysplex Manager server?

Error 4095 is a generic abend for the IMS Sysplex Manager server address space that can be caused by different problems. One possible problem is that the XCF member name is not unique. You must specify a unique XCF member name for each IMS Sysplex Manager component. If you do not have unique XCF member names, the member abends.

View your system log to investigate the cause of abend 4095. The following example shows that abend 4095 was actually caused by abend U0110-00000014:

```
GJE0430E IXCJOIN FAILED RC= 00000008, RSN= 00000008
BPE0006I SMUI TCSV TCB ABEND U0110-00000014, THD=SCSV
BPE0006I MODULE ID = CSV0JOIN EP = 1120D69A
BPE0006I PSW = 077C1000 9120D780 OFFSET = 000000E6
BPE0006I R0-3 04000000 04000006 00000002 11232420
BPE0006I R4-7 1120DFD8 00000005 111F5FB8 111F9D60
BPE0006I R8-11 111F5FB8 11232318 11102D10 1120E1C8
BPE0006I R12-15 9120D1C8 11232480 0000000C 00000014
BPE0006I BPE JSTP TCB ABEND U4095-00000000
```

Why can't I exit auto-refresh mode by using the Esc key or the Attn key?

Determine whether any other terminal windowing applications have the Esc or the Attn keys defined for other specific functions. If so, this will create a conflict of the key function. Try changing the definitions of the Esc and Attn keys in the ISPF settings.

Why am I receiving so many IMS DATABASE CLOSE messages in the IMS Sysplex Manager log?

Specify LOGDC=N in the IMS Sysplex Manager control region PROCLIB member to deactivate the log data capture feature. However, if the log data capture is inactive, log records that are associated with system exceptions such as transaction abends, database stopped, and others are not be processed.

Why am I receiving the SSI BUILD error message when starting the IMS Sysplex Manager ISPF Client?

IMS Sysplex Manager subsystem interface (GJESS110) was not properly installed. See [Chapter 8, "IMS Sysplex Manager ISPF subsystem interface,"](#) on page 59 for more information about configuring the IMS Sysplex Manager ISPF user interface.

Why is IMS Sysplex Manager not active in the IMS control region?

You must define the IMS Sysplex Manager logger exit (GJEIFLGX0) to the generic exits. See [Chapter 4, "Configuring the IMS control region,"](#) on page 29 for more information about the logger exit.

Why is affinity routing not active?

You must define the IMS Sysplex Manager MSC exit (GJEIMSCE0) to the generic exits. See [Chapter 4, "Configuring the IMS control region,"](#) on page 29 for more information about the MSC exit.

Why is buffer overflow protection not active?

You must define the IMS Sysplex Manager QSN exit (GJEQSSP0) to the generic exits. See [Chapter 4, “Configuring the IMS control region,”](#) on page 29 for more information about the QSN exit.

Part 8. Reference: Base Primitive Environment (BPE)

The topics in this section provide you with technical references for the Base Primitive Environment (BPE):

Topics:

- [Chapter 31, “BPE user-supplied exit routine interfaces and services,” on page 257](#)
- [Chapter 32, “BPE commands,” on page 277](#)
- [Chapter 33, “BPE messages,” on page 293](#)
- [Chapter 34, “BPE user abend codes,” on page 311](#)
- [Chapter 35, “BPE service return codes,” on page 315](#)

Chapter 31. BPE user-supplied exit routine interfaces and services

IMS Sysplex Manager uses BPE services to define and manage calls to user exit routines. These topics describe the Base Primitive Environment (BPE) user exit routines and services.

Throughout these topics, the term *user exit routine* means *user-supplied exit routine*.

These topics contain Product-sensitive Programming Interface information.

Topics:

- “BPE services overview” on page 257
- “Standard BPE user exit parameter list” on page 257
- “Work areas” on page 258
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BPE services overview

IMS Sysplex Manager uses BPE services to define and manage calls to user exit routines.

For such exit routines, BPE gives you the ability to externally specify the user exit routine modules to be called for a particular exit routine type by using EXITDEF statements in BPE user exit PROCLIB members. BPE also provides a common user exit routine execution environment. This environment includes:

- A standard BPE user exit routine parameter list
- Static work areas for the routines
- Dynamic work areas for the routines
- Callable services for the routines
- A recovery environment to protect against abends in the user exit routines

Recommendation: Write BPE user exit routines in assembler, as opposed to a high-level language. BPE does not support exit routines running under Language Environment® for MVS. If you write an exit routine in a high-level language, and that routine is running in the Language Environment for MVS, abends or performance problems can occur. Language Environment for MVS is designed for applications that run in key 8, problem program state. BPE user exit routines run in key 7, supervisor state.

Standard BPE user exit parameter list

All BPE-managed user exit routines receive a pointer to a standard BPE user exit parameter list in R1.

The format of this parameter list is the same for all exit routines, and is mapped by the BPEUXPL DSECT (in the GJEUXPL\$ macro). [Table 19 on page 257](#) documents the fields in this DSECT.

Table 19. Standard BPE user exit parameter list

Field name	Offset	Length	Field usage	Description
BPEUXPL	X'00'	N/A	N/A	DSECT label for standard BPE user exit parameter list.

Table 19. Standard BPE user exit parameter list (continued)

Field name	Offset	Length	Field usage	Description
UXPL_VERSIONP	X'00'	X'04'	Input	Pointer to a word containing the standard BPE user exit parameter list version number. The current version of the parameter list is X'00000001' (EQU symbol UXPL_VER1).
UXPL_CSTOKENP	X'04'	X'04'	Input	Pointer to the BPE callable services token.
UXPL_STATICWAP	X'08'	X'04'	Input	Pointer to a 256-byte static work area. Each exit routine module is assigned its own static work area. The contents of the static work area are preserved from call to call.
UXPL_DYNAMICWAP	X'0C'	X'04'	Input	Pointer to a 512-byte dynamic work area. This area is intended as working storage for a user exit routine for the duration of that exit routine's run. The contents of this area are not preserved from call to call.
UXPL_EXITPLP	X'10'	X'04'	Input	Pointer to an exit-type-specific parameter list. The exit-type-specific parameter list contains fields that are unique to the type of exit routine that is being called.
UXPL_CALLNEXTP	X'14'	X'04'	Input	Pointer to a byte of storage that the user exit routine can use to indicate whether to call other subsequent exit routines of the same type for the current instance of the exit routine call.

Work areas

Each user exit routine is passed two work areas by BPE each time the exit routine is called.

The two work areas are:

- Static work area
- Dynamic work area

Static work area

Each user exit routine module is assigned its own static work area that is not shared between exit routine modules of the same type.

The UXPL_STATICWAP field points to the static work area in the standard BPE user exit parameter list. The static work area is 256 bytes in length.

The same work area is passed every time a particular user exit routine module is called, and the contents of the work area are preserved from call to call.

A user exit routine module can use the static work area to save data between calls to the exit routine. The static work area is cleared (set to zeros) the first time a user exit routine is invoked.

When a user exit routine module is refreshed by using the **REFRESH USEREXIT** command, the same static work area continues to be passed to the new copy of the module that was being passed to the old copy. If a user exit routine module is removed from an EXITDEF list and a **REFRESH USEREXIT** command is issued, the static work area for the module is deleted.

If the exit routine module is later added back to the EXITDEF list and another **REFRESH USEREXIT** command is issued, the exit routine obtains a new (cleared) static work area.

Dynamic work area

The dynamic work area is used as working storage by a user exit routine for the current call only.

The UXPL_DYNAMICWAP field points to the dynamic work area in the standard BPE user exit parameter list. The dynamic work area is 512 bytes in length.

The dynamic storage area's address might not be the same, nor are its contents preserved from call to call. The dynamic work area is not cleared when a user exit routine receives control; therefore, the work area might contain residual data.

Calls to subsequent exit routines

Each user exit routine type can have multiple exit routine modules that are associated with it.

BPE calls each module in the order that it was specified on the EXITS= parameter of the EXITDEF= statement. The EXITDEF= statement of the BPE user exit PROCLIB member defines the list of exit routine s.

Each user exit routine can decide whether subsequent exit routine s in the list that are to be called upon return to BPE. For example, a list of exit routine s are called to make a decision about processing for a particular resource. If exit routine ABC cannot make the decision, it can return an indication that the next exit routine in the list, routine DEF, is to be called so that it can try to make the decision. If exit routine ABC is able to make the decision, it can return an indication that the next exit routine in the list, routine DEF, does not need to be called because the decision has already been reached.

Field UXPL_CALLNEXTP in the standard BPE user exit parameter list is a pointer to a byte in storage that the user exit routine can use to indicate whether to call the next exit routine in the list. If the exit routine does not set this byte, the default is to call the next exit routine in the list. If the exit routine sets this byte, it must set it to one of the following values, which are defined by EQUs in the GJEUPL\$ macro:

UXPL_CALLNEXTYES

Call the next exit routine in the list.

UXPL_CALLNEXTNO

Do not call the next exit routine in the list.

Only X'00' and X'04' are defined values for this byte. Results are unpredictable if a user exit routine sets this byte to any value *other than* UXPL_CALLNEXTYES or UXPL_CALLNEXTNO.

User-supplied exit routine environment

All user exit routines are given control in the various environments.

The following table lists these environments:

Table 20. User-supplied exit routine environments	
Authorization:	Supervisor state, PSW key 7
Dispatchable unit mode:	TCB mode
Cross-memory mode:	None (PASN=HASN=SASN)
AMODE:	31-bit
ASC mode:	Primary
Interrupt status:	Enabled
Locks:	None

All user exit routines receive control with the following registers set:

R1

Pointer to standard BPE user exit parameter list.

R13

Pointer to the first of two pre-chained save areas. The user exit routine can use the first save area to save the registers of its caller, and can use the second save area for lower-level calls that it makes. The save areas are chained together by using standard z/OS save area linkage conventions.

R14

Return address.

R15

Entry point of exit routine.

Attention: Control must be returned to the return address passed to the user exit routine in R14. R15 can be set to a return code if appropriate for the specific exit routine type that is being called. Ensure that all other registers are restored to the values they had when the exit routine was called.

The contents of the registers that are not listed here are unknown and unpredictable.

Ensure that your user exit routines do not modify any fields in any parameter list that are not explicitly documented as output fields. The results of modifying non-output fields are unpredictable.

Write your user exit routines so that they are reentrant. User exits in the same EXITS= list are called serially within one occurrence of a call for that exit routine type. However, it is possible for a user exit routine module to be entered simultaneously for different occurrences of a call, under different TCBs, for the same exit routine type.

An exit routine receives the same static work area, but receives another dynamic work area for each call when it is entered simultaneously. Be careful when updating fields in the static work area. They might be in the process of being changed by other instances of your exit routine module that are running in parallel.

Performance considerations

Some user exit routines might be called from mainline processing code. The amount and type of processing that is done by those exit routines can directly contribute to the total path length and time that is required to complete a unit of work.

Recommendation: Code user-supplied exit routines to minimize path length and processing time.

Operating system WAITs, SVCs, and I/O can all contribute to poor performance and should be used sparingly. When a BPE callable service exists, it is recommended that you use it, rather than the z/OS equivalent, because the callable service is usually optimized to perform more efficiently in a BPE sub-dispatching environment.

Recommendation: Code your user exit routines in assembler language for the best performance. If you write exit routines in other languages, you might have performance problems. BPE does not support exit routines running under Language Environment for MVS.

Abends in user-supplied exit routines

In most cases, BPE recovers from any abends that occur while a user exit routine is in control, and calls the next exit routine in the list, if any is indicated. BPE establishes a recovery environment before it calls user exit routines.

When a user exit routine abends, BPE ignores any value that the abending exit routine might have set in the byte that is pointed to by UXPL_CALLNEXTPT. BPE resets this byte to UXPL_CALLNEXTYES and then calls the next exit routine in the list.

BPE keeps a count of the number of abends that have occurred in each user exit routine module. The first time an abend occurs in a module, BPE issues a request to create an SDUMP to capture diagnostic information about the abend. BPE also creates a SYS1.LOGREC entry for the abend and issues the message, BPE0019E, indicating which exit routine module had control when the abend occurred. For subsequent abends in an exit routine module, BPE creates a SYS1.LOGREC entry and issues the message, BPE0019E, but does not issue the request to create an SDUMP.

When the number of abends indicated by the ABLIM= parameter has been reached, BPE stops calling the abending exit routine module. The ABLIM= parameter is specified as part of the EXITDEF= statement for that type of exit routine. The default value for ABLIM= is 1 (to stop calling the exit routine after the first abend). You can change this value as required. The abend count for an exit is reset to zero if the exit type is refreshed.

BPE user-supplied exit routine callable services

A set of callable services is provided that can be used by BPE-managed user exit routines to request certain functions from BPE. Callable services are requested by using the GJEUXCS\$ macro.

Recommendation: When a choice exists between using a z/OS service or an equivalent BPE callable service, choose the BPE service. All callable services are Product-Sensitive Programming Interfaces (PSPIs).

GJEUXCS\$ macro

The purpose of the GJEUXCS\$ macro is to issue BPE callable service requests from a user exit routine that is called from a BPE environment.

You can use this macro only for BPE-called exit routines (exit routines that are passed the address of a standard BPE user exit parameter list in R1). BPE provides callable services that include the following functions:

- Get and free storage associated with the primary BPE TCB (usually job step). Some user exit routines can run under a different TCB each time they are called. Normally, storage that is obtained with GETMAIN is associated with the current TCB. If an exit routine obtained storage when it was called under one TCB and tried to free it when running under a different TCB, the storage free attempt might fail. The get storage and free storage callable services allow exit routines to get an area of storage when running under one TCB and to free it when running under a different TCB.
- Load and delete modules, and associate these modules with the primary BPE TCB. Like the storage get and free services, the load and delete services handle module management when loaded and deleted from different TCBs.
- Get, retrieve, and free named storage areas. A named storage area is an area of storage that is associated with a 16-byte name. The address of the storage area can be retrieved given the name of the area. This allows different user exit routines to communicate with one another by using a common name for a shared named storage area.

When a callable service is invoked, the service might need to wait for the completion of some event. Depending on the environment at the time your user exit routine is called, such a wait can be either an MVS WAIT (that is, the current TCB is suspended until the event completes) or a BPE-internal wait. For BPE-internal waits, BPE can run other ready work under the current TCB while your user exit routine is waiting for the event to complete. When the event does complete, BPE re-dispatches your exit routine's unit of work and completes the callable service request.

The possibility of waiting introduces the following situations, which your exit routine must be able to manage:

- Depending on the nature of the specific user exit routine (where and when it is called), your exit routine might be entered again for another exit routine call while the first instance of the exit routine is still waiting in a callable services request. Multiple concurrent calls to user exit routines are, in general, always possible. However, some user exit routines might normally be TCB-serialized (that is, their callers always run under a single TCB); these TCB-serialized routines might be entered multiple times when you use a callable service.
- Depending on the specific user exit routine, your exit routine might have control passed back from the BPE callable service request running under a different TCB than when it was originally called. This is because BPE provides the ability for a program that is using BPE services (such as CQS) to define a pool of TCBs. In this situation, any TCB in the pool can run any unit of work that is assigned to the pool. Your exit routine might be running under one TCB in a pool, make a callable services request, wait, and then be dispatched under a different TCB after the event completes.

Environmental requirements for GJEUXCS\$

Environmental requirements exist for using GJEUXCS\$.

The requirements for the caller of GJEUXCS\$ are:

Authorization:

Supervisor state, PSW key in which the user exit routine was originally called

Dispatchable unit mode:

TCB mode

Save area:

R13 must be pointing to a standard 72-byte save area

Cross-memory mode:

None (PASN=HASN=SASN)

AMODE:

31-bit

ASC mode:

Primary

Interrupt status:

Enabled

Locks:

None

GJEUXCS\$ restrictions

Certain restrictions apply to using GJEUXCS\$.

GJEUXCS\$ can be invoked only from within a BPE-called user exit routine .

GJEUXCS\$ is a Product-Sensitive Programming Interface.

Register information for GJEUXCS\$

The GJEUXCS\$ macro uses several registers as work registers.

The GJEUXCS\$ macro uses R0, R1, R14, and R15 as work registers.

When GJEUXCS\$ returns control to the caller, the contents of these registers is changed. All other registers remain unchanged.

GJEUXCS\$ macro syntax

The GJEUXCS\$ macro syntax includes a FUNC=CALL function and a FUNC=DSECT function.

The FUNC = CALL function is used to invoke a callable service from a user exit routine. The syntax for the CALL function is:



The FUNC = DSECT function is used to generate the following items: return code symbols, BPE callable service codes, and parameter list DSECT for the BPEUXCSV CALL function.

The syntax for the DSECT function is:

▶▶ GJEUXCS\$ — FUNC=DSECT ◀◀

GJEUXCS\$ macro parameters

The GJEUXCS\$ macro has several parameters that you can use.

label

An optional assembler label for the macro statement.

FUNC=CALL | DSECT

An optional parameter that specifies the function of the GJEUXCS\$ macro. The default is CALL.

CALL

Invokes a BPE callable service from a user exit routine.

DSECT

Generates the return code symbols, BPE callable service codes, and the parameter list DSECT for the BPEUXCSV CALL function.

PARMS=(list of parameters)

A required parameter that specifies a list of sub-parameters (separated by commas) that are needed for the requested callable service. These sub-parameters are positional, and are specific to the service requested. Sub-parameters in this list can be in one of the following three forms:

symbol

If coded as a symbol, the value of the symbol (for example, the result of doing an LA R0, symbol) is passed as the parameter.

number

If coded as a number, the number is passed as the parameter.

(register)

If coded as a register, the content of the register is passed as the parameter. Valid registers are R2 through R12.

Examples:

- If a parameter is described as "A word in storage to receive a pointer to the returned storage," you can use one of the following coding examples:

```
BPEUXCSV PARMS=(MYWORD),...  
  
. . .  
MYWORD DS A Word to receive returned ptr  
  
- or -  
  
LA 2,MYWORD Get addr of word to receive ptr  
BPEUXCSV PARMS=((2)),...
```

- If a parameter is described as "The number of bytes of storage to obtain," you can use one of the following coding examples:

```
BPEUXCSV PARMS=(NUMBYTES),...  
  
. . .  
NUMBYTES EQU 1024 Number of bytes to get  
  
- or -  
  
BPEUXCSV PARMS=(1024),...  
  
- or -  
  
LA 5,1024  
BPEUXCSV PARMS=((5)),...
```

The specific parameters and parameter order for each service are:

SERVICECODE=*symbol* | (*r2-r12*)

A required parameter that specifies a code that identifies the particular callable service that is being requested.

If SERVICECODE is specified as a symbol, the symbol must be an EQU symbol that is equated to the function code of the requested callable service. If SERVICECODE is specified as a register, the register must contain the service code. For BPE-provided services, the appropriate EQU symbols are generated when you invoke GJEUXCS\$ FUNC = DSECT, and are specified as one of the following service codes.

BPEUXCSV_GETSTG

Get storage service.

BPEUXCSV_FREESTG

Free storage service.

BPEUXCSV_LOAD

Load module service.

BPEUXCSV_DELETE

Delete module service.

BPEUXCSV_NSCREATE

Create named storage service.

BPEUXCSV_NSRETRIEVE

Retrieve named storage service.

BPEUXCSV_NSDESTROY

Destroy named storage service.

SL=symbol | (r0-r12,r14,r15)

A required parameter that specifies an area in storage that is to be used as a service parameter list. The GJEUXCS\$ macro uses this storage to build the parameter list for the call to the callable service. The EQU symbol BPEUXCSV_MAXSL is generated by this macro and is equated to the size of the largest service parameter list that is required by BPE callable services. Ensure that the area of storage that you specify on the SL parameter is at least BPEUXCSV_MAXSL bytes in length when requesting any of the BPE callable services.

If SL is specified as a symbol, the symbol must be a label on the first byte of the area to be used as the service parameter list. If the SL parameter is specified as a register, the register must contain the address of the first byte of the area.

TOKEN=symbol | (r2-r12)

A required parameter that specifies the callable services token address that was passed to the user exit routine in the standard BPE user exit parameter list field UXPL_CSTOKENP. If the TOKEN parameter is specified as a symbol, the symbol must be the label on a word of storage that contains the callable services token address. If TOKEN is specified as a register, the register must contain the callable services token address.

Return from BPEUXCSV

You can use certain return codes from BPEUXCSV to determine how the GJEUXCS\$ macro performed.

The GJEUXCS\$ FUNC = CALL function uses general purpose registers R0, R1, R14, and R15 as work registers.

On exit from the macro, R15 is set to the return code from the GJEUXCS\$ macro. This return code indicates the status from the callable service request router. The possible return code values in R15 are the same for all callable service requests.

R0 *might* be set to a return code for the specific callable service that was requested, depending on the value that is in R15 (see R15 return codes, in the next paragraph). The R0 return code is specific to each callable service.

R1 might be set to a return value from the callable service, if applicable.

R2 through R12 are unchanged on return from GJEUXCS\$.

EQUs for the return codes in R15 are generated by GJEUXCS\$ FUNC = DSECT.

Possible return code values in R15 for FUNC = CALL are:

Table 21. Return codes from BPEUXCSV

Symbol	Value	Description
BPEUXCSV_RC_OK	X'00'	The callable service call was successful.
BPEUXCSV_RC_SERV	X'04'	The specific callable service returned a nonzero return code. The return code is in R0. Examine R0 to determine the specific reason that the request failed. The only time that the value in R0 is valid is when R15 = X'04'. Otherwise, the content of R0 is unpredictable.
BPEUXCSV_RC_INVCODE	X'08'	The service code specified on SERVICECODE is invalid.
BPEUXCSV_RC_BADTOKEN	X'0C'	The callable service token passed on TOKEN is invalid.
BPEUXCSV_RC_INT	X'F4'	An internal BPE error occurred.

Table 21. Return codes from BPEUXCSV (continued)

Symbol	Value	Description
BPEUXCSV_RC_VERS	X'FC'	A callable services parameter list version error was encountered. The version of the parameter list that was generated by this macro is not valid for your current release of BPE. This is usually the result of assembling with a version of GJEUXC\$ at a different level than the BPE runtime system.

Get storage service

The get storage service is used to obtain virtual storage.

The get storage service is similar to the MVS GETMAIN and STORAGE services; however the storage that is obtained by the get storage service is always associated with the top-level BPE TCB (usually the jobstep TCB of the address space).

The storage remains allocated until it is explicitly freed or until the jobstep TCB terminates. Therefore, you can rely on the fact that the storage stays allocated, even if it is obtained under a subtask TCB that later terminates.

Service code: BPEUXCSV_GETSTG

PARMS format:

PARMS=(length,sp,opts) or PARMS=(length,sp,opts,key)

where:

length is the length of the requested storage, in bytes.

sp is the subpool of the requested storage. This must be a valid MVS private subpool. It cannot be a common storage subpool (such as subpool 231 or 241).

opts are the options for the storage request. *opts* is a value that is the sum of several EQU values. *opts* identifies the options that you have requested for the get storage service request. A GJEUXC\$ FUNC = DSECT statement must be included in your module to generate the EQUs that are required for this function. To specify that none of the options apply, code a zero (0) for *opts*.

BPEUXCSV_GETSTG_BELOW

Include this EQU if you want LOC = BELOW (below the line) storage. If this EQU is omitted, the storage is LOC = ANY.

BPEUXCSV_GETSTG_CLEAR

Include this EQU if you want the storage to be cleared when it is returned to you. If this EQU is omitted, the storage content is unpredictable.

BPEUXCSV_GETSTG_PAGE

Include this EQU if you want the starting address of the obtained storage to be aligned on a page boundary. If this EQU is omitted, the storage is aligned on a double-word boundary.

key is the storage key of the restricted storage. *key* is an optional parameter. If coded, it indicates the storage key to be assigned to the storage that is returned from the get storage service. If *key* is omitted, the returned storage will be key 7 storage.

The value that is passed for the *key* parameter must be sixteen times the actual key value. For example, if you wanted to get key 2 storage, you would specify a value of X'20' for the *key* parameter.

The *key* parameter applies *only* to subpools where KEY= applies on the MVS GETMAIN macro (for example, subpool 229). It is ignored for all other subpools. You cannot, for example, request subpool 0 storage in a key other than 7.

Output: Return code EQUs are generated by GJEUXC\$ FUNC = DSECT. If R15 = 0, the address of the obtained storage area is returned in R1. Otherwise, the content of R1 is unpredictable.

If R15 = 4 on return from this macro, R0 contains one of the following reason codes.

Table 22. Reason codes returned by Get storage service

Symbol	Value	Description
BPEUXCSV_GETSTG_RCSP	X'04'	An invalid or unsupported subpool was specified. Either the subpool is not supported by MVS, or it is a common subpool.
BPEUXCSV_GETSTG_RCLV	X'08'	A zero or negative storage length was requested.
BPEUXCSV_GETSTG_RCSTG	X'0C'	The service was unable to obtain the requested storage.
BPEUXCSV_GETSTG_RCPARM	X'F0'	An invalid number of parameters was passed to the callable services request.
BPEUXCSV_GETSTG_RCINT	X'F4'	An internal BPE error occurred.

Examples:

- The following example shows how to get 64 bytes of storage from subpool 0. The storage is LOC = BELOW, it is aligned on a page boundary, and it is not cleared.

```
GJEUXCS$ SERVICECODE=BPEUXCSV_GETSTG,          X
          PARS=(64,0,BPEUXCSV_GETSTG_BELOW+BPEUXCSV_GETSTG_PAGE),X
          TOKEN=UXPL_CSTOKENP,                  X
          SL=(1)
```

- The following example shows how to get key zero storage for a length of the value in R2, from the subpool value in R3. The storage is LOC = ANY, it is not cleared, and it is double-word aligned. R4 contains the callable services token address that was passed to the user exit routine in the field UXPL_CSTOKENP.

```
GJEUXCS$ SERVICECODE=BPEUXCSV_GET              X
          PARS=((2),(3),0,0),                    X
          TOKEN=(4),                             X
          SL=WORKAREA
```

Free storage service

The free storage service is used to release storage that was previously obtained with the get storage service.

The free storage service is similar to the MVS FREEMAIN service. The free storage service must be used only to release storage obtained with the get storage service. It should not be used to release storage that was obtained through any other method (such as GETMAIN).

Service code: BPEUXCSV_FREESTG

PARMS format:

PARMS=(address,length,sp) or PARMS=(address,length,sp,key)

where:

address is the address of the first byte of storage being released.

length is the number of bytes of the storage being released.

sp is the subpool of the storage being released. This subpool must be the same as the subpool that was specified when the storage was obtained.

key is the storage key of the storage that is being released. *key* is the optional parameter. If coded, it indicates the storage key of the storage being freed. If *key* is omitted, the storage must be key 7 storage.

The value that is passed for the *key* parameter must be sixteen times the actual key value. For example, if you were freeing key 2 storage, you would specify a value of X'20' for the *key* parameter.

The *key* parameter *only* applies to subpools where KEY= applies on the MVS FREEMAIN macro (for example, subpool 229). It is ignored for all other subpools.

Output: Return code EQU's are generated by GJEUXCS\$ FUNC = DSECT. If R15 = 4 on return from this macro, R0 contains one of the following reason codes.

Table 23. Reason codes returned by Free storage service

Symbol	Value	Description
BPEUXCSV_FREESTG_RCSP	X'04'	An invalid or unsupported subpool was specified. Either the subpool is not supported by MVS, or it is a common subpool.
BPEUXCSV_FREESTG_RCLV	X'08'	A zero or negative storage length was specified.
BPEUXCSV_FREESTG_RCADDR	X'0C'	A zero storage address was specified.
BPEUXCSV_FREESTG_RCSTG	X'10'	The service was unable to free the requested storage.
BPEUXCSV_FREESTG_RCPARM	X'F0'	An invalid number of parameters was passed to the callable services request.
BPEUXCSV_FREESTG_RCINT	X'F4'	An internal BPE error occurred.

Example:

The following example shows how to free STGLEN bytes starting at the byte at label MYSTG in subpool 129. STGLEN is an EQU for the number of bytes to free, and MYSTG is the label on the first byte of the area to free (*not* the label on a word pointing to the area).

```
GJEUXCS$ SERVICECODE=BPEUXCSV_FREESTG,      X
          PARM=(MYSTG,STGLEN,129),           X
          TOKEN=UXPL_CSTOKENP,               X
          SL=(1)
```

Load module service

The load module service is used to load a module from a library into storage.

The load module service is similar to the MVS LOAD service; however, the module that is loaded is always associated with the top level BPE-TCB (usually the jobstep TCB of the address space). The module remains allocated until it is explicitly freed or until the jobstep TCB terminates. Therefore, you can rely on the module remaining allocated, even if it is obtained under a subtask TCB that later terminates.

Service code: BPEUXCSV_LOAD

PARMS format: PARM=(*modname*,*dcb*,*opts*)

where:

modname identifies an 8-character field in storage that contains the name of the module to be loaded. If *modname* is coded as a symbol, the symbol must be the label on the first byte of the 8-character field. If *modname* is coded as a register, the register must contain the address of the 8-character field.

dcb is the address of an opened DCB for a partitioned data set from which to load the specified module. To use the TASKLIB, STEPLIB, or JOBLIB data sets, code 0 for this parameter.

opts are options for the load request. *opts* is a value that is the sum of several EQU values. *opts* identifies the options you have requested for the Load Module Service request. A GJEUXCS\$ FUNC = DSECT statement must be included in your module to generate the EQU's that are required for this function. To specify that none of the options apply, code 0 for *opts*.

BPEUXCSV_LOAD_FIXED

Include this EQU if you want the module to be loaded into page-fixed storage. If this EQU is omitted, the module is loaded into pageable storage. This parameter applies only if you also specify BPEUXCSV_LOAD_GLOBAL. Otherwise, BPEUXCSV_LOAD_FIXED is ignored.

BPEUXCSV_LOAD_GLOBAL

Include this EQU if you want the module to be loaded into global (common) storage. If this EQU is omitted, it is loaded into private storage.

BPEUXCSV_LOAD_EOM

Include this EQU if you specified BPEUXCSV_LOAD_GLOBAL and you want the module to be deleted only after the address space terminates. If this EQU is omitted, the module is deleted when the top-level BPE TCB terminates. BPEUXCSV_LOAD_EOM is ignored if you did not code BPEUXCSV_LOAD_GLOBAL.

Output: If R15 = 0, the address of the loaded module is returned in R1. Otherwise, the content of R1 is unpredictable.

Return code EQUs are generated by GJEUXCS\$ FUNC = DSECT. If R15 = 4 on return from this macro, then R0 contains one of the following reason codes.

Table 24. Reason codes returned by Load module service

Symbol	Value	Description
BPEUXCSV_LOAD_RCNOTFND	X'04'	The specified module could not be found.
BPEUXCSV_LOAD_RCBLDL	X'08'	BLDL for the module failed due to an internal error.
BPEUXCSV_LOAD_RCLOAD	X'0C'	LOAD for the module failed. The module was found in the library, but LOAD returned a nonzero return code.
BPEUXCSV_LOAD_RCPARM	X'F0'	An invalid number of parameters was passed to the callable services request.
BPEUXCSV_LOAD_RCINT	X'F4'	An internal BPE error occurred.

Examples:

The following example shows how to load the module whose name is at the 8 bytes of storage, beginning at label MODNAME, from the default TASKLIB, JOBLIB, or STEPLIB data sets.

```
      GJEUXCS$ SERVICECODE=BPEUXCSV_LOAD,          X
      PARM=(MODNAME,0,0),                          X
      TOKEN=UXPL_CSTOKENP,                          X
      SL=(1)
      . . .
MODNAME DC    CL8'MODULE00'      Name of module to load
```

The following example shows how to load the module, whose name is at the 8 bytes of storage pointed to by R8, into global storage. The module is not deleted until the address space terminates (or until it is explicitly deleted). R2 contains the callable services token address that was passed to the user exit routine in the UXPL_CSTOKENP field. The module is loaded from the data set described by DCB MYDCB.

```
      LA      8,MODNAME          R8 = addr of name of module to load
      GJEUXCS$ SERVICECODE=BPEUXCSV_LOAD,          X
      PARM=((8),MYDCB,BPEUXCSV_LOAD_GLOBAL+BPEUXCSV_LOAD_EOM)X
      TOKEN=(2),                  X
      SL=PRMLIST
      . . .
MODNAME DC    CL8'MODULE00'      Name of module to load
MYDCB   DCB    DSNAME=...
```

Delete module service

The delete module service is used to delete a module that was previously loaded with the load module service.

The delete module service is similar to the MVS DELETE service. The delete module service must be used only to delete modules that were obtained with the load module service. It must not be used to delete modules that were loaded through any other method (such as MVS LOAD).

Service code: BPEUXCSV_DELETE

PARMS format: PARMS=(*modname*)

where:

modname identifies an 8-character field in storage that contains the name of the module to be deleted. If *modname* is coded as a symbol, the symbol must be the label on the first byte of the 8-character field. If *modname* is coded as a register, the register must contain the address of the 8-character field.

Output: Return code EQU are generated by GJEUXCS\$ FUNC = DSECT. If R15 = 4 on return from this macro, then R0 contains one of the following reason codes.

Table 25. Reason codes returned by delete module service

Symbol	Value	Description
BPEUXCSV_DELETE_RCDELETE	X'04'	The module that was specified could not be deleted.
BPEUXCSV_DELETE_RCPARM	X'F0'	An invalid number of parameters was passed to the callable services request.
BPEUXCSV_DELETE_RCINT	X'F4'	An internal BPE error occurred.

Example:

The following example shows how to delete the module whose 8-character name is in the storage that is pointed to by R5.

LA	5,MODNAME	R5=addr of name of module to delete	
GJEUXCS\$	SERVICECODE=BPEUXCSV_DELETE,		X
	PARMS=((5)),		X
	TOKEN=UXPL_CSTOKENP,		X
	SL=(1)		
. . .			
MODNAME	DC	CL8'MODULE00'	Name of module to delete

Create named storage service

The create named storage service allows you to obtain an area of storage that is associated with a 16-byte name.

In subsequent user exit routine calls (either for the same or different exit routine types), you can retrieve the named storage area address by providing the same name to the retrieve named storage service. Named storage services allow a set of user exit routines to share information, but only if they agree on the same name. Typically, an initialization-type exit routine creates the named storage, and all subsequent exit routines retrieve the named storage address.

The name of the storage must be unique within the BPE address space. The named storage is obtained in subpool 0, LOC = ANY storage. The storage is cleared to zeros when it is created.

Service code: BPEUXCSV_NSCREATE

PARMS format: PARMS=(*name,length*)

where:

name identifies a 16-byte field in storage that contains the name to be associated with the storage obtained. The field can contain any 16-byte value (all bytes are significant). If *name* is coded as a symbol, the symbol must be the label on the first byte of the 16-byte field. If *name* is coded as a register, the register must contain the address of the 16-byte field.

length is the number of bytes of the named storage area to obtain.

Output: If R15 = 0, the address of the named storage area that is obtained is returned in R1. Otherwise, the content of R1 is unpredictable.

Return code EQUs are generated by GJEUXCS\$ FUNC = DSECT. If R15 = 4 on return from this macro, R0 contains one of the following reason codes.

Table 26. Reason codes returned by Create named storage service

Symbol	Value	Description
BPEUXCSV_NSCREATE_RCDUP	X'04'	The requested storage area name is already in use.
BPEUXCSV_NSCREATE_RCLV	X'08'	A zero or negative storage length was requested.
BPEUXCSV_NSCREATE_RCNAME	X'0C'	A zero name address was specified.
BPEUXCSV_NSCREATE_RCSTG	X'10'	The service was unable to obtain the requested storage.
BPEUXCSV_NSCREATE_RCPARM	X'F0'	An invalid number of parameters was passed to the callable services request.
BPEUXCSV_NSCREATE_RCINT	X'F4'	An internal BPE error occurred.

Example:

The following example shows how to create a 1024-byte storage area that is associated with the 16-byte name in storage. The first byte of the named storage area is at label MYNAME.

```

GJEUXCS$ SERVICECODE=BPEUXCSV_NSCREATE,          X
          PARM=(MYNAME,1024),                      X
          TOKEN=UXPL_CSTOKENP,                     X
          SL=(1)
. . .
MYNAME   DC    CL16'SHARED_STOR_1024'  "Name" of named storage

```

Retrieve named storage service

The retrieve named storage service allows you to retrieve the address of a named area of storage that was previously created with the create named storage service.

Service code: BPEUXCSV_NSRETRIEVE

PARMS format: PARM=(*name*)

where:

name identifies a 16-byte field in storage that contains the name of the named storage area. The field can contain any 16-byte value (all bytes are significant). If *name* is coded as a symbol, the symbol must be the label on the first byte of the 16-byte field. If *name* is coded as a register, the register must contain the address of the 16-byte field.

Output: If R15 = 0, the address of the named storage area that is retrieved is returned in R1. Otherwise, the content of R1 is unpredictable.

Return code EQUs are generated by GJEUXCS\$ FUNC = DSECT. If R15 = 4 on return from this macro, R0 contains one of the following reason codes.

Table 27. Reason codes returned by Retrieve named storage service

Symbol	Value	Description
BPEUXCSV_NSRETRIEVE_RCNONE	X'04'	No named storage area is associated with the specified name.
BPEUXCSV_NSRETRIEVE_RCNAME	X'08'	A zero name address was specified.
BPEUXCSV_NSRETRIEVE_RCPARM	X'F0'	An invalid number of parameters was passed to the callable services request.
BPEUXCSV_NSRETRIEVE_RCINT	X'F4'	An internal BPE error occurred.

Example:

The following example shows how to retrieve the address of the named storage area that is associated with the 16-byte name in storage at the address contained in R6.

```

        LA      6,MYNAME
        GJEUXX$ SERVICECODE=BPEUXCSV_NSRETRIEVE,      X
                PARM=((6)),                          X
                TOKEN=UXPL_CSTOKENP,                  X
                SL=(1)
        . . .
        MYNAME  DC      CL16'SHARED_STOR_1024'  "Name" of named storage

```

Destroy named storage service

The destroy named storage service is used to delete a previously created named storage area. No other user exit routine should access this storage after you destroy it.

Service code: BPEUXCSV_NSDESTROY

PARMS format: PARM=((name))

where:

name identifies a 16-byte field in storage that contains the name of the named storage area. The field can contain any 16-byte value (all bytes are significant). If *name* is coded as a symbol, the symbol must be the label on the first byte of the 16-byte field. If *name* is coded as a register, the register must contain the address of the 16-byte field.

Output: Return code EQU are generated by GJEUXX\$ FUNC = DSECT. If R15 = 4 on return from this macro, R0 contains one of the following reason codes.

Table 28. Reason codes returned by Destroy named storage service

Symbol	Value	Description
BPEUXCSV_NSDESTROY_RCNONE	X'04'	No named storage area is associated with the specified name.
BPEUXCSV_NSDESTROY_RCNAME	X'08'	A zero name address was specified.
BPEUXCSV_NSDESTROY_RCPARM	X'F0'	An invalid number of parameters was passed to the callable services request.
BPEUXCSV_NSDESTROY_RCINT	X'F4'	An internal BPE error occurred.

Example:

The following example shows how to destroy the named storage area that is associated with the 16-byte name in storage whose first byte is at label NSNAME.

```

GJEUXXCS$ SERVICECODE=BPEUXCSV_NSDESTROY,      X
          PARS=(NSNAME),                        X
          TOKEN=UXPL_CSTOKENP,                  X
          SL=(1)
. . .
NSNAME   DC      XL16'01C1C2C300000000F1F2F3F4006D2748'  Binary names OK

```

Callable service example: Sharing data among exit routines

As an example of the use of callable services, consider the case where you have a set of user exit routines of varying types that all need to share some common information.

For this example, assume that the following three types of exit routines are being used:

- An *initialization exit routine* that gets control when the address space is first started. Assume that this exit routine runs before any mainline processing is done (so you can be sure that the other two exit routines will not be called until the initialization exit routine has returned).
- A *processing exit routine* that gets control whenever a particular event occurs in the address space that needs user exit routine provided information.
- A *termination exit routine* that gets control when the address space is ending.

Important: These particular user exit routines are provided here for example purposes only. These examples should not be assumed to be usable exit routines.

Sample initialization exit routine

The initialization exit routine uses the create named storage service to obtain a 16-byte area of storage with the name ZZZ_EXIT_AREA.

The storage is mapped by the following DSECT (which is assumed to be available in all of the modules).

```

ZZZ_EXIT_AREA      DSECT ,
ZZZ_TABLE_NAME     DS      CL8           Name of table module
ZZZ_TABLE_ADDR     DS      A             Address of table module
                  DS      F             Available
ZZZ_EXIT_AREA_L    EQU      *-ZZZ_EXIT_AREA

```

The initialization exit routine then uses the load module service to load a module that is named ZZZUXTB0 (a table that is needed in this example to pass information to the other user exit routines). The initialization exit routine stores the name of the table module in the named storage area field ZZZ_TABLE_NAME, and the address of the loaded table in field ZZZ_TABLE_ADDR. A routine using a table might not be required for your application.

A sample initialization exit routine that performs these functions is shown in the following example. The code shown in this and following examples is mainline path only. To keep the examples simple, error paths and exception handling code are not shown.

```

INITEXIT CSECT ,
INITEXIT AMODE 31
INITEXIT RMODE ANY
          STM 14,12,12(13)      Save caller's registers
          LR 12,15              Move module entry pt to R12
          USING INITEXIT,12     Address module base register
          L 13,8(,13)           Chain to 2nd provided save area
          LR 11,1               Move exit parmlist to R11
          USING BPEUXPL,11      Address std BPE user exit PL
          L 10,UXPL_DYNAMICWAP  Get 512-byte dynamic storage ptr
          USING DYNSTG,10       Address module's dynamic storage
          GJEUXXCS$ SERVICECODE=BPEUXCSV_NSCREATE, Create named stg X
          PARS=(NSNAME,ZZZ_EXIT_AREA_L), for the exits X
          TOKEN=UXPL_CSTOKENP, X
          SL=UXCSVPL
          LTR 15,15             Did NSCreate work?
          BNZ ERROR1            No, go handle error

          LR 9,1                Yes, named storage ptr to R9
          USING ZZZ_EXIT_AREA,9 Address using "ZZZ" DSECT

```

MVC	ZZZ_TABLE_NAME,TBLNAME	Set name of table module	
GJEUXCS\$	SERVICECODE=BPEUXCSV_LOAD,	Load the table	X
	PARMS=(TBLNAME,0,0),	module for the	X
	TOKEN=UXPL_CSTOKENP,	exits	X
	SL=UXCSVPL		
LTR	15,15	Did LOAD work?	
BNZ	ERROR2	No, go handle error	
ST	1,ZZZ_TABLE_ADDR	Yes, save table ptr in named stg	
...		Do any other init exit functions	
XR	15,15	Set zero return code	
L	13,4(,13)	Back up to caller's save area	
L	14,12(,13)	Restore caller's R14	
LM	0,12,20(13)	Restore caller's R0-R12	
BR	14	Return to caller	
DROP	9,10,11,12	Release USING registers	
NSNAME	DC CL16'ZZZ_EXIT_AREA '	Const for named storage	
TBLNAME	DC CL8'ZZZUXTB0'	Const for table module name	
	LTORG ,		
DYNSTG	DSECT ,	Dynamic storage DSECT	
UXCSVPL	DS XL(BPEUXCSV_MAXSL)	Space for GJEUXCS\$ parmlist	
	...	Other dynamic storage fields	
	GJEUXPL\$ FUNC=DSECT	Include user exit parmlist	
	GJEUXCS\$ FUNC=DSECT	Include GJEUXCS\$ symbols	
	END		

Sample processing exit routine

The processing exit routine obtains the address of the table module that was loaded by the initialization exit routine.

For optimum performance, the processing exit routine uses the first word of the static work area that BPE passes to save the address of the shared storage area.

On entry, the processing exit routine checks this word of storage. If this word is nonzero, the processing routine uses this address as the shared storage area pointer. If the first word is zero, the processing exit routine invokes the named storage retrieve service to get the address of the shared storage. The processing exit routine then saves the address in the static storage area.

This technique minimizes the number of BPE requests for callable services that this exit routine must make (because it needs to do the retrieve only once; on subsequent calls, the address of the shared storage area is available in the static work area).

A sample processing exit routine that performs these functions is shown in the following example:

PROCEXIT	CSECT ,		
PROCEXIT	AMODE 31		
PROCEXIT	RMODE ANY		
	STM 14,12,12(13)	Save caller's registers	
	LR 12,15	Move module entry pt to R12	
	USING PROCEXIT,12	Address module base register	
	L 13,8(,13)	Chain to 2nd provided save area	
	LR 11,1	Move exit parmlist to R11	
	USING BPEUXPL,11	Address std BPE user exit PL	
	L 10,UXPL_DYNAMICWAP	Get 512-byte dynamic storage ptr	
	USING DYNSTG,10	Address module's dynamic storage	
	L 9,UXPL_STATICWAP	Get 256-byte static storage ptr	
	ICM 8,15,0(9)	Is shared stg ptr set?	
	BNZ GOTSHRD	Yes, continue	
	GJEUXCS\$ SERVICECODE=BPEUXCSV_NSRETRIEVE,	Get named stg addr	X
	PARMS=(NSNAME),		X
	TOKEN=UXPL_CSTOKENP,		X
	SL=UXCSVPL		
	LTR 15,15	Did NSRetrieve work?	
	BNZ ERROR1	No, go handle error	
	LR 8,1	Yes, set shrd stg ptr in R8	
	ST 8,0(,9)	Save in static stg for next time	
GOTSHRD	DS 0H		
	USING ZZZ_EXIT_AREA,8	Address using "ZZZ" DSECT	
	L 7,ZZZ_TABLE_ADDR	Get table address	
...		Do process exit functions	
XR	15,15	Set zero return code	

	L	13,4(,13)	Back up to caller's save area
	L	14,12(,13)	Restore caller's R14
	LM	0,12,20(13)	Restore caller's R0-R12
	BR	14	Return to caller
NSNAME	DROP	8,10,11,12	Release USING registers
	DC	CL16'ZZZ_EXIT_AREA'	Const for named storage
	LTORG	,	
DYNSTG	DSECT	,	Dynamic storage DSECT
UXCSVPL	DS	XL(BPEUXCSV_MAXSL)	Space for GJEUXCS\$ parmlist
			Other dynamic storage fields
	GJEUXPL\$	FUNC=DSECT	Include user exit parmlist
	GJEUXCS\$	FUNC=DSECT	Include GJEUXCS\$ symbols
	END		

Sample termination exit routine

The termination exit routine locates the shared storage area, deletes the loaded table module using the name that was saved in the shared storage area, and then destroys the shared area.

A sample termination exit routine that performs these functions is shown in the following example:

TERMEXIT	CSECT	,	
TERMEXIT	AMODE	31	
TERMEXIT	RMODE	ANY	
	STM	14,12,12(13)	Save caller's registers
	LR	12,15	Move module entry pt to R12
	USING	TERMEXIT,12	Address module base register
	L	13,8(,13)	Chain to 2nd provided save area
	LR	11,1	Move exit parmlist to R11
	USING	BPEUXPL,11	Address std BPE user exit PL
	L	10,UXPL_DYNAMICWAP	Get 512-byte dynamic storage ptr
	USING	DYNSTG,10	Address module's dynamic storage
	GJEUXCS\$	SERVICECODE=BPEUXCSV_NSRETRIEVE,	Get named stg addr
		PARMS=(NSNAME),	X
		TOKEN=UXPL_CSTOKENP,	X
		SL=UXCSVPL	
	LTR	15,15	Did NSRetrieve work?
	BNZ	ERROR1	No, go handle error
	LR	8,1	Yes, set shrd stg ptr in R8
	USING	ZZZ_EXIT_AREA,8	Address using "ZZZ" DSECT
	GJEUXCS\$	SERVICECODE=BPEUXCSV_DELETE,	Delete table
		PARMS=(ZZZ_TABLE_NAME),	module
		TOKEN=UXPL_CSTOKENP,	X
		SL=UXCSVPL	
	LTR	15,15	Did DELETE work?
	BNZ	ERROR2	No, go handle error
	GJEUXCS\$	SERVICECODE=BPEUXCSV_NSDESTROY,	Destroy named stg
		PARMS=(NSNAME),	X
		TOKEN=UXPL_CSTOKENP,	X
		SL=UXCSVPL	
	DROP	8	R8 no longer is "ZZZ" area
	LTR	15,15	Did NSDestroy work?
	BNZ	ERROR3	No, go handle error
		...	Do other term exit functions
	XR	15,15	Set zero return code
	L	13,4(,13)	Back up to caller's save area
	L	14,12(,13)	Restore caller's R14
	LM	0,12,20(13)	Restore caller's R0-R12
	BR	14	Return to caller
	DROP	10,11,12	Release USING registers
NSNAME	DC	CL16'ZZZ_EXIT_AREA'	Const for named storage
	LTORG	,	
DYNSTG	DSECT	,	Dynamic storage DSECT
UXCSVPL	DS	XL(BPEUXCSV_MAXSL)	Space for GJEUXCS\$ parmlist
			Other dynamic storage fields
	GJEUXPL\$	FUNC=DSECT	Include user exit parmlist
	GJEUXCS\$	FUNC=DSECT	Include GJEUXCS\$ symbols
	END		

Chapter 32. BPE commands

IMS Sysplex Manager uses the Base Primitive Environment (BPE) and BPE commands.

Topics:

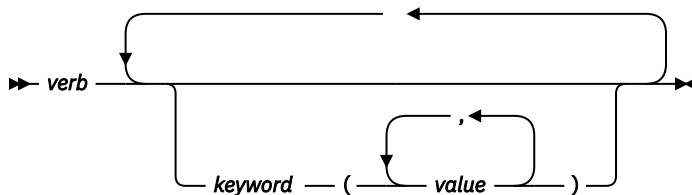
- “BPE command syntax and invocation” on page 277
- “BPE TRACETABLE commands” on page 279
- “BPE USEREXIT commands” on page 284

BPE command syntax and invocation

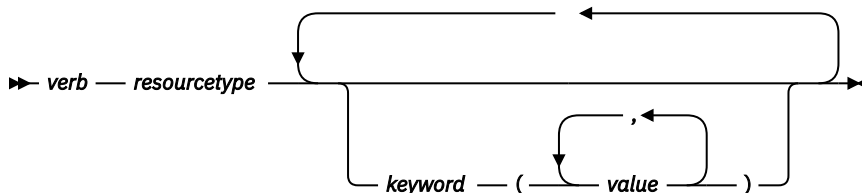
IMS Sysplex Manager BPE supports two command formats: a verb only format, and a verb-resource type format.

The verb only format consists of a verb, followed by zero or more keyword-value pairs, with the values enclosed in parentheses.

BPE verb-only command syntax



BPE verb-resource type command syntax



The verb-resource type format consists of a verb, a resource type, and zero or more keyword value pairs.

verb

A command verb that represents an action. Some verb examples are DISPLAY, UPDATE, and REFRESH.

resourcetype

The type of resource that is operated on by the verb. Some resource examples are TRACETABLE and USEREXIT.

keyword(value)

A set of zero or more keywords and values that represent attributes, filters, or other modifiers that apply to the command. For example, NAME() to identify the specific resources or LEVEL() to specify a trace level.

BPE command invocation

You can invoke IMS Sysplex Manager BPE commands only through the MVS **MODIFY** command.

The following diagram illustrates the general syntax for entering commands through the modify interface.

➡ F — *jobname,command* ➡

These elements are defined as follows:

F

The MVS modify command.

jobname

The jobname of the address space to which the command is directed.

command

The command that is being issued.

BPE wildcard character support

Some parameters on BPE commands support wildcard characters for pattern matching.

For such parameters, you can use the following wildcard characters:

Matches zero or more characters

%

Matches exactly one character

The following examples illustrate some uses of wildcard characters.

BE*

Matches any string that begins with 'BE', of any length. For instance: BE, BEE, BEEBLEBROX.

%%S

Matches any 3-character string that ends with an 'S'. For instance: IMS, SMS.

R*S*T%R

Matches any string that begins and ends with 'R', having an 'S', followed by a 'T' in the middle, with any number of intervening characters between the first 'R', the 'S', and the 'T', and exactly one character between the 'T' and the final 'R'. For instance: ROASTER, ROSTER, RESORTER, RESCEPTOR, RSTZR.

Matches any string.

Specifying command parameters

IMS Sysplex Manager BPE commands enable you to display and update resources that IMS Sysplex Manager BPE manages.

About this task

Some resource types are defined and owned by IMS Sysplex Manager BPE itself. These resource types are known as *system resource types*.

Other resource types are defined and owned by IMS Sysplex Manager. These resource types are known as *component resource types* or *user-product resource types*.

IMS Sysplex Manager BPE commands also provide the ability to restrict the resource types upon which a command operates to either those owned by IMS Sysplex Manager BPE, or to those owned by IMS Sysplex Manager itself. This is done through the OWNER keyword on commands that support OWNER.

- Use OWNER(BPE) to restrict the command operation to resource types that BPE owns and defines (system resource types).
- Use OWNER(SMDC) to restrict the command operation to resource types that the IMS Sysplex Manager data collector defines and owns (component resource types).
- Use OWNER(SMUI) to restrict the command operation to resource types that the IMS Sysplex Manager server defines and owns (component resource types).

BPE TRACETABLE commands

The TRACETABLE resource type refers to the internal IMS Sysplex Manager BPE-managed trace tables that are defined either by IMS Sysplex Manager BPE (for example: DISP, CBS, STG, LATC), or by IMS Sysplex Manager.

Two command verbs operate on the TRACETABLE resource type:

DISPLAY

Display trace level and number of trace table pages of specified trace tables.

UPDATE

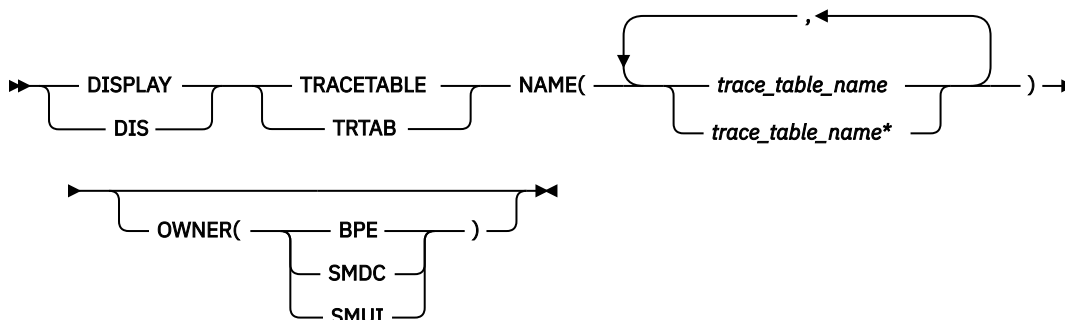
Update trace level attributes of specified trace tables.

DISPLAY TRACETABLE command

The **DISPLAY TRACETABLE** command displays the current attribute settings for the requested trace tables.

Format of the DISPLAY TRACETABLE command

Use the **DISPLAY TRACETABLE** command to display the current attribute settings for the requested trace tables.



Usage rules for the DISPLAY TRACETABLE command

Use the **DISPLAY TRACETABLE** command according to its usage rules.

DISPLAY | DIS

A required parameter that specifies that the action against the specified resource is to display attributes of the resource.

TRACETABLE | TRTAB

A required parameter that specifies that the resource type being acted upon is a BPE-managed trace table.

NAME(trace_table_name)

A required parameter that specifies the name of the trace table type or types about which you want attributes displayed. You can specify a single trace table name or a list of trace table names separated by commas. Trace table names can contain wildcard characters. Trace table names can be IMS Sysplex Manager BPE-defined trace tables or IMS Sysplex Manager-defined trace tables.

The following IMS Sysplex Manager BPE-defined trace table types are available:

AWE

Asynchronous work element (AWE) trace table

CBS

Control block services trace table

CMD

Command trace table

DISP

Dispatcher trace table

LATC

Latch trace table

SSRV

System services trace table

STG

Storage service trace table

OWNER(BPE | SMDC| SMUI)

An optional parameter that specifies the owner of the user exit type or types about which you want attributes displayed. You can specify one of the following values:

BPE

For all IMS Sysplex Manager components that are running in a BPE address space. No BPE user exit routine types are defined at this time.

SMDC

For IMS Sysplex Manager data collector-defined trace table types.

SMUI

For IMS Sysplex Manager server address space-defined trace table types.

The OWNER parameter acts as a filter to help you select the trace tables that you want to display. You could specify NAME (*) OWNER (BPE) to display all of the IMS Sysplex Manager BPE-defined trace table types. If OWNER is omitted, then both IMS Sysplex Manager BPE and IMS Sysplex Manager component trace tables might be displayed (depending on the tables specified on NAME).

DISPLAY TRACETABLE command output

The **DISPLAY TRACETABLE** command output consists of a header line, one line per selected trace table, and one message BPE0032I line that indicates that the command has completed.

The following example shows the output from the **DISPLAY TRACETABLE** command.

```
BPE0030I TABLE OWNER LEVEL #PAGES
BPE0000I DISP BPE HIGH 12
BPE0000I STR SMDC MEDIUM 8
BPE0032I DISPLAY TRACETABLE COMMAND COMPLETED
```

These columns are in the DISPLAY TRACETABLE output:

TABLE

Specifies the name of the trace table type about which information is being displayed on the current row.

OWNER

Specifies the IMS Sysplex Manager component that owns the trace table (BPE, SMDC or SMUI).

LEVEL

Specifies the current level setting of the trace table. A trace table's level determines the volume of trace data that is collected. These levels are possible:

NONE

No tracing is being done into the table.

ERROR

Only traces for error or exception conditions are being made into the table.

LOW

Only major event trace entries are made into the table.

MEDIUM

Major event trace entries and some minor event trace entries are made into the table.

HIGH

All trace entries are made into the table.

INACTV

The trace table is inactive and cannot be used. This status occurs only when BPE was unable to get any storage for the trace table. No tracing will be done for the indicated table type, and you cannot change the level for the trace table with the **UPDATE TRACETABLE** command. You must restart the address space in order to use the trace table again.

#PAGES

Specifies the number of 4 KB (4096 byte) pages that are allocated for the trace table type.

DISPLAY TRACETABLE example 1

This example displays the status of the IMS Sysplex Manager BPE dispatcher trace table (DISP).

Command:

```
F SMDC1,DISPLAY TRACETABLE NAME(DISP)
```

Output:

```
BPE0030I TABLE OWNER LEVEL #PAGES
BPE0000I DISP BPE HIGH 4
BPE0032I DIS TRTAB COMMAND COMPLETED
```

DISPLAY TRACETABLE example 2

This example displays the status of all traces in an IMS Sysplex Manager address space.

Command:

```
F SMDC1,DIS TRTAB NAME(*)
```

Output:

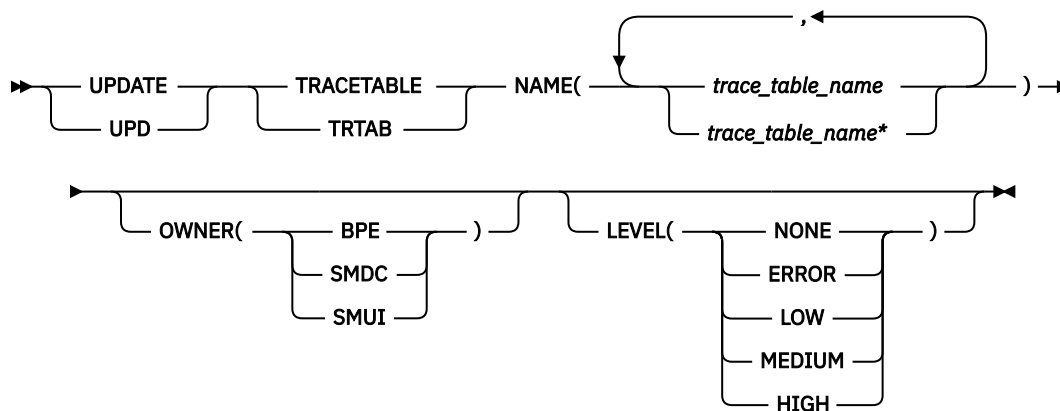
```
BPE0030I TABLE OWNER LEVEL #PAGES
BPE0000I AWE BPE HIGH 2
BPE0000I CBS BPE MEDIUM 4
BPE0000I CMD BPE ERROR 2
BPE0000I DISP BPE HIGH 4
BPE0000I LATC BPE ERROR 4
BPE0000I SSRV BPE HIGH 2
BPE0000I STG BPE MEDIUM 4
BPE0032I DIS TRTAB COMMAND COMPLETED
```

UPDATE TRACETABLE command

The **UPDATE TRACETABLE** command changes the trace level setting for the requested trace tables.

Format of the UPDATE TRACETABLE command

Use this command to change the trace level setting for the requested trace tables.



Usage rules for the UPDATE TRACETABLE command

Use the **UPDATE TRACETABLE** command according to its usage rules.

UPDATE | UPD

A required parameter that specifies that the action against the trace table is to update its attributes.

TRACETABLE | TRTAB

A required parameter that specifies that the resource type being acted upon is an IMS Sysplex Manager BPE-managed trace table.

NAME(*trace table name*)

A required parameter that specifies the name of the trace table type or types that you want to update. You can specify a single trace table name or a list of trace table names separated by commas. Trace table names can contain wildcard characters. Trace table names can be IMS Sysplex Manager BPE-defined trace tables or IMS Sysplex Manager-defined trace tables.

The following IMS Sysplex Manager BPE-defined trace table types are available:

AWE

Asynchronous work element (AWE) trace table

CBS

Control block services trace table

CMD

Command trace table

DISP

Dispatcher trace table

LATC

Latch trace table

SSRV

System services trace table

STG

Storage service trace table

You can update IMS Sysplex Manager-defined trace tables only for IMS Sysplex Manager address spaces.

OWNER(BPE|SMDC|SMUI)

An optional parameter that specifies the owner of the trace table type or types that you want to update. You can specify one of the following values:

BPE

For IMS Sysplex Manager BPE-defined trace table types

SMDC

For IMS Sysplex Manager Data Collector-defined trace table types

SMUI

For IMS SM Server-defined trace table types

The OWNER parameter acts as a filter to help you select the trace tables that you want to update. You could specify NAME(*) OWNER(SMUI) to update all of the IMS Sysplex Manager Server-defined trace table types. If OWNER is omitted, then both IMS Sysplex Manager BPE and IMS Sysplex Manager trace tables might be updated (depending on the tables specified on NAME).

LEVEL(level)

An optional parameter that sets the new tracing level for the specified trace tables. If LEVEL is omitted, the level of the specified trace tables is not changed. These levels are possible:

NONE

No tracing is being done into the table.

ERROR

Only traces for error or exception conditions are being made into the table.

LOW

Only major event trace entries are made into the table.

MEDIUM

Major event trace entries and some minor event trace entries are made into the table.

HIGH

All trace entries are made into the table.

Important: You cannot change the level for the trace table type ERR. IMS Sysplex Manager BPE forces the level to HIGH to ensure that error diagnostics are captured. Any level that you specify for the ERR trace table is ignored.

UPDATE TRACETABLE command output

The **UPDATE TRACETABLE** command output consists of message BPE0032I, which indicates that the command has completed.

An example of the **UPDATE TRACETABLE** command output message is:

```
BPE0032I UPDATE TRACETABLE COMMAND COMPLETED
```

UPDATE TRACETABLE example 1

This example updates the level of the IMS Sysplex Manager BPE dispatcher trace table (DISP) to HIGH.

Command:

```
F SMDC1,UPDATE TRACETABLE NAME(DISP) LEVEL(HIGH)
```

Output:

```
BPE0032I UPDATE TRACETABLE COMMAND COMPLETED
```

UPDATE TRACETABLE example 2

This example updates the level of all IMS Sysplex Manager (SMDC) trace tables to MEDIUM.

Important: You cannot change the level for the trace table type ERR, even when using a wildcard character to select all tables with a given owner, as in this example. IMS Sysplex Manager BPE forces the level to HIGH to ensure that error diagnostics are captured.

Command:

```
F SMDC1,UPD TRTAB NAME(*) OWNER(SMDC) LEVEL(MEDIUM)
```

Output:

BPE USEREXIT commands

BPE-specific user exit routines are not supported at this time. Only IMS Sysplex Manager-specific user exit routines are currently available.

Throughout these topics, the term *user exit routine* means *user-supplied exit routine*.

The USEREXIT resource type refers to the user exit routine types that are defined to and managed by the IMS component that is using BPE (for example, the IMS Sysplex Manager server, also known as SMUI).

DISPLAY

Display attributes of specified user exit routine types.

REFRESH

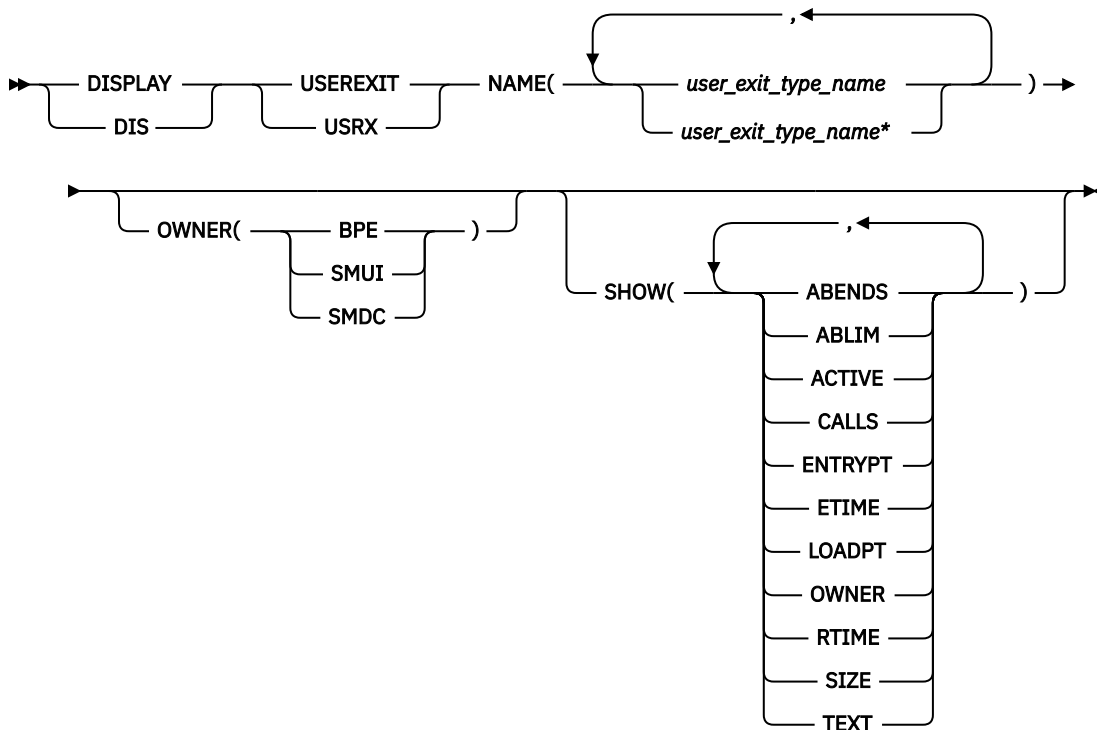
Load new copies of the user exit modules for specified user exit routine types.

DISPLAY USEREXIT command

Use the **DISPLAY USEREXIT** command to display attributes for all modules that are associated with the specified user exit routine types.

Format of the DISPLAY USEREXIT command

Use the **DISPLAY USEREXIT** command by following its syntax format.



Usage of DISPLAY USEREXIT command

Use the **DISPLAY USEREXIT** command according to its usage rules.

DISPLAY | DIS

A required parameter that specifies that the action against the specified resource(s) is to display attributes of the resources.

USEREXIT | USRX

A required parameter that specifies that the resource type being acted upon is a BPE-managed user exit routine type.

NAME(*user_exit_type_name*)

A required parameter that specifies the name of the user exit type or types about which you want attributes displayed. You can specify a single user exit type name or a list of user exit type names separated by commas. User exit routine type names can contain wildcard characters.

Important: The names that are specified in this parameter are the names of user exit routine types, *not* the names of individual user exit routine modules.

User exit routine types are defined in the IMS Sysplex Manager UI address space, as specified by OWNER(SMUI), and include the following types:

EXCEPTNS

User exceptions exit routine

SECURITY

User security exit routine

OWNER(BPE|SMDC|SMUI)

An optional parameter that specifies the owner of the user exit routine type or types about which you want attributes displayed. You can specify one of the following values:

BPE

For all IMS components that are running in a BPE address space. No BPE user exit routine types are defined at this time.

SMDC

For IMS Sysplex Manager data collector address space only.

SMUI

For IMS Sysplex Manager server address space only.

The OWNER parameter acts as a filter to help you select the user exit types that you want to display. For example, you could specify NAME(*) OWNER(SMUI) to display all of the IMS Sysplex Manager server-defined exit routines in the UI address space. If OWNER is omitted, then both BPE and component user exits can be displayed (depending on the exits specified on NAME).

SHOW(*attribute*)

An optional parameter that specifies the attributes that you want to display about the requested user exits.

When you display information about user exits, each row of display output contains the requested attributes for one user exit module, in columns. Every display for user exits contains the columns labeled EXITTYPE (the type of the exit), and MODULE (the load module name of the exit). Additionally, any of the following attributes can be requested by using the SHOW parameter:

ABENDS

The number of abends that have occurred in the user exit module since the last user exit refresh of that module (or since address space initialization if no refreshes have been done). BPE keeps track of the number of abends that have occurred in each user exit module. When this number reaches the number that is defined on the ABLIM= parameter of the EXITDEF statement for the exit's type, BPE stops calling the module. If the user exit module is refreshed, this count is reset to zero, and BPE calls the module again.

If the abend limit (ABLIM) value is not zero, and if the number of abends is greater than or equal to the abend limit value, then the user exit has reached its abend limit, and is no longer being called by BPE.

The maximum value that can be displayed in this field is 2147483647 (2³¹-1). If the abend count exceeds this value, 2147483647 is displayed.

ABLIM

The abend limit count for the user exit type, as specified on the ABLIM= parameter on the EXITDEF statement for the user exit type in the BPE exit list PROCLIB member. This is the number of times the user exit module is allowed to abend before BPE stops calling the user exit. A value of 0 indicates that there is no abend limit.

The maximum value that can be displayed in this field is 2147483647 ($2^{31}-1$). If the abend limit count exceeds this value, 2147483647 is displayed.

ACTIVE

The number of currently active instances of the user exit routine. This is a point-in-time number that represents the number of calls to the user exit routine that have not yet returned.

The maximum value that can be displayed in this field is 999999. If the active count exceeds this value, 999999 is displayed.

CALLS

The number of calls to the user exit routine since the last user exit routine refresh.

For performance reasons, serialization is not obtained when BPE collects this number. For an exit type that can run multiple instances in parallel, this number should be considered an approximation only.

The maximum value that can be displayed in this field is 2147483647 ($2^{31}-1$). If the call count exceeds this value, 2147483647 is displayed.

ENTRYPT

The entry point address of the user exit module.

ETIME

The total (cumulative) elapsed time that was spent in the exit module since it was last refreshed, in milliseconds.

For performance reasons, serialization is not obtained when BPE collects this number. For an exit routine type that can run multiple instances in parallel, this number should be considered an approximation only.

The maximum value that can be displayed in this field is 2147483647 ($2^{31}-1$). If the elapsed number of milliseconds exceeds this value, 2147483647 is displayed.

LOADPT

The load point address of the user exit module.

OWNER

The IMS component that owns the user exit routine type. BPE-owned user exit routine types are system exit routine types, and exist in all IMS component address spaces that use BPE. User exit routine types that are specific to the component show the 1- to 4-character component identifier in this column (for example, SMUI).

RTIME

The refresh time of the user exit module. This is the local date and time that the user exit module was last refreshed (or initially loaded, if no refreshes have been done). The format of this output field is:

```
yyyy-mm-dd hh:mm:ss.th
```

SIZE

The size of the user exit load module, in bytes (displayed in hexadecimal).

TEXT

27 bytes starting from offset +04 from the module's entry point, translated to EBCDIC, with non-printable characters replaced by periods (.). This is a common location for module identification information. If your user exits contain printable identification data at this point in the module, the TEXT option enables that information to be displayed.

If the SHOW parameter is not specified, the default attributes that are displayed after the EXITTYPE and MODULE are: OWNER, ACTIVE, and ABENDS.

The order in which you list the attributes on the SHOW parameter has no effect on the order the attributes are displayed. BPE determines the order of the attribute columns in the display output. This order is as follows:

- OWNER
- ACTIVE
- ABENDS
- ABLIM
- CALLS
- ETIME
- RTIME
- ENTRYPT
- LOADPT
- SIZE
- TEXT

Important: It is possible to request so many attributes that the length of the output line is too long to display with a WTO. If this occurs, the command is processed, but some lines might be truncated. The maximum line length that BPE displays is 126 characters.

DISPLAY USEREXIT command output

The **DISPLAY USEREXIT** command output consists of a header line, one line per user exit module about which information is being displayed, and one message BPE0032I line that indicates that the command has completed.

For example, the command:

```
F UI,DISPLAY USEREXIT NAME(EXCEPTNS)
```

returns the following output:

```
BPE0030I EXITTYPE MODULE OWNER ACTIVE ABENDS
BPE0000I EXCEPTNS GJEUXXT SMUI 0 0
BPE0032I DISPLAY USEREXIT COMMAND COMPLETED
```

The EXITTYPE and MODULE columns are present for all **DISPLAY USEREXIT** commands, regardless of what is specified on SHOW. When multiple exit modules are listed for a single user exit routine type, the order in which they are listed is the order in which they are called.

Command example 1

This example displays the number of calls to, the elapsed time spent in, and the abend limit for all SMUI user exit routine types.

Command:

```
F UI,DIS USRX NAME(*) OWNER(SMUI) SHOW(CALLS,ETIME,ABLIM)
```

Output:

12.33.24	JOB00176	BPE0030I	EXITTYPE	MODULE	ABLIM	CALLS	ETIME
12.33.24	JOB00176	BPE0000I	EXCEPTNS	GJEUXXT	1	79	232
12.33.24	JOB00176	BPE0032I	DIS USRX	COMMAND COMPLETED			

Command example 2

This example displays the entry point, load point, and size of all of the SMUI EXCEPTNS user exit routine modules.

Command:

```
F UI,DIS USRX NAME(EXCEPTNS) SHOW(SIZE,ENTRYPT,LOADPT)
```

Output:

```
BPE0030I EXITTYPE MODULE   ENTRYPT   LOADPT   SIZE
BPE0000I EXCEPTNS GJEUXXT  91105040 11105040 00000410
BPE0032I DIS  USRX  COMMAND COMPLETED
```

Command example 3

This example displays the first part of the module text for all of the SMUI EXCEPTNS user exit modules.

Command:

```
F UI,DIS USRX NAME(EXCEPTNS) SHOW(TEXT)
```

Output:

```
BPE0030I EXITTYPE MODULE   TEXT
BPE0000I EXCEPTNS GJEUXXT .GJEUXXT+V110+10/28/03+09.
BPE0032I DIS  USRX  COMMAND COMPLETED
```

Command example 4

This example displays the refresh time for all of the SMUI EXCEPTNS user exit modules.

Command:

```
F UI,DIS USRX NAME(EXCEPTNS) SHOW(RTIME)
```

Output:

```
BPE0030I EXITTYPE MODULE   RTIME
BPE0000I EXCEPTNS GJEUXXT 2021-10-29 06:56:49.30
BPE0032I DIS  USRX  COMMAND COMPLETED
```

REFRESH USEREXIT command

The **REFRESH USEREXIT** command requests that BPE reprocess the user exit routine PROCLIB members that are specified in the BPE configuration PROCLIB member, and reloads the user exit routine modules that are currently listed in the user exit PROCLIB members for the types that are specified on the command.

This command enables you to make updates to your user exit routines without stopping and restarting the address space.

When you enter the command, BPE performs the following processing:

- Reads any user exit PROCLIB members that are specified on EXITMBR= statements in the BPE configuration PROCLIB member. Because BPE re-reads these members at the time you issue the command, you can edit the user exit PROCLIB members prior to issuing the **REFRESH** command and make changes to the user exit definitions. BPE does not re-read the main BPE configuration PROCLIB member, so you cannot change the names of the user exit routine PROCLIB members; you can change only their contents.
- Loads the user exit routine modules that are specified on the EXITDEF= statements for the user exit routine types that are specified on the command.

- Quiesces all current user exit routines. The command waits for any active exit routines to complete processing, and delays any new calls to the current exit routines. This ensures that no user exit routine is running while the exit routine is being refreshed.
- Replaces pointers to the previous user exit modules with pointers to the newly loaded modules in internal BPE control blocks, which are used to manage the calling of the exit routines.
- Resumes the user exit routines and allows calls to be made to the newly loaded exit routines.
- Deletes the old copy of the user exit routines.

BPE loads the new copies of the user exit modules before deleting the old modules. If an error occurs during this process (for instance, a module could not be loaded or BPE internal control block storage could not be obtained), BPE will fail the command and leave the old copies of the user exits in effect. All modules of the specified user exit routine types must be loaded successfully for the command to complete successfully.

When a user exit module is refreshed, its abend count is reset to zero. In this case, a user exit module that had reached its abend limit (as specified by the ABLIM parameter on the EXITDEF statement) was no longer being called by BPE.

Important: If you changed the ABLIM parameter for a user exit routine in the PROCLIB member, the new value of ABLIM takes effect after the refresh command.

Considerations for refreshing user exit routines

When you are refreshing user exit routines, be aware of the following considerations.

- When you refresh a user exit routine type, BPE reloads all exit routine modules that are defined for that type. The new copies of the modules will be at a different virtual address than the old copies. If your modules are re-entrant, no problems should occur. However, if your modules are not re-entrant and they store data within themselves, they must be able to tolerate being reloaded and losing the information that was previously stored within them.

Recommendation: Code and link-edit all user exit routine modules as re-entrant.

- If you refresh a user exit routine module that had previously been loaded, BPE continues to pass the same static work area that the previous copy of the module had been using. If the new version of the module has a different mapping or use of this area than the previous version, the new version must contain toleration code that can handle the old-style formatted data within this static work area.

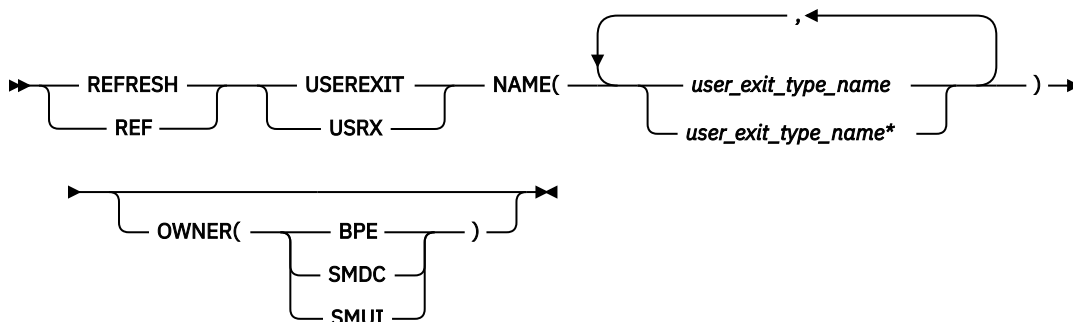
Recommendation: Place a version number in the static work area so that your exit routines are able to determine when they are using a back-level data structure within this work area.

- If you remove a user exit routine module from an EXITDEF list and refresh the exit routines, BPE deletes the static work area that is associated with that exit routine module. If you later add the module back to the EXITDEF list and refresh the exit routines, the module gets a new (cleared) static work area, *not* the work area it had previously.
- If your user exit routines are being managed by LLA by using VLF (or an equivalent product), you must ensure that the copies of the modules that are being refreshed are updated in LLA prior to issuing the **REFRESH USEREXIT** command. See the *z/OS MVS Initialization and Tuning Reference* for information about LLA-managed libraries.
- If you have user exit routines that issue MVS WAITs for long periods of time (for example, a WAIT for an external event that might be delayed, such as a WTOR), issuing a **REFRESH USEREXIT** command can cause a performance problem or work stoppage. This problem results because BPE must quiesce the user exit routines to process the **REFRESH** command. BPE must wait until all of the currently called user exit routines complete before it can perform the user exit routine refresh. BPE prevents any new calls to user exit routines until after the command completes. If a user exit routine has been called and does not return to BPE for a long period of time, the **REFRESH** command is delayed until the exit routine returns. No other user exit routines can be called while BPE is waiting, so the processes that are invoking the user exit routines are also put into a wait.

Recommendation: Ensure that your user exit routines avoid long WAITs, and avoid issuing services that might WAIT.

Format of REFRESH USEREXIT command

Use the **REFRESH USEREXIT** command by following its syntax format.



Usage of REFRESH USEREXIT command

Use the **REFRESH USEREXIT** command according to its usage rules.

REFRESH | REF

A required parameter that specifies that the action against the specified resources is to refresh the resources.

USEREXIT | USRX

A required parameter that specifies that the resource type that is being acted upon is a BPE-managed user exit routine type.

NAME(*user_exit_type_name*)

A required parameter that specifies the name of the user exit type or types that you want to refresh. You can specify a single user exit type name or a list of user exit type names separated by commas. User exit routine type names can contain wildcard characters.

Important: The names that are specified in this parameter are the names of user exit routine types, not the names of individual user exit routine modules.

User exit routine types are defined in the IMS Sysplex Manager server address space, as specified by OWNER(SMUI), and include the following types:

EXCEPTNS

User exceptions exit routine

SECURITY

User security exit routine

OWNER(BPE|SMDC|SMUI)

An optional parameter that specifies the owner of the user exit routine type or types that you want to refresh. You can specify one of the following values:

BPE

For all IMS components that are running in a BPE address space. No BPE user exit routine types are defined at this time.

SMDC

For data collector address space.

SMUI

For IMS Sysplex Manager server address space.

The OWNER parameter acts as a filter to help you select the user exit types that you want to refresh. For example, you can specify NAME(*) OWNER(SMUI) to refresh all of the IMS Sysplex Manager UI-defined user exit routine types in the UI address space. If OWNER is omitted, both BPE and component user exit routines can be refreshed (depending on the exits specified on NAME).

REFRESH USEREXIT command output

The **REFRESH USEREXIT** command output consists of message BPE0032I that indicates that the command has completed.

An example of the **REFRESH USEREXIT** command output message is:

```
BPE0032I REFRESH USEREXIT COMMAND COMPLETED
```

Command example 1

This example refreshes all user exit routine modules.

Command:

```
F UI,REFRESH USEREXIT NAME(*)
```

Output:

```
BPE0032I REFRESH USEREXIT COMMAND COMPLETED
```

Command example 2

This example refreshes the IMS Sysplex Manager server user exceptions exit routine.

Command:

```
F UI,REF USRX NAME(EXCEPTNS)
```

Output:

```
BPE0032I REFRESH USEREXIT COMMAND COMPLETED
```


Chapter 33. BPE messages

This reference section provides detailed information about messages issued by the Base Primitive Environment (BPE). Use this information to help you with troubleshooting.

This reference contains General-Use Programming Interface information.

Errors that are encountered while processing data on the ISPF user interface panels are indicated through a short message that is displayed on the top right corner of the panel. To obtain more information about the error, enter HELP (PF1).

For messages that are issued by IMS or DFS, see the following IMS manuals:

- *IMS Message and Codes, Volume 1: DFS Messages*
- *IMS Messages and Codes, Volume 2: Non-DFS Messages*

An alphabetic severity code is contained in the last character of the message. The severity code characters include: A, E, I, and W.

A

Indicates action is required by the user before processing can continue.

E

Indicates an error condition in which a requested function did not complete successfully. The condition might or might not require action.

I

Indicates that the message is informational only.

W

Indicates that the message is a warning to alert the user of a possible error condition.

For each message, the following accompanying information is provided where applicable:

Explanation:

This information explains what the message text means, why it occurred, and what its variable entry fields are (if any)

System action:

This information explains what the system will do next

User response:

This information describes whether a response is necessary, what the appropriate response is, and how the response will effect the system or program

BPE0000I *displayoutput*

Explanation

Message BPE0000I is the message number associated with output generated by the **DISPLAY** command verb for BPE resources.

In the message text, *displayoutput* is output text from the display verb. Typically, when a display command is issued against a resource, the output will consist of header lines, and then one or more data lines containing information about the resources being displayed.

System action

None.

System programmer response

None. This message is informational.

Module

BPECTRA0, BPECURF0

BPE0001E **BPE INITIALIZATION ERROR IN
MODULE *module*
details**

Explanation

An error occurred in early BPE initialization. This is a two-line message. Each line begins with the message number.

In the message text:

module

The module detecting the error

details

A one-line explanation of the type of error that was detected

version

The hexadecimal invalid version number from the definition module

The *details* line of the BPE0001E message further explains the error detected, and can be one of the following:

- **MODULE *module* HAS AN INVALID VERSION NUMBER *version***

A BPE definition module had an invalid version number. BPE uses version numbers as a consistency check to ensure that the definition modules being loaded match the version of BPE that is running.

In the message text:

module

The BPE definition module in which the invalid version was detected

version

The hexadecimal invalid version number from the definition module

- **MODULE *module* IS LINKED REENTRANT - IT MUST BE NON-REENTRANT**

A BPE definition module was loaded into key zero storage. BPE definition modules are modules that contain data (control blocks), and thus must be loaded into storage that is in the same storage key in which BPE is running. The most common cause for this error message is linking a definition module as reentrant, which loads it into key zero storage. BPE definition modules should be link-edited as non-reentrant.

In the message text:

module

The BPE definition module that was loaded in key zero storage

- **UNKNOWN ERROR, MODULE RC=*rc***

An internal error occurred that BPE does not recognize.

In the message text:

rc

The return code from the failing module

- **ERROR LOADING MODULE *module* BPELOAD RC=*rc***

Load failed for a module.

In the message text:

module

The name of a module that could not be loaded

rc

The return code from the BPE load service, BPELOAD

- **ERROR LOADING MODULES *module*... BPELOAD RC=*rc***

Load failed for several modules.

In the message text:

module

The name of the first of several modules that could not be loaded

rc

The return code from the BPE load service, BPELOAD

- **UNABLE TO CREATE *threadtype* THREAD, BPETHDCR RC=*rc***

A request to create a BPE thread (internal unit of work) failed.

In the message text:

threadtype

A 4-character name of the thread type that could not be created

rc

The return code from the thread create service, BPETHDCR

- **MODULE *module* IS NOT A VALID *type* DEFINITION MODULE**

BPE encountered an error with an internal BPE definition module. BPE uses definition modules to construct its execution environment. If a definition module is not correct, BPE cannot build the appropriate environment.

In the message text:

module

The name of a BPE definition module that is in error

type

The type of definition module in error

- **UNABLE TO GET NECESSARY STORAGE, BPEGETM RC=*rc***

BPE could not obtain the required storage.

In the message text:

rc

The return code from the BPE GETMAIN service, BPEGETM

- **UNABLE TO GET STORAGE FOR *blocktype* BLOCK, BPECBGET RC=*rc***

BPE could not obtain storage for a required control block.

In the message text:

blocktype

A 4-character name of an internal BPE control block that could not be obtained

rc

The return code from the BPE control block get service, BPECBGET

• **ERROR READING PROCLIB DATA SET, BPERDPDS RC=rc**

BPE could not read a PROCLIB DD data set. This message follows message BPE0002E, which provides further details on the specific data set and member that could not be read.

In the message text:

rc

The return code from the BPE partitioned data set reading service, BPERDPDS

• **ERROR PARSING datasettype, BPEPARSE RC=rc**

An error was detected while trying to parse a configuration data set. This message follows message BPE0003E, which provides further details on the error.

In the message text:

data_set_type

A description of the type of data set that was being parsed. This can be one of the following:

- **BPE CONFIG MEMBER:** The main BPE configuration PROCLIB member specified on the BPECFG parameter of the startup JCL or procedure.
- **component USER EXIT LIST MEMBER:** The user exit list PROCLIB member for the indicated IMS SM component (for example, BPE, SMDC, or SMUI). This is the user exit list member specified on the EXITMBR statement in the BPE configuration PROCLIB member.

rc

The return code from the BPE parsing service, BPEPARSE.

• **INITIALIZATION FAILED FOR service, RC=rc**

BPE was unable to initialize a BPE system service.

In the message text:

service

The name of the BPE service that failed initialization. Values for this field include:

- **BPE RESMGR:** An error occurred when BPE tried to establish a resource manager routine

to clean up global resources used by BPE. The return code in this message is the return code from the MVS RESMGR macro call that failed.

- **USER EXITS:** An error occurred while trying to load user exit modules. This message might be preceded by other error messages that indicate the problem. The return code from the module that loads the user exits (BPEUXRF0) is in the rc field in this message.
- **BPE SVC:** An error occurred when BPE tried to initialize the BPE SVC routine. BPE provides an internal SVC routine for use by BPE and IMS components. The SVC is installed dynamically when a BPE address space is started. This error message is issued when the BPE SVC could not be installed.

rc

The return code from the lower level initialization module that encountered the error.

• **INVALID CALLABLE SERVICE CODE code IN MODULE module**

BPE detected an invalid user exit callable service code in the indicated module. Both BPE and IMS components that run with BPE can define callable services that user exits can use. Each callable service has a callable service code used to request the service. This error indicates that there is a definition error in the specified module.

In the message text:

code

The callable service code in error, in hexadecimal.

module

The name of the callable service module that had the invalid callable service code defined.

System action

Abend U3400 with subcode 05 follows this message. The address space terminates.

System programmer response

If the error described in this message is caused by environmental conditions (for example, insufficient storage or modules missing from SGJELoad), correct the indicated problem and restart the address space. Otherwise, save any dump and SYSLOG information, and contact IBM Software Support.

Module

BPEAWI00, BPECBI00, BPECMDI0, BPEDSI00,
BPEINIT0, BPEMSGI0, BPEPCFG0, BPERV1I0,
BPETRI00, BPEUXI00

BPE0002E	ERROR READING <i>ddname</i> MEMBER <i>member</i> <i>details</i>
-----------------	--

Explanation

An error occurred trying to read a partitioned data set member. This is a two-line message. Each line begins with the message number.

In the message text:

ddname

The DD name of the data set being read

member

The member name of the data set being read

details

A one-line explanation of the type of error detected

The *details* line of the BPE0002E message further explains the error detected, and can be one of the following:

- **OPEN FAILED FOR DATA SET**

The BPE PDS read service could not open the data set for reading.

- **DATA SET RECORDS ARE NOT FIXED FORMAT**

The data set specified records that were not in fixed format. The BPE PDS read service requires fixed-format data sets.

- **MEMBER NOT FOUND IN DATA SET**

The indicated member was not in the partitioned data set.

- **BSAM READ FAILED READING MEMBER**

An error occurred during the reading of the data set member.

- **UNABLE TO OBTAIN SUFFICIENT STORAGE FOR MEMBER TO BE READ**

The PDS read service could not obtain the storage necessary to read the data set member.

System action

The BPE PDS read service does not take any further action after issuing this message. The caller of the service might provide additional diagnostic messages or terminate the address space.

System programmer response

Correct the error as indicated in this message.

Module

BPERDPD0

BPE0003E	AN ERROR OCCURRED PARSING <i>description</i> AT LINE <i>line</i>, CHARACTER <i>char</i> FAILING TEXT: "<i>text</i>" <i>details</i>
-----------------	---

Explanation

An error occurred in the BPE parsing service. This is a four-line message. Each line begins with the message number.

In the message text:

description

A text description of what was being parsed.

line

The line number of the data where the error occurred. For data that is not line-oriented, the line number is omitted.

char

The position of the character on the line where the error was detected. For data that is not line-oriented, *char* identifies the position of the character within the input data.

text

Up to 16 characters of the text where the error was detected.

details

A one-line explanation of the type of error detected.

The *details* line of the BPE0003E message further explains the error detected, and can be one of the following:

- **INVALID KEYWORD DETECTED**

The parser found an unknown keyword in the input data.

- **UNKNOWN POSITIONAL PARAMETER**

The parser found a positional parameter in the input data when one was not expected.

- **"=" ENCOUNTERED WHEN "(" EXPECTED**

The parser found an equal sign in the input data when a left parenthesis was expected.

- **EARLY END OF INPUT DATA**

The input data ended before the parser found all the required data.

• **KEYWORD ENCOUNTERED WHEN VALUE EXPECTED**

The input data contained a keyword when the parser expected a value.

• **NUMERIC VALUE OUTSIDE OF LEGAL RANGE**

A numeric value was outside the allowed range for the parameter.

• **DECIMAL NUMBER CONTAINED NONDECIMAL DIGITS**

A decimal number contained a non-decimal character.

• **HEXADECIMAL NUMBER CONTAINED NONHEX DIGITS**

A hexadecimal number contained a non-hexadecimal character.

• **UNKNOWN KEYWORD VALUE DETECTED**

The parser found a parameter that could be one of a set of keyword values. The parameter was not one of the values in the set.

• **DUPLICATE KEYWORD PARAMETER DETECTED**

The parser found an unrepeatable keyword more than once in the input data.

• **A REQUIRED PARAMETER WAS OMITTED**

A required parameter was not found in the input data.

• **CHARACTER VALUE WAS TOO LONG FOR PARAMETER**

The character value specified was too long for the parameter field.

System action

The BPE parsing service does not take any further action after issuing this message. The caller of the service can provide additional diagnostic messages or terminate the address space.

System programmer response

Correct the error as indicated in the BPE0003E message.

Module

BPEPARS0

BPE0004I	BPECFG= NOT SPECIFIED ON STARTUP PARMS - DEFAULTS BEING USED
-----------------	---

Explanation

BPE could not find the specification for the BPE configuration data set in the startup parameters.

System action

The address space continues initialization. BPE runs with defaults for all parameters in the BPE configuration data set.

System programmer response

If the BPE configuration parameter defaults are acceptable, no action is required. Otherwise, create a BPE configuration member in the data set pointed to by the PROCLIB DD statement and specify BPECFG=*member_name* in the startup parameters of the job that starts the address space.

Module

BPEPCFG0

BPE0005I	UNKNOWN <i>component</i> TRACE TYPE <i>type</i> IN PROCLIB MEMBER <i>member</i>- IGNORED
-----------------	---

Explanation

A TRCLEV= statement was found in the BPE configuration PROCLIB data set member for an unknown trace table type.

In the message text:

component

The name of the IMS SM component that was specified on the TRCLEV statement (for example, BPE, SMDC, or SMUI) being parsed

type

The type of the trace table that was unknown

member

The member name of the PROCLIB DD data set that was being processed

System action

The address space initialization continues. BPE ignores the invalid trace specification.

System programmer response

Correct the TRCLEV statement.

Module

BPEPCFG0

BPE0006I *aaaabbbb* TCB ABEND *cdddd-
 eeeeeeee*, THD= *ffffretrystatus*
MODULE ID = *gggggggggggggggggggg*
EP = *hhhhhhhh*
PSW = *iiiiiii iiiiii* **OFFSET** = *jjjjjjj*
R00-03 *kkkkkkkk kkkkkkkk*
kkkkkkkk kkkkkkkk
R04-07 *kkkkkkkk kkkkkkkk*
kkkkkkkk kkkkkkkk
R08-11 *kkkkkkkk kkkkkkkk*
kkkkkkkk kkkkkkkk
R12-15 *kkkkkkkk kkkkkkkk*
kkkkkkkk kkkkkkkk

Explanation

This seven-line message is printed when an abend occurs. It documents the environment at the time of abend. Each line begins with the message number.

In the message text:

aaaa

The owning IMS SM component of the TCB that abended (for example, BPE, SMDC, or SMUI).

bbbb

The 4-character TCB type of the TCB that abended.

c

Whether the abend is a system abend or a user abend. S is for a system abend; U is for a user abend.

dddd

The abend code. For system abends, this is a 3-character hexadecimal code. For user abends, this is a 4-character decimal code.

eeeeeeee

The value in register 15 at the time of abend. For some abends, this is the abend subcode.

ffff

The 4-character BPE thread (internal unit of work) name of the thread that was running when the abend occurred. If the thread type cannot be determined, this field is set to question marks (????).

retrystatus

Whether or not the abend is being retried (that is, whether the system is attempting to recover from the abend). If the abend is being retried, *retrystatus* is the character string "(RETRYING)". If the abend is not being retried, *retrystatus* is blank.

gggg...

The abending module's name from its module ID, if it can be determined.

hhhhhhhh

The entry point address of the abending module, if it can be determined.

iiiiiii iiiiii

The PSW contents at the time of abend.

jjjjjjj

The offset within the abending module in which the abend occurred, if it can be determined.

kkkkkkkk

The contents of the registers at the time of abend.

System action

If the abend is being retried (*retrystatus* is "(RETRYING)") in the first line of the message), the system attempts to recover from the abend and the address space continues to function.

If the abend is not being retried, the action taken after this message depends on whether the abending TCB is considered a critical TCB to the address space. If it is not critical, the TCB is terminated, but the address space continues execution. If it is critical, the address space is terminated abnormally.

System programmer response

Save any dump and SYSLOG information, and contact IBM Software Support.

Module

BPEINIT0, BPESYES0

BPE0007I *component* **BEGINNING PHASE 1
 OF SHUTDOWN**

Explanation

BPE is beginning the first phase of shutting down the address space.

In the message text:

component

The name of the IMS SM component being shut down (for example, SMDC, or SMUI)

System action

The address space enters the first phase of termination, in which all of the IMS component TCBs are terminated.

Module

BPESYTR0

BPE0008I *component* **BEGINNING PHASE 2
 OF SHUTDOWN**

Explanation

BPE is beginning the second phase of shutting down the address space.

In the message text:

component

The name of the IMS SM component being shut down (for example, SMDC, or SMUI)

System action

The address space enters the second phase of termination, in which all of the BPE system TCBs are terminated.

Module

BPESYTR0

BPE0009I	<i>component</i> SHUTDOWN COMPLETE
-----------------	---

Explanation

Shutdown of the address space completed. BPE is returning to z/OS.

In the message text:

component

The name of the IMS SM component being shut down (for example, SMDC, or SMUI)

System action

The address space terminates normally.

Module

BPESYTR0

BPE0010I	PSW AND REGISTERS AT ABEND ARE NOT AVAILABLE
-----------------	---

Explanation

An abend occurred and the BPE system ESTAE routine received control with no SDWA available. The ESTAE is unable to provide diagnostic information normally obtained from the SDWA, such as PSW and register contents at abend.

System action

BPE continues to process the abend with limited capability because of the lack of the SDWA.

Module

BPESYES0

BPE0011E	ABEND IN BPE SYSTEM ESTAE ROUTINE (BPESYES0)
-----------------	---

Explanation

An abend occurred in the BPE system ESTAE module itself while it was processing a prior abend.

System action

This message should be followed by a z/OS symptom dump on the z/OS console. Additionally, a SYS1.LOGREC entry is generated for the abend. The BPE ESTAE module attempts to recover from the abend and continues processing the original abend.

Module

BPESYES0

BPE0012E	BPE ETXR UNABLE TO FIND <i>block</i> BLOCK FOR TCB AT <i>address</i>
-----------------	---

Explanation

The BPE end of task exit routine (ETXR) was called when a TCB in the address space terminated. The routine tried to process the task termination, but was not able to locate a required BPE control block. This is probably caused by internal control block errors or overlays within the address space.

In the message text:

block

The name of the BPE control block that could not be found

address

The address of the terminating TCB

System action

BPE attempts to clean up the TCB. However, without the required control blocks, the cleanup might not be successful, and other TCBs in the address space might not terminate.

System programmer response

If the address space appears hung (is not processing or does not terminate), cancel the address space with a dump, and contact IBM Software Support.

Module

BPESYET0

BPE0013E	VERSION MISMATCH BETWEEN BPE AND <i>component</i> BPE MODULE VERSION IS <i>bver.brel.bptrel</i> <i>component</i> WAS ASSEMBLED AT BPE VERSION <i>pver.prel.pptrel</i>
-----------------	--

Explanation

The BPE version on which the identified IMS SM component was built does not match the version of the BPE modules that were loaded. This can occur, for example, if the starting IMS SM component was assembled at one BPE version and the SGJELOAD contained BPE modules at a different BPE level.

This is a three-line message. Each line begins with the message number.

In the message text:

component

An up-to-4 character name of the IMS SM component being started

bver

The version number of BPE modules

brel

The release number of BPE modules

bptrel

The point-release number of BPE modules

pver

The version number of BPE macros at which the IMS SM component was assembled

prel

The release number of BPE macros at which the IMS SM component was assembled

pptrel

The point-release number of BPE macros at which the IMS SM component was assembled

System action

BPE abends during early initialization with abend U3400, subcode X'09'.

System programmer response

This problem is probably caused by a SGJELOAD mismatch. Ensure that the IMS SM component being started is using the correct version of the SGJELOAD.

Module

BPEINITO

BPE0014E	ABEND IN RECOVERY ROUTINE
-----------------	----------------------------------

Explanation

A BPE recovery routine (BRR) that was intended to provide recovery for abends in a section of code itself encountered an abend. (A BRR is an internal recovery routine established by either BPE or the IMS SM component using BPE to protect a functional area. BRRs run in an MVS ESTAE environment and attempt to recover from abends that occur in mainline code.)

System action

The BPE ESTAE routine treats this abend as if the recovery routine indicated that it could not recover, and continues abend processing. Usually, this results in the abnormal termination of the address space; however, if there were other BRRs established when the abend occurred, recovery of the original abend still might occur.

System programmer response

Save any dump and SYSLOG information, and contact IBM Software Support.

Module

BPEYESO

BPE0015I	UNKNOWN <i>component</i> EXIT TYPE <i>type</i> IN EXIT LIST PROCLIB MEMBER <i>member</i>- IGNORED
-----------------	--

Explanation

While processing a user exit list PROCLIB member, BPE encountered an EXITDEF statement that specified a user exit type that was not defined to BPE. The exit definition for the indicated type is ignored.

In the message text:

component

The name of the owning IMS SM component of the user exit list member that was being processed (for example, BPE, SMDC, or SMUI)

type

The up-to-8 character exit type name that was undefined

member

The user exit list PROCLIB member name

System action

The user exit definition is ignored. Processing of the user exit list PROCLIB member continues.

System programmer response

Examine the indicated user exit list PROCLIB member and correct the EXITDEF statement for the indicated user exit type.

Module

BPEUXRF0

BPE0016I	ERROR LOADING <i>component type</i> EXIT module (service RC=rc)
-----------------	--

Explanation

While processing a PROCLIB member for a user exit list, BPE was unable to load a user exit that was specified on an EXITDEF statement.

In the message text:

component

The name of the owning IMS SM component of the user exit list member that was being processed (for example, BPE, SMDC, or SMUI).

type

The up-to-8 character exit type name of the exit that could not be loaded.

module

The load module name of the exit that could not be loaded.

service

The name of the failing service that prevented the exit from being loaded. The most likely failing service is BLDL, which is the MVS service that BPE uses to locate the user exit module to load. This usually means that BLDL could not find the indicated exit module in the STEPLIB or JOBLIB data set for the job.

rc

The 4-digit hexadecimal return code from the failing service.

System action

The user exit module is ignored. Processing of the PROCLIB member continues. If this error occurs in the initial PROCLIB member processing during early address space initialization, BPE abends with abend U3400, subcode 5. If this error occurs during **REFRESH USEREXIT** command processing, the command is ignored, and no changes are made to the user exit environment.

System programmer response

Examine the indicated PROCLIB member for the user exit list and correct the EXITDEF statement

for the indicated user exit type and module. If the BPE0016I message was issued during address space initialization, restart the address space. If the message was issued in response to a **REFRESH USEREXIT** command, reissue the command.

Module

BPEUXRF0

BPE0017I	MULTIPLE <i>type</i> STATEMENTS IN member PROCLIB MEMBER - LAST WILL BE USED
-----------------	---

Explanation

While processing a PROCLIB member, BPE encountered multiple statements of a specific type when only one was expected. BPE uses the last statement of the duplicated type; the others are ignored.

type

A short description of the type of statement that was duplicated

member

The PROCLIB member name

In the message text:

System action

Processing continues.

System programmer response

No response is required. However, you might want to examine the indicated PROCLIB member to ensure that the values specified on the final statement are correct.

Module

BPETRI00, BPEUXRF0

BPE0018I	DUPLICATE EXIT <i>module</i> SPECIFIED FOR <i>component type</i> EXIT - IGNORED
-----------------	--

Explanation

While processing a PROCLIB member for a user exit list, BPE found the same user exit module specified more than once in a single exit list (EXITS parameter) on an EXITDEF statement. Only the first instance of the module is in effect; all subsequent specifications of the module are ignored.

In the message text:

module

The name of the user exit module that was specified more than once

component

The name of the owning IMS SM component of the user exit list member that was being processed (for example, BPE, SMDC, or SMUI)

type

The up-to-8 character exit type name of the exit being processed

System action

The duplicate user exits after the first occurrence are ignored. Processing of the user exit PROCLIB continues.

System programmer response

No response is required. However, you might want to examine the EXITDEF statement to insure that the exits specified are listed in the correct order for your installation. User exits are called in the order they are listed on the EXITS statement.

Module

BPEUXRFO

BPE0019E	<i>component</i>type USER EXIT MODULE module ABEND code
-----------------	--

Explanation

An abend occurred while a user exit module was in control. "In control" means that BPE gave control to the exit. However, the abend does not have to be in the exit module itself. This message is also issued if the exit called another module, which then abended.

In the message text:

component

The name of the owning IMS SM component of the user exit type being called (for example, BPE, SMDC, or SMUI).

type

The up-to-8 character exit type name of the exit that abended.

module

The load module name of the exit that abended.

code

The abend code. For system abends, the format of code is Sxxx, where xxx is the 3-digit abend code in hexadecimal. For user abends, the format of code is Udddd, where dddd is the 4-digit abend code in decimal.

System action

BPE protects all user exits with a recovery routine. When a user exit abends, BPE attempts to recover from the abend and continue processing. Recovery actions include the following:

- The first time a specific user exit module abends after it is loaded, BPE issues an SDUMP to dump the address space for the abend. For abends after the first abend, BPE does not dump the address space again; however, it does generate a SYS1.LOGREC entry for each abend occurrence.
- If the number of abends for a specific user exit module reaches or exceeds the abend limit value for the exit's user exit type, no further calls are made to the exit until it is refreshed. The abend limit for an exit type is specified by the ABLIM parameter on the EXITDEF statement.

After a user exit abends, BPE attempts to call any other exit modules that were specified after the failing exit in the EXITS exit list.

System programmer response

Examine the SDUMP, the SYS1.LOGREC entries, or both to determine the problem with the user exit. Correct the problem with the exit, relink the exit to the job's libraries, and issue the **REFRESH USEREXIT** command. The **REFRESH USEREXIT** command loads a copy of the corrected exit and causes BPE to resume calling the exit module whenever exits of its type are invoked.

Module

BPEUXCLO

BPE0020I	ABEND LIMIT REACHED FOR <i>component</i> type USER EXIT MODULE module
-----------------	--

Explanation

The indicated user exit module reached the abend limit for the exit type as specified in the ABLIM parameter on the EXITDEF statement.

In the message text:

component

The name of the owning IMS SM component of the user exit type being called (for example, BPE, SMDC, or SMUI)

type

The up-to-8 character exit type name of the exit that abended

module

The load module name of the exit that abended

System action

No further calls are made to the indicated user exit module until the next refresh of the exit. Refreshing the user exit resets the abend count for the exit to zero, allowing it to be called again.

System programmer response

Examine the SDUMP, the SYS1.LOGREC entries, or both to determine the problem with the user exit. Correct the problem with the exit, relink the exit to the job's libraries, and issue the **REFRESH USEREXIT** command. The **REFRESH USEREXIT** command loads a copy of the corrected exit and causes BPE to resume calling the exit module whenever exits of its type are invoked.

Module

BPEUXCLO

BPE0021E	ABEND code IN BPE SVC INIT MODULE BPESVCIO, PSW=<i>psw1</i> <i>psw2</i>
-----------------	--

Explanation

An abend occurred while module BPESVCIO was in control. Module BPESVCIO is the module that initializes the BPE SVC routine (an internal SVC used by BPE and other IMS components). BPESVCIO processing is protected by an internal ESTAE, which attempts to retry from the abend and clean up any global resources (common storage, MVS Enqueues) that BPESVCIO obtained. Message BPE0021E is issued to alert the operator that an abend occurred.

In the message text:

code

The abend code. For system abends, the format of code is Sxxx, where xxx is the 3-digit abend code in hexadecimal. For user abends, the format of code is Udddd, where dddd is the 4-digit abend code in decimal.

psw1

The first word of the PSW at abend.

psw2

The second word of the PSW at abend.

System action

BPE collects diagnostic data about the abend, and then resumes execution in a cleanup routine within BPESVCIO. This routine attempts to release any global

resources that BPESVCIO obtained as a part of its processing. The routine returns to the BPESVCIO's caller, which can choose to continue processing or to terminate abnormally.

The first time that BPESVCIO abends, its ESTAE takes an SDUMP of the address space, and causes a record to be written to the SYS1.LOGREC data set to document the abend. If BPESVCIO abends a second time or more, its ESTAE does not take another SDUMP. However, it writes a record to SYS1.LOGREC.

System programmer response

Save any dump, SYSLOG, and SYS1.LOGREC information and contact IBM Software Support.

Module

BPESVCIO

BPE0022E	ABEND code IN BPE SVC PROCESSING, PSW=<i>psw1</i> <i>psw2</i>
-----------------	--

Explanation

An abend occurred during BPE SVC processing. The BPE SVC module (BPESVC00) establishes an ESTAE to protect its processing. This ESTAE attempts to retry from the abend and clean up any global resources (common storage, MVS Enqueues) that BPESVC00 obtained. Message BPE0022E is issued to alert the operator that an abend occurred.

In the message text:

code

The abend code. For system abends, the format of code is Sxxx, where xxx is the 3-digit abend code in hexadecimal. For user abends, the format of code is Udddd, where dddd is the 4-digit abend code in decimal.

psw1

The first word of the PSW at abend.

psw2

The second word of the PSW at abend.

System action

BPE collects diagnostic data about the abend, and then resumes execution in a cleanup routine within BPESVC00. This routine attempts to release any global resources that BPESVC00 obtained as a part of its processing, and returns to the caller of BPESVC00, which can choose to continue processing or to terminate abnormally.

The first time that BPESVC00 abends, its ESTAE takes an SDUMP of the address space, and causes a

record to be written to the SYS1.LOGREC data set to document the abend. If BPESVC00 abends a second time or more for the same SVC call, its ESTAE does not take another SDUMP. However, it writes a record to SYS1.LOGREC.

System programmer response

Save any dump, SYSLOG, and SYS1.LOGREC information and contact IBM Software Support.

Module

BPESVC00

BPE0023I *command* **COMMAND REJECTED**

Explanation

A command was issued, but could not be processed. The command is rejected.

Depending on the IMS SM component, this message might not be issued when a command is rejected. The IMS SM component using BPE might choose to issue its own message rejecting the command, and might request that BPE not issue the BPE0023I message.

In the message text:

command

The command that was rejected. If the command that was entered was the MVS stop command (**P jobname**), then **MVS STOP** displays as the command. For all other commands, the command verb and resource type are displayed (for example, **UPDATE TRACETABLE** or **REFRESH USEREXIT**).

System action

The command is not processed.

Module

BPEMOD00, BPECMD10

BPE0024E *command* **COMMAND FAILED**

Explanation

The processing for a command failed.

Depending on the IMS SM component, this message might not be issued when a command fails. The IMS SM component using BPE might choose to issue its own message about a command failure, and might request that BPE not issue the BPE0024E message.

In the message text:

command

The command that failed. If the command that was entered was the MVS stop command (**P jobname**), then **MVS STOP** displays as the command. For all other commands, the command verb and resource type are displayed (for example, **UPDATE TRACETABLE** or **REFRESH USEREXIT**).

System action

The command failed.

Module

BPEMOD00, BPECMMD10

BPE0025I *STOP OF component IS IN PROGRESS*

Explanation

An **MVS STOP** command was issued for a IMS component that is running with BPE. BPE is processing the stop request.

Depending on the IMS SM component, this message might not be issued when the address space is stopped. The IMS SM component using BPE might choose to issue its own shutdown messages and might request that BPE not issue the BPE0025I message.

In the message text:

component

The name of the IMS SM component that is being stopped (for example, **SMDC**, or **SMUI**).

System action

BPE initiates a shutdown of the address space.

Module

BPEMOD00

BPE0026E *CLEANUP FAILURE RC=rc RSN=rsn component*

Explanation

An error occurred during BPE resource cleanup processing. Some resources might not be properly cleaned up.

BPE establishes a resource manager routine to clean up global resources when an address space using BPE services terminates. If the resource manager cannot clean up a particular resource, it issues a BPE0026E message.

In the message text:

rc

The return code, if applicable, from the failing service. This code might help to identify the cause of the failure.

rsn

The reason code, if applicable, from the failing service.

component

A short text string that identifies the component or resource that could not be cleaned up. Possible components are:

- **BPESVC:** Cleanup failed for the BPE SVC service. The return code and reason code in the message are from the BPE SVC EOMCLEANUP function. This error indicates that some of the SVC functions registered by the terminating address space might not have been properly deregistered.
- **ALESERV:** A call to the MVS ALESERV service to obtain the current address space's STOKEN failed. The return code in the message is the return code from the ALESERV macro; the reason code is always zero.

System action

BPE resource cleanup processing continues with the next resource, and the address space terminates.

System action

Depending on the cause of the cleanup failure, BPE might have taken an SDUMP. If this is the case, save the dump, SYSLOG, and SYS1.LOGREC information and contact IBM Software Support. If BPE did not take an SDUMP, obtain the return code, reason code, and component from the BPE0026E message and contact IBM Software Support with this information.

Module

BPERSM00

BPE0027E	ABEND code IN BPE RESMGR PROCESSING, PSW=<i>psw1 psw2</i>
-----------------	--

Explanation

An abend occurred during BPE resource manager processing while terminating an address space running with BPE services. The BPE resource manager module (BPERSM00) establishes an ESTAE to protect its processing. This ESTAE attempts to retry from the abend and to continue cleaning up global resources. Message BPE0027E is issued to alert the operator that an abend occurred.

In the message text:

code

The abend code. For system abends, the format of code is Sxxx, where xxx is the 3-digit abend code in hexadecimal. For user abends, the format of code is Udddd, where dddd is the 4-digit abend code in decimal.

psw1

The first word of the PSW at abend.

psw2

The second word of the PSW at abend.

System action

BPE collects diagnostic data about the abend, and then resumes execution in the main BPERSM00 routine, which attempts to continue cleanup with the next resource after the one that was being processed when the abend occurred.

The first time that BPERSM00 abends, its ESTAE takes an SDUMP of the address space, and causes a record to be written to the SYS1.LOGREC data set to document the abend. If BPERSM00 abends a second time or more, its ESTAE does not take another SDUMP. However, it writes a record to SYS1.LOGREC.

System programmer response

Save any dump, SYSLOG, and SYS1.LOGREC information and contact IBM Software Support.

Module

BPERSM00

BPE0028I	SDUMP FAILED FOR <i>abend</i> ABEND, RC=<i>rc</i>, RSN=<i>rsn</i>
-----------------	--

Explanation

BPE issued an SDUMP call to z/OS to produce a dump of the address space after an abend, but the SDUMP was not successful.

In the message text:

abend

The abend code for which the dump was taken. For system abends, the format of code is Sxxx, where xxx is the 3-digit abend code in hexadecimal. For user abends, the format of code is Udddd, where dddd is the 4-digit abend code in decimal.

rc

The return code from the z/OS SDUMP macro.

rsn

The reason code from the z/OS SDUMP macro.

System action

The SDUMP is skipped.

System programmer response

Use the return and reason codes from the z/OS SDUMP macro to determine the cause of the SDUMP failure. If appropriate, correct the cause of the failure so that future dumps are not lost.

Module

BPEINIT0, BPERSM00, BPESVCIO, BPESVC00, BPESYES0

BPE0029I DAE SUPPRESSED DUMP FOR abend ABEND

Explanation

BPE issued an SDUMP call to z/OS to produce a dump of the address space after an abend, but the SDUMP was suppressed by MVS dump analysis and elimination (DAE).

BPE recovery routines gather symptom string data related to an abend, and provide this data to z/OS when an SDUMP is requested. If DAE is enabled, z/OS will suppress duplicate dumps, for example, dumps that have symptom strings identical to previously captured dumps. DAE is controlled through the z/OS ADYSETxx PARMLIB member and the z/OS **SET DAE** command.

In the message text:

abend

The abend code for which the dump was taken. For system abends, the format of code is Sxxx, where xxx is the 3-digit abend code in hexadecimal. For user abends, the format of code is Udddd, where dddd is the 4-digit abend code in decimal.

System action

The SDUMP is skipped. Note that a BPE-generated dump will be suppressed if its symptom string matches a previous dump, and if the current DAE setting in ADYSETxx is either SUPPRESS or SUPPRESSALL.

System programmer response

None. This message is informational.

Module

BPEINIT0, BPERSM00, BPESVCIO, BPESVC00, BPESYES0

BPE0030I *displayheader*

Explanation

Message BPE0030I is the message number associated with the header line or lines generated by the **DISPLAY** command verb for BPE resources.

In the message text, *displayheader* is one or more lines of header information associated with the output from a **DISPLAY** command.

BPE0031E **verb COMMAND IS INVALID** **verb resourcetype COMMAND IS** **INVALID**

Explanation

A command was issued that BPE did not recognize. Even if you entered a valid command verb, this message might be generated if you omitted a required resource type or specified a resource type to which the verb does not apply. For example, if you entered:

```
DISPLAY NAME(DISP)
```

You would receive the error message:

```
BPE0031E DISPLAY COMMAND IS INVALID
```

This error occurs because the **DISPLAY** command requires a resource type on which it is to operate. Similarly, if you entered:

```
REFRESH TRACETABLE NAME(AWE)
```

You would receive the error message:

```
BPE0031E REFRESH TRACETABLE COMMAND IS INVALID
```

This error occurs because the **REFRESH** command applies to the USEREXIT resource type, not the TRACETABLE resource type.

In the message text:

verb

Is the command verb from the command that was issued.

resourcetype

Is the resource type from the command that was issued, if present.

System action

The command is ignored.

System programmer response

Reenter the command with the correct verb, or verb and resource type.

Module

BPECMD00, BPECMD10

BPE0032I	<i>verb</i> COMMAND COMPLETED <i>verb resourcetype</i> COMMAND COMPLETED
-----------------	---

Explanation

A command completed processing. This message is issued in two cases:

- For commands that generate a variable number of lines of output, such as DISPLAY commands. Message BPE0032I is issued to indicate the end of the command output.
- For commands that generate no other messages. Message BPE0032I is issued to provide feedback that command processing is complete.

Message BPE0032I will not be issued when a command generates a fixed number of lines of output, such as a single response line or error message line.

In the message text:

verb

Is the command verb from the command that was issued.

resourcetype

Is the resource type from the command that was issued, if present.

System action

None.

System programmer response

None. This message is informational.

Module

BPECMD10

BPE0033E	MISSING COMMAND VERB
-----------------	-----------------------------

Explanation

A command was entered that is missing a command verb, which is the first word of the command string. You receive this message only if you enter a command that consists of only *keyword(value)* parameters. For example, if you enter NAME (DISP) OWNER (BPE), the

BPE0033E message is issued. This command does not contain a non-keyword parameter to act as the command verb.

System action

The command is ignored.

System programmer response

Reenter the command with the proper command verb.

Module

BPECMD00

BPE0034E	NO MATCH FOUND FOR <i>resourcetype</i> WITH NAME "name"
-----------------	--

Explanation

A name or wild card pattern on the NAME parameter of a command did not match any instances of the requested resource type. For example, the command:

```
DISPLAY TRACETABLE NAME (ZZZZ, QQ*)
```

generates the following response:

```
BPE0034E NO MATCH FOUND FOR TRACETABLE  
WITH NAME "ZZZZ"  
BPE0034E NO MATCH FOUND FOR TRACETABLE  
WITH NAME "QQ*"
```

In the message text:

resourcetype

Is the resource type specified in the command.

name

Is the name or wild card pattern specified on the NAME parameter that did not match any instance of the resource type.

System action

If some of the names listed on the NAME parameter of the command matched existing resource instances, the command processes against those instances. If none of the names listed on the NAME parameter matched existing resource instances, the command is ignored.

System programmer response

Reenter the command with the proper resource type names.

Module

BPECTRA0, BPECURF0

**BPE0035E INVALID VALUE "*value*" FOR
KEYWORD *keyword***

Explanation

The value specified on the indicated keyword was not valid. For example, the command:

```
UPDATE TRACETABLE NAME(DISP) OWNER(ABCD)  
LEVEL(GROUND)
```

would generate the following response:

```
BPE0035E INVALID VALUE "ABCD" FOR KEYWORD OWNER  
BPE0035E INVALID VALUE "GROUND" FOR KEYWORD LEVEL
```

In the message text:

value

The keyword parameter value that is in error.

keyword

The keyword whose value is in error.

System action

The command is ignored.

System programmer response

Reenter the command with the proper value on the indicated keyword.

Module

BPECTRA0, BPECURF0

**BPE0036E INTERNAL COMMAND
PROCESSING ERROR, *service*
RC=*rc***

Explanation

An internal error in BPE occurred while processing the command. For details on the failure, refer to the service return code, as indicated by *service* and *rc*.

In the message text:

service

Is the name of the failing service that prevented the command from processing.

rc

Is the return code from the failing service call.

System action

The command is ignored.

System programmer response

Some internal errors that result in message BPE0036E could be due to temporary conditions, such as a temporary lack of storage. Other errors indicate possible logic errors within product code. Reenter the command and see if the error reoccurs. If it does, issue a console dump of the address space immediately after entering the command and contact IBM Software Support. To ensure that trace information necessary to the resolution of the problem is available, you can turn on the following BPE traces at LEVEL(HIGH): CMD, SSRV, STG, DISP.

Module

BPECMD00, BPECMD10, BPECTRA0, BPECURF0

**BPE0038E BPE STACK MANAGER INTERNAL
ERROR**

Explanation

The BPE stack storage manager was unable to obtain storage for a new stack block.

System action

The BPE stack storage manager will issue an SDUMP the first time this condition arises to gather diagnostic data about the problem. The stack manager then suspends the caller until a stack block is eventually freed by another thread.

System programmer response

This message is issued when storage is not available to satisfy an internal request for stack storage within the address space. BPE will suspend the unit of work that is requesting additional stack storage until storage becomes available. However, this suspension could lead to reduced function and performance in the product that is running in the address space. You should increase the available region size for the address space and shut it down and restart it as soon as possible. If you continue to get this message, save the SDUMP produced by BPE and contact IBM Software Support.

Module

BPESTKM0

**BPE0039E BPE STACK MANAGER MULTIPLE
INTERNAL ERRORS**

Explanation

The BPE stack storage manager encountered multiple cases where it could not obtain storage for a new stack block.

System action

The BPE stack storage manager issues message BPE0038E the first time it is not able to get a new stack block when one is needed. Subsequent failures do not generate additional BPE0038E messages. However, if the stack manager repeatedly cannot get storage, it will eventually issue message BPE0039E, indicating that the storage problem is likely a chronic one, and that action should be taken quickly to resolve the storage shortage. In addition to issuing the BPE0039E message, BPE also takes a second SDUMP after the repeated failures to capture additional diagnostics.

System programmer response

This message is issued by the BPE stack manager after repeated failures to obtain storage. It is unlikely that the address space will function well at this point. You should increase the available region size for the address space and immediately shut it down and restart it. If you continue to get this message, save the SDUMP produced by BPE and contact IBM Software Support.

Module

BPESTKM0

BPE0041E

**UNABLE TO ALLOCATE
REQUESTED STORAGE**

Explanation

The BPE storage allocation service, BPEGETM, could not allocate the storage requested by its caller. This message will only be issued the first time that BPEGETM could not obtain storage.

System action

BPEGETM returns an error return code to its caller.

System programmer response

The storage shortage which lead to this message being issued might be due to the region size for the address space being set too small. Increase the region size by changing the REGION= parameter on the address space JCL, and restart the address space.

If the problem persists, save any dumps and contact IBM Software Support. If no dumps were produced, take a console dump of the address space that is causing the BPE0041E message to be issued.

Module

BPESTG00

Chapter 34. BPE user abend codes

This reference section provides detailed information about user abend codes issued by Base Primitive Environment (BPE). Use this information to help you with troubleshooting.

For each abend code, the following information is provided where applicable:

Explanation:

The Explanation section explains what the abend code means, why it occurred, and what its variable entry fields are (if any)

System action:

The System action section explains what the system will do next

User response:

The User response section describes whether a response is necessary, what the appropriate response is, and how the response will effect the system or program

During processing, you might encounter abend codes that are issued by IMS or DFS. For these abend codes, see the following IMS manuals:

- *IMS Message and Codes, Volume 1: DFS Messages*
- *IMS Messages and Codes, Volume 2: Non-DFS Messages*

3400

Explanation

An error during early BPE initialization prevented BPE services from starting. Register 15 at the time of abend contains a subcode that can be used to determine the reason for the abend. Subcodes are:

X'01'

BPEINIT0 could not establish an ESTAE recovery routine.

X'02'

BPE stack storage services initialization failed.

X'03'

A request to obtain a stack block for early BPE initialization failed.

X'04'

A lower-level service initialization module could not be loaded.

X'05'

A lower-level service initialization module could not complete the initialization of its service.

X'06'

An error occurred while parsing the BPE configuration PROCLIB member specified on the BPECFG= parameter in the MVS startup parameters.

X'07'

The IMS SM component using BPE services (for example, SMDC, or SMUI) detected a problem during its early initialization and indicated to BPE that it should abend.

X'08'

An error occurred creating an MVS name or token for the IMS SM component address space.

X'09'

A mismatch occurred between the BPE version used by the IMS SM component (for example, SMDC, or SMUI) and the version of the BPE modules.

X'0A'

The BPE SVC routine (BPESVC00) could not be installed.

X'0B'

The BPE resource manager (BPERSM00) could not be established.

System action

The address space is abnormally terminated.

User response

Take the appropriate action based on the subcode you received.

For subcodes X'01' through X'05' and X'07' through X'0B', the problem is one of the following:

- An environmental error, such as missing modules in IMS.SGJELoad or a storage shortage in the address space.
- An internal error within BPE, or IMS SM

Messages that further explain the reason for the error might precede this abend. Refer to the job log output from the failed job for explanatory messages.

If you cannot determine and correct an environmental cause for the problem, save any dump and SYSLOG information, and contact IBM Software Support.

For subcode X'06': Although this abend can result from internal or environmental errors, its most probable cause is a problem with the BPE configuration PROCLIB member. If BPE cannot find or read the member, abend U3400 follows message BPE0002E, which indicates the problem. Correct the problem and restart the IMS SM component address space.

If there is an error parsing the member, this abend follows message BPE0003E, which indicates where in the member the error occurred. Correct the configuration member and restart the IMS SM component address space.

For subcode X'09': This abend occurs when the IMS SM component modules (for example, IMS Sysplex Manager modules beginning with GJE and BPE modules beginning with BPE) in your STEPLIB data sets are at different versions. This abend follows message BPE0013E, which indicates the different levels of the BPE modules. Ensure that you are running the correct level of BPE modules.

Module

BPEINITO

3401

Explanation

An error during the initialization of a new TCB in the IMS SM component address space prevented the TCB from starting. Register 15 at the time of abend contains a subcode that can be used to determine the reason for the abend. Subcodes are:

X'01'

BPESYINO could not establish an ESTAE recovery routine.

X'02'

A request to obtain a stack block for the TCB initialization failed.

X'03'

BPE could not initialize the BPE internal dispatcher for the new TCB.

X'04'

A lower-level TCB initialization module could not complete initialization because of an error or unexpected condition.

X'05'

BPE could not create an internal server that runs under the new TCB.

X'06'

BPE could not load a lower-level TCB initialization module, and therefore could not complete the initialization of the new TCB's environment.

System action

If the TCB being created is not a required TCB, the IMS SM component address space continues to function; otherwise, the IMS component address space is abnormally terminated.

User response

The problem is one of the following:

- An internal error within BPE, or IMS SM
- An environmental error, such as missing modules in IMS.SGJELoad, or a storage shortage in the address space

Messages that further explain the reason for the error might precede this abend. Refer to the job log output from the failed job for explanatory messages.

If you cannot determine and correct an environmental cause for the problem, save any dump and SYSLOG information, and contact IBM Software Support.

Module

BPESYINO

3402

Explanation

An error occurred during the termination of a TCB in the IMS SM component address space. Register 15 at the time of abend contains a subcode that can be used to determine the reason for the abend. Subcodes are:

X'01'

A routine involved in the cleanup process for the terminating TCB encountered an error that prevented the cleanup from completing.

X'02'

A routine involved in the cleanup process for the IMS SM component address space encountered an error that prevented the cleanup from completing.

X'03'

BPE could not start required processes to terminate subtask TCBs under the TCB that was terminating.

System action

If the TCB being terminated is not a required TCB, the IMS SM component address space continues to

function. If the TCB is required, or if the IMS SM component address space is in the process of being shut down, the IMS SM component address space is abnormally terminated.

User response

The problem is one of the following:

- An internal error within BPE or IMS SM
- An environmental error, such as missing modules in IMS.SGJELoad or a storage shortage in the address space

Messages that further explain the reason for the error might precede this abend. Refer to the job log output from the failed job for explanatory messages.

If you cannot determine and correct an environmental cause for the problem, save any dump and SYSLOG information, and contact IBM Software Support.

Module

BPESYTR0

4095

Explanation

BPE issues this abend once for each TCB in the address space when an unrecoverable abend occurs and it is necessary to abnormally terminate the address space.

System action

The IMS SM component address space is abnormally terminated.

User response

BPE issues this abend after one of the address space's TCBs has an unrecoverable abend. It is used to abnormally terminate the remaining TCBs; it is not itself part of the original problem. Examine the job log output for the first TCB to abend with a code other than 4095 in order to determine the cause of the subsequent 4095 abends.

Chapter 35. BPE service return codes

This reference section provides detailed information about service return codes issued by Base Primitive Environment (BPE). Use this information to help you with troubleshooting.

BPEATTCH

Destination

Attach a TCB.

Return code

Explanation

X'00000004'

The TCB index passed to BPEATTCH was not a valid index.

X'00000008'

There is no TCB type of the requested type defined to BPE.

X'0000000C'

A new TCB of the indicated type could not be attached because there were no available entries for it in the BPE TCB table. The maximum number of TCBs of this type is already attached.

X'00000010'

The MVS ATTACH for the new TCB failed.

X'00000014'

The caller is a non-thread running under the parent TCB of the TCB that was requested to be attached. This is not a valid environment for the BPEATTCH call.

X'00000020'

Internal processing error: The enqueue of an AWE to the TCB attach processor for the requested TCB type failed.

X'00000024'

Internal processing error: The BPEWAIT for a response from the TCB attach processor for the requested TCB failed.

X'00000028'

Internal processing error: The routine called by BPEATTCH enqueued an AWE to the TCB attach processor for the requested TCB; however, the DDB address it saved in the AWE was invalid, and the attach processor rejected the attach request.

X'0000002C'

Internal processing error: The routine called by BPEATTCH enqueued an AWE to the TCB attach processor for the requested TCB; however, the TCB attach processor rejected the AWE because it contained an invalid function code.

X'00000030'

Internal processing error: BPEATTCH was unable to obtain a DQCB (Dispatcher Queue Control Block) for the new TCB -- the BPECBGET call for the DQCB failed.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPEAWSRV

Destination:

Return code

Explanation

X'00000004'

The CREATE request for an AWE server was successful for at least one, but not all, of the requested AWE servers.

X'00000008'

Unable to create a thread for an AWE server. The Thread CREATE service, BPETHDCR, failed.

X'0000000C'

Unable to obtain an AQCB block for an AWE server being created.

X'00000010'

The BPE TCB token, that passed the TCBTKN parameter for an AWE server CREATE request, was not a valid token.

X'00000020'

AQHE passed to create routine was not a valid AQHE. This is likely an internal processing error.

X'00000024'

BPEAWSRV could not determine the TCB under which it should create the server. The TCB is determined by the value of TCBTKN on this macro, or by the value of the TCBTYPE on the BPEAWDEF macro when the queue server is defined. If neither of these parameters are coded, then the server create function does not know under what TCB to create the server thread.

X'00000028'

If AWEIDX was specified, the value passed was not a valid AWE server index. If TYPE was

specified, the type indicated was not a valid AWE server type according to the AWE server definition module. For BPE AWE servers, macro BPEAWIX and module BPEAQHT0 are probably out of sync. For user-product AWE servers, the user-product type definition macro and module are probably out of sync.

X'0000002C'

The NUMTHDS parameter specified an invalid number of threads. It must specify a number from 1 to 255.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPEBPCRE

Destination

Create a buffer pool.

Return code

Explanation

X'00000004'

The value specified on the INCREMENT parameter was zero or negative.

X'00000008'

The value specified on the MINBUF parameter was zero or negative.

X'0000000C'

The value specified on the MAXBUF parameter was less than the MINBUF value.

X'00000010'

The value specified on the PRIMARY parameter was negative.

X'00000014'

The value specified on the UPPERLIMIT parameter was less than the PRIMARY or MAXIMUM values.

X'00000018'

The subpool specified on SP was invalid or not supported.

X'0000001C'

The buffer format specified on the FORMAT parameter is not a valid format for the current version of the buffer create service.

X'00000020'

Either the pointer to the 4-character buffer pool type string was zero, or the string was all blanks or all nulls.

X'00000024'

A buffer pool of the type specified on the TYPE parameter has already been created. The token of the already-existing pool is returned in the location indicated by the TOKEN parameter.

X'00000040'

A BPEGETM call failed for control block storage for the new buffer pool.

X'00000044'

A BPEGETM call failed for the primary allocation of buffer storage.

X'00000048'

BPELOAD failed for one or more of the BPE buffer manager service modules for the requested pool format.

X'0000004C'

A BPELAGET call failed when trying to get the buffer pool create/destroy latch.

X'00000050'

An abend occurred in buffer pool create processing. The buffer pool was not created.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPEBPGET

Destination

Get a buffer from a buffer pool.

Return code

Explanation

X'00000004'

No buffer could be obtained because the pool is at its upper limit.

X'00000008'

No buffer could be obtained because a BPEGETM call for buffer storage failed.

X'00000020'

The value specified on the SIZE parameter was zero or negative.

X'00000024'

The value specified on the PREFIX was not between 0 and 256.

X'00000028'

A nonzero value was specified on the PREFIX parameter, but the buffer pool was not created with FORMAT=PREFIX.

X'0000002C'

The address of the word to receive the returned buffer address (BUFFERPTR) was not valid (it was in the first 4K of storage).

X'00000030'

The token passed to BPEBPGET was not a valid token for any BPE-managed buffer pool.

X'00000034'

A page-fixed buffer with a length greater than 100 pages was requested. BPEBPGET limits page-fixed buffers to 100 pages (409,600 bytes) or fewer.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPECBGET**Destination**

Get a control block.

Return code**Explanation****X'00000004'**

A bad CBTE address was passed to the CB get routine. The get routine validates that the CBTE address it is passed has the character string "CBTE" as the first word of the block. If it does not, this return code is passed back to the caller. This is likely an internal systems error of some kind.

X'00000008'

Storage was unavailable to satisfy the request.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPECMSRV**Destination**

Submit a command for processing.

Return code**Explanation****X'00000020'**

The command was rejected by the command action routine and was not processed.

X'00000024'

The command failed.

X'00000028'

Unknown command.

X'0000002C'

Missing command verb.

X'00000040'

Bad command pointer. The address of the command passed to BPECMSRV was zero.

X'00000044'

Bad command length. The length of the command passed to BPECMSRV was zero.

X'00000048'

Bad BPEWPRNT exit parameter list length. The length of an exit parameter list passed to BPECMSRV was zero or negative.

X'0000004C'

The BPECMSRV caller was not running as a BPE thread.

X'00000060'

BPE was unable to get the necessary working storage to process the command.

X'00000064'

BPE was unable to create a new thread to process the command.

X'00000068'

BPE could not process the command because a BPEPOST call to start the command processing thread failed.

X'0000006C'

BPE could not process the command because a BPELAGET call for a latch to serialize the command failed.

X'00000070'

The command action module that processed the command returned an undefined return code to BPE. The result of the command processing is not known.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro to module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro to module mismatch.

BPEGETM

Destination

GETMAIN storage.

Return code

Explanation

X'00000004'

An invalid or unsupported subpool was specified.

X'00000008'

A zero (or negative) length was requested.

X'0000000C'

Unable to obtain the requested storage (MVS GETMAIN failed).

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPELAGET

Destination

Get a latch.

Return code

Explanation

X'00000004'

The latch was not obtained because it was owned in exclusive mode by another caller (WAIT=NO only).

X'00000008'

The latch was not obtained because it was owned in shared mode by one or more callers (WAIT=NO only).

X'0000000C'

A request for a latch in shared mode was not granted because there was a waiter for the latch in exclusive mode (WAIT=NO only).

X'00000010'

The latch was successfully obtained in exclusive mode, and was transferred from another thread to the current thread.

X'00000020'

The latch was not obtained because the caller already owns the latch in exclusive mode.

X'00000024'

The latch was not obtained because the latch services module was unable to WAIT the caller. This is usually due to an error in the caller's environment: either the caller is not in TCB mode, or the caller's ECB is already WAITing.

X'00000028'

A request was not granted for a latch in shared mode because the latch had been transferred to the caller's ECB by another thread; for this reason the request must be in exclusive mode.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPELAREL

Destination

Get a control block.

Return code

Explanation

X'00000004'

The latch was not released because it is owned in exclusive mode by the caller.

X'00000008'

The latch was not released because it is owned in exclusive mode by another caller.

X'0000000C'

The latch was not released because it is owned in shared mode by one or more other callers.

X'00000010'

The latch was not released because it is not owned.

X'00000014'

The latch was not transferred because the ECB, to which the latch was to be transferred, was waiting to get the latch in shared mode.

X'00000018'

The latch was released (MODE=EX), but a protocol error may have occurred. The latch had been transferred to the caller's ECB from a different ECB, but the caller had never accepted the latch.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro or module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro or module mismatch.

BPELOAD

Destination

Load a module.

Return code

Explanation

X'00000004'

For a list-form load (MODLIST), at least one of the modules in the list had an error.

X'0000000C'

Specified module was not found.

X'00000010'

BLDL for module failed. This error is most likely due to an internal error with BLDL, such as an out-of-storage condition.

X'00000014'

Load of module failed. The module was found in the library, but LOAD returned a nonzero return code.

X'00000028'

TCB=JSTP required an AWE to be queued to JSTP TCB for LOAD processing, and the AWE enqueue failed.

X'00000030'

Internal failure in load processing.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPELOADC

Destination

Load/call/delete a module.

Return code

Explanation

X'00000004'

The LOAD and call of the module were successful, but the subsequent DELETE of the module failed. The return code that the module passed back in register 15 is in the word or register specified by MODRC.

X'00000008'

The module specified on EP or EPLOC could not be loaded. The contents of the word or register specified by MODRC is undefined.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPEPARSE

Destination

Parse data.

Return code

Explanation

X'00000004'

The parser definition grammar passed on PADEF was not a valid BPEPADEF grammar.

X'00000008'

The control block storage passed on CBSTG was not big enough to contain the control blocks that needed to be built to contain the parsed input data. Issue BPEPARSE again with a larger amount of CBSTG storage. Note that the data in the CBSTG area is incomplete, and should not be used.

X'0000000C'

The CBSTG address passed to the parsing service was zero.

X'00000010'

The input data address passed to the parsing service was zero.

X'00000014'

An internal error occurred in the parsing service.

X'00000040'

An invalid keyword was detected in the input data.

X'00000044'

An unknown positional parameter was encountered in the input.

X'00000048'

A keyword parameter was specified with only an equal sign (KEYWORD=value), but the keyword was defined as having a sublist of values. Sublists can only be specified in parenthesis. An equal sign can only be used by itself (for example, with no parentheses) if a keyword has a single value.

X'0000004C'

The input ended before all of a sublist or keyword had been parsed.

X'00000050'

A keyword was encountered (KEYWORD or KEYWORD=) when a value was expected.

X'00000054'

An input number being parsed was out of the range allowed for its output field length. For decimal numbers, the numbers must be less than or equal to 255, 65535, 16777215, and 2147483647 for 1, 2, 3, and 4 byte fields, respectively. For

hexadecimal numbers, the number may not have digits more than 2 times the number of bytes in the output field.

X'00000058'

A parameter value defined as decimal contained non-decimal digits.

X'0000005C'

A parameter value defined as hex contained non-hex digits.

X'00000060'

A parameter value defined as a key value parameter had an unknown key value.

X'00000064'

A keyword parameter was seen multiple times and was not defined as being repeatable (REPEAT=YES on BPEPADEF).

X'00000068'

A parameter defined with REQUIRED=YES on BPEPADEF was not found in the input data (omitted).

X'0000006C'

A character parameter value was longer than the defined output field length, and the parameter definition did not specify TRUNC=YES on BPEPADEF to allow truncation.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPERDPDS

Destination

Read a PDS member.

Return code

Explanation

X'00000004'

The member name address passed to the read PDS routine was 0.

X'00000008'

The output buffer pointer address passed to the read PDS routine was 0.

X'0000000C'

The output buffer length word address passed to the read PDS routine was 0.

X'00000010'

The value specified on the RIGHTMAR parameter was either negative or not less than the actual LRECL of the data set.

X'00000040'

OPEN failed for the PDS.

X'00000044'

The PDS specified was not in fixed format.

X'00000048'

The member specified on the MEMBER parameter was not in the PDS.

X'0000004C'

A BSAM READ for the specified member failed.

X'00000050'

Unable to obtain storage for a buffer to hold the PDS data.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPESVC

Destination:

Return code

Explanation

X'00000004'

The BPE SVC routine was unable to GETMAIN storage for an internal work area. R0 = return code from GETMAIN.

X'00000008'

The BPE SVC routine could not establish a recovery environment using the MVS ESTAE macro. R0 = return code from ESTAE.

X'0000000C'

The BPE SVC routine could not locate its main control block (the BPESVCA block). This is likely due to errors initializing the BPE SVC routine or other BPE system services.

X'00000010'

An invalid SVC function code was passed to the BPE SVC routine in register 0. R0 contains the invalid function code.

X'00000014'

The BPE SVC function requested requires the caller to be authorized (supervisor state and key 0-7), and the caller was not authorized.

X'00000018'

An abend occurred in the BPE SVC module BPESVC00. R0 contains the abend code.

X'0000001C'

The address for the name of the named function was zero (REGISTER, DEREGISTER, CALL).

X'00000020'

The BPE SVC module was unable to get a SYSTEM level ENQ on the resource SYSZBPE SVCNFHTB, which is required in order to serialize the named function hash table. R0 = the return code from the ENQ macro.

X'00000024'

The named function indicated could not be found (QUERY, REGISTER, DEREGISTER, CALL).

X'00000040'

The PSW key indicated for the named function being registered was not in the range 0-7. Named function routines must run in a system key (REGISTER).

X'00000044'

The BPE SVC routine could not obtain storage for an SVC Function Block (SVCF) for the function being registered. R0 = return code from GETMAIN (REGISTER).

X'00000048'

The named function being registered is already registered and the REPLACE parameter did not allow it to be replaced (REGISTER).

X'00000060'

The named function that was requested to be called requires the caller to be authorized (supervisor state, key 0-7), and the caller was not authorized (CALL).

X'00000064'

The BPE SVC routine could not obtain work area storage for the named function routine to be called. R0 = return code from GETMAIN (CALL).

X'00000080'

The STOKEN address passed to the EOMCLEANUP function was zero (EOMCLEANUP).

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPESVCIO**Destination**

Initialize the BPE SVC module.

Return code**Explanation****X'00000004'**

Unable to load INIT routine BPESVCIO to initialize the BPE SVC.

X'00000008'

ESTAE create failed for ESTAE for BPESVCIO. R0 = return code from ESTAE.

X'0000000C'

BLDL failed for BPE SVC module. R0 = return code from BLDL.

X'00000010'

GETMAIN failed for storage for the SVC module. R0 = return code from GETMAIN.

X'00000014'

LOAD failed for the SVC module. R0 = return code from LOAD.

X'00000018'

Exclusive ENQ on resource name SYSZBPE SVCUPDTE failed. R0 = return code from ENQ.

X'0000001C'

Exclusive ENQ on SYSZSVC TABLE failed. R0 = return code from ENQ.

X'00000020'

Unable to find MVS ECVTCTBL (CVT to CVTECVT to ECVTCTBL = 0).

X'00000024'

GETMAIN failed for BPE Global Function Vector Table (BPEGFVT) block. R0 = return code from GETMAIN.

X'00000028'

GETMAIN failed for SVC control area (SVCA) block. R0 = GETMAIN return code.

X'0000002C'

SVCUPDTE failed for the BPE SVC. R0 = SVCUPDTE return code.

X'00000040'

An ABEND occurred while initializing the SVC. R0 = the abend code.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPETCBSW**Destination**

Switch execution to a new TCB.

Return code**Explanation****X'00000000'**

The thread was successfully switched.

X'00000004'

An invalid TCB token was passed on TCBTKN.

X'00000008'

An invalid TCB index was passed on TCBIDX.

X'0000000C'

An invalid TCBT address was passed.

X'00000010'

The caller is not running under a BPE thread.

X'00000014'

The TCB specified by TCBTKN (or TCBTKNPTR) does not exist.

X'00000018'

A non-pool TCB type with multiple TCBs was specified on either TCBTYPE or TCBIDX.

X'000000F8'

The requested function is not present in the BPE system at run time. This situation is likely due to a macro or module mismatch.

X'000000FC'

The parameter list generated by the macro is not supported by the service routine that was called. This situation is likely due to a macro or module mismatch.

BPETHDCR**Destination**

Create a thread.

Return code**Explanation****X'00000004'**

Create failed: An invalid BPE TCB token was passed on the TCBTKN parameter.

X'00000008'

Create failed: A bad TCB index value was passed on the TCBIDX parameter.

X'0000000C'

Create failed: A zero routine address was passed on the ROUTINE parameter.

X'00000010'

Create failed: A bad TCB table entry address was passed into the thread create routine. The BPETHDCR macro determines the TCBT address based on whichever of the TCBIDX, TCBTKN, or TCBTYPE parameters is specified. Ensure that this parameter is correctly coded.

X'00000014'

Create failed: Unable to get storage for a Thread Control Block (THCB) for the thread.

X'00000018'

Create failed: Unable to get stack storage for the thread.

X'0000001C'

Create failed: The initial POST of the thread failed.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPETIMER**Destination**

Issue a timer request.

Return code**Explanation****X'00000004'**

FUNC=TIMER request was canceled.

X'00000008'

The request was canceled because the timer service has been shutdown.

X'0000000C'

FUNC=CANCEL request failed because no outstanding timer request with a matching token could be found.

X'00000010'

The timer AWE enqueued to the timer service contained an invalid function code.

X'00000014'

The FUNC=TIMER request indicated that the expiration value was specified as TOD. The current version of timer services does not support TOD=.

X'00000018'

The DINTVL parameter contained a non-decimal digit.

X'00000020'

The minutes field in the DINTVL parameter was greater than 59. It must be between 0 and 59.

X'00000024'

The seconds field in the DINTVL parameter was greater than 59. It must be between 0 and 59.

X'00000028'

The FUNC=TIMER request could not be processed because the timer service could not get storage for a timer queue element (TQUE) for the request.

X'0000002C'

The BPETIMER request failed: MVS STIMER service returned a nonzero return code.

X'00000080'

Unable to obtain an AWE from control block services (BPECBGET) to initiate timer request. Register 0 contains the return code from BPECBGET. No timer request was issued.

X'00000084'

Unable to enqueue initiate timer request. AWE enqueue to timer server failed. R0 contains the return code from BPEAWSRV FUNC=ENQ. Note that the state of the AWE is indeterminate. It is probably on an AWE queue, but it may or may not be processed.

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPETRSRV**Destination**

Request trace services.

Return code
Explanation**X'00000004'**

There is no trace table of the requested type defined to BPE.

X'00000008'

Input trace token was not valid or was not for a trace table of the indicated type. (FUNC=DELETE, GETUDATA, SETUDATA)

X'0000000C'

The trace table specified was not defined as a trace type that supports multiple trace tables. The CREATE and DELETE functions may be issued only for trace types that were defined as multiple types. See BPETRDEF and BPETRIX for further information. (FUNC=CREATE and DELETE)

X'00000010'

The user data address passed on USERDATA was invalid (less than 00001000). (FUNC=GETUDATA and SETUDATA)

X'00000014'

The trace table specified does not support user data (UDATALEN was not specified or specified zero on the trace table's BPETRDEF definition). (FUNC=GETUDATA and SETUDATA)

X'00000030'

Unable to get the storage required for a trace table header entry for the new trace table. (FUNC=CREATE)

X'00000034'

Unable to get the storage required for the new trace table. (FUNC=CREATE)

X'000000F8'

The requested function is not present in the BPE system at execution time. This is likely due to a macro/module mismatch.

X'000000FC'

The parameter list version generated by the macro is not supported by the called service routine. This is likely due to a macro/module mismatch.

BPEUXRFO**Destination**

Load user exits.

Return code
Explanation**X'00000001'**

Couldn't read BPE PROCLIB (Rsn code = BPERDPDS RC)

X'00000002'

Couldn't read user-product PROCLIB (Rsn code = BPERDPDS RC)

X'00000003'

BPEGETM failed for BPE parse data area (Rsn code = BPEGETM RC)

X'00000004'

BPEGETM failed for BPE parse data area (Rsn code = BPEGETM RC)

X'00000005'

BPEPARSE failed for BPE exit list PROCLIB member (Rsn code = BPEPARSE RC)

X'00000006'

BPEPARSE failed for user prod exit list PROCLIB member (Rsn code = BPEPARSE RC)

X'00000010'

BPECBGET failed for a UIBX block (Rsn code = BPECBGET RC)

X'00000011'

BPELAGET failed for global user exit latch (UXRF_Lhdr) (Rsn Code = BPELAGET RC)

X'00000012'

User exit refresh failed due toabend in refresh processing (Rsn code =abend code)

X'00000013'

BPECBGET failed for a static work area for a user exit module (Rsn code = BPECBGET RC)

X'00000014'

BPEGETM failed for storage for a user exit module (Rsn code = BPEGETM RC)

X'00000015'

BLDL failed for a user exit module (Rsn code = BLDL RC)

X'00000016'

LOAD failed for a user exit module (Rsn code =
LOAD RC)

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